Public Summary: **Final Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California, August 2012**

The Department of the Navy (Navy) has prepared a Feasibility Study (FS) Report for Parcel E, Hunters Point Shipyard (HPS) in San Francisco, California. Parcel E includes about 139 acres of relatively flat shoreline and lowland coast along the southwestern portion of HPS. Previous environmental investigations have identified chemicals in soil, shoreline sediment, and groundwater at Parcel E that pose a risk to future site workers and occupants, as well as wildlife. This FS Report develops and evaluates cleanup alternatives to address risks to humans and wildlife, as identified in the Revised Remedial Investigation Report for Parcel E. This FS Report addresses only non-radioactive chemicals. The Navy is preparing an addendum to the FS Report to evaluate radiological contamination and risk to humans and wildlife, as well as to develop cleanup alternatives to address the radiologically impacted sites identified in the 2004 Historical Radiological Assessment.

The Navy evaluated cleanup alternatives for the following contaminated media: (1) soil throughout Parcel E; (2) sediment along the Parcel E shoreline; (3) groundwater at previously identified contaminant plumes; and (4) nonaqueous-phase liquids (NAPL) at the former oil reclamation ponds. The cleanup alternatives consist of one or more of the following actions:

- Excavation and off-site disposal of soil at select locations
- Covers, institutional controls, and shoreline protection to prevent exposure to soil throughout Parcel E and sediment along the Parcel E shoreline
- In-situ treatment of contaminated soil and groundwater at select locations
- Groundwater containment, institutional controls, and long-term monitoring at previously identified contaminant plumes
- Containment, treatment, or removal (or combination of the three actions) of NAPL at the former oil reclamation ponds

Information Repositories: A complete copy of the "Final Feasibility Study Report for Parcel E," dated August 2012, is available to community members at:

San Francisco Main Library
100 Larkin Street
Government Information Center, 5th Floor
San Francisco, CA 94102
Phone: (415) 557-4500

Hunters Point Shipyard Office Trailer
690 Hudson Street
San Francisco, CA 94124

The report is also available to community members on request to the Navy. For more information about environmental investigation and cleanup at HPS, contact Keith Forman, BRAC Environmental Coordinator for the Navy, at:

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Final

Feasibility Study Report for Parcel E

Hunters Point Shipyard
San Francisco, California

August 2012

Prepared for:
Department of the Navy
Base Realignment and Closure
Program Management Office West
San Diego, California

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Final
Feasibility Study Report for Parcel E
Hunters Point Shipyard, San Francisco, California

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Submitted by:
Engineering/Remediation Resources Group, Inc.

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CERTIFICATION

This document was prepared under the direction and
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Acronyms and Abbreviations

§	Section
µg/L	micrograms per liter
ACHP	Advisory Council on Historic Preservation
ARARs	applicable or relevant and appropriate requirement
ARIC	area requiring institutional control
ASTs	aboveground storage tanks
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Comprehensive Water Quality Control Plan for the San Francisco Bay Basin
BCT	Base Realignment and Closure Cleanup Team
BERA	baseline ecological risk assessment
BGMP	Basewide Groundwater Monitoring Program
bgs	below ground surface
BMPs	best management practices
BRAC	Base Realignment and Closure
Cal. Code. Regs.	California Code of Regulations
CCSF	City and County of San Francisco
CDM	CDM Federal Programs Corporation
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COCs	chemicals of concern
COECs	chemicals of ecological concern
COPCs	chemicals of potential concern
COPECs	chemicals of potential ecological concern
CSM	conceptual site model
CTE	central tendency exposure
DCA	dichloroethane
DCB	dichlorobenzene
DCE	dichloroethene
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DoD	U.S. Department of Defense

DQOs	data quality objectives
DTSC	Department of Toxic Substance Control
EPA	U.S. Environmental Protection Agency
EPCs	exposure point concentrations
ERA	ecological risk assessment
ERH	electrical resistive heating
FFA	Federal Facilities Agreement
FS	Feasibility Study
ft/day	feet per day
ft/ft	feet per foot
ft/yr	feet per year
GAC	granular activated carbon
GCL	geosynthetic clay liner
GHG	greenhouse gas
GRAs	general response actions
GSR	green and sustainable remediation
GWTS	groundwater treatability study
HDPE	high-density polyethylene
HGAL	Hunters Point groundwater ambient levels
HHRA	human health risk assessment
HI	hazard index
HLA	Harding Lawson Associates
HPALs	Hunters Point ambient levels
HPCDD	heptachlorodibenzo-p-dioxin
HPS	Hunters Point Shipyard
HQ	hazard quotient
HRA	Historical Radiological Assessment
HRC	hydrogen release compound
IR	Installation Restoration
ISB	in-situ bioremediation
ITSI	Innovative Technical Solutions, Inc.
LFR	Levine-Fricke-Recon
LLRW	low-level radioactive waste
LUC RD	land use control remedial design

MCLs	maximum contaminant levels
MCLG	maximum contaminant level goal
MDAS	material documented as safe
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MNA	monitored natural attenuation
MOA	Memorandum of Agreement
MPPEH	material potentially presenting an explosive hazard
msl	mean sea level
NAPL	nonaqueous-phase liquid
NAVSEA	Naval Sea Systems Command
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NO_x	nitrogen oxide
NRDL	Naval Radiological Defense Laboratory
O&M	operation and maintenance
ORC	oxygen release compound
PAHs	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PECDD	pentachlorodibenzodioxin
PECDF	pentachlorodibenzofuran
POC	point of compliance
POTW	publicly owned treatment works
PPE	personal protective equipment
PQL	practical quantitation limit
PRC	PRC Environmental Management, Inc.
PRG	preliminary remediation goal
PSCs	protective soil concentrations
RAOs	remedial action objectives
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RI	Remedial Investigation
RME	reasonable maximum exposure
RMP	risk management plan
ROD	Record of Decision

RROs	radiological remedial objectives
RSRS	Radiological Survey and Remedial Service, LLC
SCS	U.S. Soil Conservation Service
SDWA	Safe Drinking Water Act
SFRA	San Francisco Redevelopment Agency
SGALs	soil gas action levels
Shaw	Shaw Environmental, Inc.
SHPO	State Historic Preservation Office
SLERA	screening-level ecological risk assessment
SO_x	sulfur oxide
SSFs	site specific factors
SVE	soil vapor extraction
SVOCs	semivolatile organic compound
SWAQAT	solid waste air quality assessment test
SWRCB	State Water Resources Control Board
TCE	trichloroethene
TDS	total dissolved solids
tit.	Title
TMSRA	Technical Memorandum in Support of a ROD Amendment
TPH	total petroleum hydrocarbons
Triple A	Triple A Machine Shop, Inc.
TRVs	toxicity reference value
TtECI	Tetra Tech EC, Inc.
TtEMI	Tetra Tech EM Inc.
U&A	Uribe and Associates, Inc.
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USTs	underground storage tanks
UXO	unexploded ordnance
VOCs	volatile organic compounds
Water Board	San Francisco Regional Water Quality Control Board
WDRs	waste discharge requirements
WQOs	water quality objectives
ZVI	zero-valent iron

Executive Summary

This Feasibility Study (FS) Report is part of ongoing efforts by the Department of the Navy (Navy) to address contamination at Parcel E within Hunters Point Shipyard (HPS) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Title 42 United States Code Sections 9601-9675). The FS is a mechanism for developing, screening, and evaluating remedial alternatives to address risk identified during a remedial investigation (RI) under the CERCLA process. The purpose of this FS Report for Parcel E is to evaluate remedial alternatives applicable at Parcel E based on the findings of the Revised RI Report (Barajas & Associates, Inc., 2008b) and additional data collected since December 2004. Additional data collected include (1) analytical results of confirmation soil samples collected during recently completed removal actions, (2) groundwater data from the ongoing monitoring program, and (3) baseline groundwater characterization data from groundwater treatability studies at Parcel E. The Base Realignment and Closure Cleanup Team (BCT) will use this FS Report to assist in evaluating the appropriate remedial actions for Parcel E to allow transfer of the property to the City and County of San Francisco. A radiological addendum to the FS Report is being prepared to evaluate the nature and extent of radiological contamination and risk to human health and the environment, as well as to develop alternatives to address the radiologically impacted sites identified in the Historical Radiological Assessment (HRA) (Naval Sea Systems Command, 2004). As defined in the HRA, radiologically impacted sites have the potential for radioactive contamination based on historical information or are known to contain or have contained radioactive contamination.

PARCEL E HISTORY AND ENVIRONMENTAL SETTING

Parcel E includes about 139 acres of relatively flat shoreline and lowland coast along the southwestern portion of HPS (Figure ES-1). Parcel E is bounded to the north by non-Navy property; to the east by Parcels D-1, G, and UC-1; to the south by intertidal shoreline areas along San Francisco Bay; and to the west by Parcel E-2 and non-Navy-property. Parcel E contains 44 buildings, 3 ship berths, and 1 pier.

Historically, most of Parcel E was used as an industrial support area, consisting of supply and public works facilities for HPS. Shoreline areas at Parcel E were used to store construction and industrial materials, as well as to dispose of industrial waste and construction debris. The Naval Radiological Defense Laboratory (NRDL) used several Parcel E buildings during the 1950s and 1960s to conduct practical and applied research on radiation decontamination methods and on the effects of radiation on living organisms and natural and synthetic materials. The NRDL ceased operations in 1969. Many

operations conducted by the Navy at Parcel E are well documented, including the locations where routine and planned activities and waste disposal occurred. Undocumented activities also may have been conducted, such as storage of materials and equipment, short-term industrial activities, and waste disposal.

Historically, environmental investigations at HPS were performed at individual Installation Restoration (IR) sites (Figure ES-2). Parcel E includes 21 IR sites associated with former shipyard operations: IR-02 Central, IR-02 Northwest, IR-02 Southeast, IR-03, IR-04, IR-05, IR-08, IR-11/14/15, IR-12, IR-13, IR-36 North, IR-36 South, IR-36 West, IR-38, IR-39, IR-40, IR-52, IR-54, IR-56, IR-72, and IR-73. Sites IR-08, IR-36 North, IR-36 South, IR-36 West, IR-38, and IR-39 were initially located in Parcel D and addressed in the original Parcel D RI Report. Sites IR-36 North, IR-36 South, and IR-36 were added to Parcel E in 1998, and IR-08, IR-38, and IR-39 were added to Parcel E in 2005. Parcel E also includes four IR sites that were established for the former utility network at HPS: IR-45 (steam line system), IR-47 (fuel distribution lines), IR-50 (storm drain and sanitary sewer systems), and IR-51 (former electrical transformer locations). The portions of the IR-45, IR-47, IR-50, and IR-51 located on Parcel E are illustrated on Figures 2-1 and 2-2.

Based on the amended redevelopment plan for HPS (San Francisco Redevelopment Agency [SFRA], 2010c), the Navy subdivided the two reuse areas in Parcel E into redevelopment blocks to facilitate data presentation in this FS Report (see Figure ES-2). The blocks and their proposed reuse are listed below. Each of the zoning designations listed below is defined in Section 2.1.2 of the FS.

- Redevelopment Blocks MU-1, MU-2, and MU-3 are part of the Shipyard South Multi-Use District that is planned for Mixed Use
- Redevelopment Blocks EOS-1 through EOS-4, EOS-5A, EOS-5B, and EOS-5C are part of the Shipyard Shoreline Open Space Land Use District that is planned for open space
- The railroad right-of-way comprising IR-52 is part of the City and County of San Francisco's redevelopment plan for the Bayview Hunters Point redevelopment project adjoining HPS (SFRA, 2010b), and is planned for predominantly light industrial reuse.

Land at HPS consists of relatively level lowlands constructed by excavating portions of surrounding hills and placing nonengineered fill materials along the margin of San Francisco Bay. The remaining land is a moderate to steep sloping, northwest-trending ridge. Parcel E is located in the lowlands with surface elevations ranging from 0 to 12 feet above mean sea level (msl); predominant ground surface elevations range from 7 to 10 feet above msl.

The only surface water features within Parcel E are wetlands areas located along the shoreline. Surface water at HPS drains to the San Francisco Bay primarily as sheet flow from either the highlands of the former Parcel A to the surrounding lowlands or from the lowlands themselves. In Parcel E, runoff is primarily collected by the storm drain system and is discharged to the bay through three stormwater

discharge outfalls. The existing storm drain system remains in place and is functioning; however, the Navy is in the process of removing the existing sanitary sewer and storm drain lines across HPS under a basewide removal action to address potential radioactive contamination (Navy, 2006a).

About 30 percent of Parcel E is ruderal habitat characterized by scattered shrubs and grasses, and about 65 percent is covered by pavement with some sparse vegetation. Ruderal and landscaped habitats at HPS typically support resident and migratory birds common to urban areas of northern California. The following special-status bird species were observed at HPS during previous surveys: peregrine falcon (*Falco peregrinus*), a state fully protected species; double-crested cormorant (*Phalacrocorax auritus*), a state species of special concern; and loggerhead shrike (*Lanius ludovicianus*), a state species of special concern. No special-status plants, mammals, reptiles, amphibians, or invertebrates are expected to be present within the terrestrial habitat at Parcel E. The remaining 5 percent of Parcel E consists of beach areas, intertidal areas, and wetland areas.

Five geologic units underlie HPS: four unconsolidated sedimentary deposits of Quaternary age and the Jurassic-Cretaceous-age Franciscan Complex bedrock. In general, the stratigraphic sequence of these geologic units, from youngest (shallowest) to oldest (deepest), is as follows:

1. Artificial Fill (Qaf)
2. Undifferentiated Upper Sands (Quus)
3. Bay Mud (Qbm)
4. Undifferentiated Sediments (Qu)
5. Bedrock (Kf)

The hydrostratigraphic units at Parcel E are the A-aquifer, the B-aquifer, and the bedrock water-bearing zone. Sections 2.2.6 and 2.2.7 of this FS Report provide more detail on each geologic and hydrostratigraphic unit, respectively, at Parcel E.

NATURE AND EXTENT OF CONTAMINATION

Investigation and Removal Action Summary

Environmental investigations and removal actions performed from 1984 to 2004 were described and evaluated in detail in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b). The Revised RI Report evaluated data collected through December 2004. Since that time, removal actions have been performed in IR-02 Northwest and Central Excavation Area, the Metal Debris Reef Area in IR-02 Southeast, and the Polychlorinated Biphenyl (PCB) Hotspot Area (located primarily in Parcel E-2 but extending slightly into IR-02 Northwest). Additionally, groundwater data have been collected on a quarterly basis as part of the Basewide Groundwater Monitoring Program (BGMP). Previous

environmental investigations and removal actions at Parcel E are listed in the following table. Removal and cleanup actions associated exclusively with fuel-related products, petroleum underground storage tanks (USTs), and aboveground storage tanks (ASTs) are being evaluated in the TPH corrective action program and are not addressed in this FS report.

Environmental Investigations	
▪ 1984: Initial Assessment Survey	▪ 1992 to 1996: Facility-Wide Ambient Air Monitoring
▪ 1986: Triple A Investigation	▪ 1992 to 1996: Remedial Investigation
▪ 1987: Confirmation Study	▪ 1993 to 1994: Site Inspection
▪ 1987: Area Study	▪ 1993 to 1994: Site Assessment
▪ 1988: Fence-to-Fence Survey	▪ 1999 to 2000: Parcel E Validation Study
▪ 1988 to 1989: Solid Waste Air Quality Assessment Test	▪ 2000 to 2002: Groundwater Data Gaps Investigation
▪ 1988: Remedial Investigation Reconnaissance	▪ 2000 and 2001: Treatability Study of Soil Vapor Extraction (SVE) at Building 406
▪ 1989 to 1990: Preliminary Assessment	▪ 2002: Standard Data Gaps Investigation
▪ 1991 to 1992: Intertidal Sediment Study	▪ 2004 to present: BGMP

Removal Actions	
▪ 1988: Basewide removal of PCB-containing electrical transformers	▪ 2001: Time-critical removal of soil containing non-volatile organic compounds at IR-08
▪ 1988: Removal of soil at IR-08 PCB spill area	▪ 2002 to 2004: Decontamination of industrial process equipment and removal of various wastes and ASTs from Building 521
▪ 1991: Removal of floating product at IR-03	▪ 2003 to 2004: Removal of various debris from the Parcel E shoreline
▪ 1991 to 1994: Removal of 8 USTs, closure of 2 USTs in place, and removal of 12 ASTs	▪ 2003 to 2004: Removal of five soil stockpiles from IR-02 Southeast and IR-73
▪ 1991 to 1995: Removal and fixation of sandblast waste	▪ 2004: Removal of total petroleum hydrocarbons (TPH)-contaminated soil from IR-05, IR-36 West, IR-39, and IR-73
▪ 1996 to 1998: Installation of a 900-foot-long sheet-pile wall and low-permeability cap at the former oil reclamation ponds in IR-03	▪ 2005 to 2007: Removal of radioactive soil and debris at IR-02 Northwest and Central Area (see Figure 2-1 in Section 2 of the FS Report)
▪ 1996 to 1997: Removal of sediment from the storm drain system	▪ 2005 to 2007: Removal action of radioactive soil and debris at IR-02 Southeast Metal Debris Reef (see Figure 2-1 in Section 2 of the FS Report)
▪ 1996: Removal of soil from the exploratory excavation at IR-11/14/15	▪ 2005 to 2007: Removal of soil at PCB Hotspot Area (located primarily on Parcel E-2 but extending into Parcel E, IR-02 Northwest, see Figure 2-1 in Section 2 of the FS Report)

Groundwater Plume Delineation Update

The Revised RI Report used data collected through December 2004 to delineate A-aquifer groundwater plumes for metals, volatile organic compounds (VOCs), PCBs, and TPH (see Figures 4-3 through 4-6 and Figure 6-2 in the Revised RI Report [Barajas & Associates, Inc., 2008b]). Since that time, groundwater data have been collected on a quarterly basis as part of the BGMP. The BGMP includes wells located within and in the vicinity of some of the RI plumes. Where available, these data were evaluated to determine if the plume delineations established in the Revised RI Report have significantly changed since 2004. In addition, additional groundwater data were collected as part of a groundwater treatability study (GWTS) conducted at several of the VOC plumes at Parcel E. Where appropriate, the plume delineations presented in the Revised RI Report were adjusted using updated data from the BGMP (from March 2005 to October 2009) and the first phase of the GWTS (April and November 2009). A detailed description of the groundwater plume delineation update is presented in Section 2.3.3 of the FS Report. The updated plume delineations considered in the FS evaluation are shown on Figures ES-3, ES-4, and ES-5. A complete list of all groundwater plumes and their associated redevelopment block, wells, and plume constituents is shown in Table ES-1. The Revised RI Report did not identify any B-aquifer plumes at Parcel E, and data collected during the ongoing BGMP have confirmed that B-aquifer plumes are not present at Parcel E.

Groundwater Treatability Study Update

The Navy conducted a GWTS at the following IR sites: IR-04, IR-05, IR-12, IR-36 South, IR-39, and IR-56 (Shaw Environmental, Inc. [Shaw], 2009a). The first phase of the GWTS consisted of a field investigation to better delineate the groundwater plumes identified in the Revised RI Report and was conducted in late 2009. The second phase of the GWTS consisted of zero-valent (ZVI) iron injection to evaluate the effectiveness of ZVI in treating groundwater contamination at Parcel E and was conducted during 2010. The updated plume VOC delineations, from the first phase of the GWTS, were considered in the FS report (Figure ES-4). Additional conclusions of the GWTS are provided in a separate technical memorandum (Shaw, 2011).

RISK EVALUATIONS

Previous risk evaluations provided in the Revised RI Report include:

1. Human health risk assessment (HHRA) for soil and groundwater (Appendix I of the Revised RI Report)
2. HHRA for shoreline sediment (Section 5.3.1 and Attachment 1 of the Revised RI Report)

3. Baseline ecological risk assessment (BERA) for onshore soil (Appendix J of the Revised RI Report)
4. Screening-level ecological risk assessment (SLERA) for shoreline sediment (Appendix G of the Revised RI Report)

In addition, Appendix A of this FS Report includes a risk evaluation of groundwater to evaluate effects on aquatic life in the bay. It should be noted that the risk assessments (listed above) from the Revised RI Report were not updated to reflect the post-removal conditions at IR-02 Northwest and IR-02 Southeast because the revised data set would not substantially affect the risk assessment results (to an extent that either identified or eliminated areas requiring evaluation in the FS). The revised post-removal action data set was used to develop the remedial alternatives in the FS Report.

The risk assessment methodology and results are summarized in more detail in Section 2.5 of the FS Report. The HHRA used the original (1997) redevelopment plan as the reasonably anticipated reuse for Parcel E; however, the HHRA also included an exposure scenario evaluating residential exposures throughout Parcel E. The residential exposure scenario provides an adequate baseline assessment of human health risks at Parcel E irrespective of the recent changes to the planned reuse based on the amended redevelopment plan (SFRA, 2010c). The following paragraphs summarize the risks at Parcel E relative to the planned reuse identified in the amended redevelopment plan (SFRA, 2010c).

Soil and Shoreline Sediment Risk Summary

The following table lists the chemicals of concern (COCs) for Parcel E soil relative to the planned reuse identified in the amended redevelopment plan (SFRA, 2010c).

Exposure Scenario	Redevelopment Block	Planned Reuse	COCs[a]
Residential	MU-1, MU-2, and MU-3	Mixed Use	3,3'-dichlorobenzidine, 4-nitrophenol, 4,4'-DDD, 4,4'-DDE, aldrin, alpha-BHC, antimony, Aroclor-1254, Aroclor-1260, arsenic, benzene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, cadmium, carbazole, copper, dibenz(a, h)anthracene, dieldrin, gamma-BHC, heptachlor epoxide, indeno(1,2,3-cd)pyrene, iron, lead, manganese, mercury, n-nitroso-di-n-propylamine, n-nitrosodiphenylamine, naphthalene, pentachlorophenol, thallium, vanadium, trichloroethylene, zinc, and xylene. **Most common: Metals (arsenic and manganese)**

Exposure Scenario	Redevelopment Block	Planned Reuse	COCs[a]
Recreational	EOS-1, EOS-2, EOS-3, EOS-4, and EOS-5	Open Space	1,2,3,4,6,7,8-HPCDD, 1,2,3,7,8-PECDD, 2,3,4,7,8-PECDF, Aroclor-1254, Aroclor-1260, arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)-anthracene, dieldrin, heptachlor epoxide, indeno(1,2,3-cd)pyrene, lead, manganese, mercury, and nitroso-di-n-propylamine. **Most common: Metals (arsenic and lead), PAHs [benzo(a)pyrene], and PCBs (Aroclor-1260)**
Industrial	Railroad Right-of-Way	Light Industrial	Arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, copper, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and lead. **Most common: Metals (lead) and PAHs [benzo(a)pyrene]**

Notes:

a Although the land use evaluated in the HHRA does not match the amended redevelopment plan (SFRA, 2010c), the above list of COCs was verified and modified as appropriate by conducting queries of the risk-based concentrations against the Parcel E soil data. Prior to conducting the data query, a comprehensive list of risk-based concentrations was developed for all COCs detected in one or more soil samples using the toxicity factors, exposure parameters, and chemical data used in the HHRA.

BHC	benzene hexachloride	HPCDD	heptachlorodibenzo-p-dioxin
bgs	below ground surface	PAHs	polycyclic aromatic hydrocarbons
COCs	chemicals of concern	PCBs	polychlorinated biphenyls
DDD	dichlorodiphenyldichloroethane	PECDD	pentachlorodibenzo-p-dioxin
DDE	dichlorodiphenyldichloroethene	PECDF	pentachlorodibenzofuran
HHRA	human health risk assessment	SFRA	San Francisco Redevelopment Agency

The conclusions from the other risk evaluations for soil and shoreline sediment are summarized below.

- HHRA for shoreline sediment: total PCBs is the primary COC for the evaluation of human health along the Parcel E shoreline.
- SLERA for soil: no significant unacceptable risk to wildlife was indicated at Parcel E.
- SLERA for shoreline sediment: cadmium, copper, lead, mercury, molybdenum, zinc, DDTs, and PCBs were identified as chemicals of ecological concern (COECs).

Groundwater Risk Summary

The following table lists the COCs identified for Parcel E groundwater relative to the planned reuse identified in the amended redevelopment plan (SFRA, 2010c).

Redevelopment Block	Plume	COC	COEC	Pathway of Concern[a]
MU-1 and MU-2	Building 406 TCE Plume	TCE, 1,4-DCB, carbon tetrachloride, 1,2-DCE, PCE, vinyl chloride	---	Vapor intrusion
MU-1 and MU-3	IR-12 PCE Plume	PCE, TCE, 1,1-DCA, 1,4-DCB, isopropyl benzene, chloroform, chrysene, naphthalene, arsenic, pentachlorophenol	---	Vapor intrusion and dermal exposure
MU-1	IR-12 Benzene Plume	PCE, TCE, 1,1-DCA, 1,4-DCB, isopropyl benzene, chloroform, chrysene, naphthalene, arsenic, pentachlorophenol	---	Vapor intrusion and dermal exposure
MU-3	IR-04 TCE Plume	TCE, 1,1-DCE, 1,4-DCB, benzene, chloroform, Isopropylbenzene, naphthalene, PCE	---	Vapor intrusion
	IR-56 TCE Plume	TCE, chloroform	---	Vapor intrusion
EOS-1 and EOS-2	IR-02 Central Nickel Plume	Arsenic	---	Dermal Exposure
		---	Nickel	Impact to surface water
EOS-1	IR-02 Northwest Metals Plume	Arsenic	---	Dermal Exposure
		---	Copper, lead, nickel, zinc	Impact to surface water
	IR-02 Northwest PCB and Pesticide Plume	---	Aroclor-1254, 4,4'-DDE, alpha-chlordane	Impact to surface water
EOS-3	IR-03 TPH Plume	1,4-DCB, vinyl chloride, naphthalene[b], benzo(a)anthracene, benzo(b)fluoranthene, chrysene, arsenic	---	Vapor inhalation and dermal exposure[c]
		---	TPH, arsenic, nickel, zinc, Aroclor-1254, Aroclor-1260	Impact to surface water

Notes:

a Two pathways of concern evaluated in the HHRA (vapor intrusion and dermal exposure) are identified; however, the vapor intrusion pathway is addressed under the RAOs for soil gas.

b List of chemicals for monitoring in IR-03 TPH plume will be expanded to include the following VOCs: benzene, chloroform, TCE, and vinyl chloride (see Appendix C). These chemicals, which exceed risk-based concentrations for vapor intrusion, are not COCs because the vapor intrusion pathway is not complete in open space areas. However, monitoring will be performed in EOS-3 to ensure that these VOCs do not migrate to adjoining redevelopment blocks (where the vapor intrusion pathway is complete) at concentrations that pose a potential risk.

c Pathway of concern is associated with construction worker exposure scenario; the vapor intrusion pathway is not complete in open space areas.

COCs chemicals of concern
DCA dichloroethane
DCB dichlorobenzene
DCE dichloroethene
DDE dichlorodiphenyldichloroethene
PCE tetrachloroethene
TCE trichloroethene
TPH total petroleum hydrocarbons

In addition, the following COECs were identified by the aquatic risk evaluation for groundwater:

- Metals – arsenic, copper, lead, nickel, and zinc
- PCBs and pesticides: Aroclor-1254, Aroclor-1260, 4,4'-dichlorodiphenyldichloroethene (DDE), and alpha-chlordane
- TPH

The evaluation methodology and results for the aquatic risk evaluation of groundwater are presented in Appendix A of the FS Report.

FEASIBILITY STUDY

Remedial Action Objectives

Remedial action objectives (RAOs) for Parcel E are medium-specific goals that were developed to protect human health and the environment. Each RAO specifies: (1) the COCs or COECs; (2) the exposure route and receptor(s); and (3) an acceptable chemical concentration for a medium of concern. The following table summarizes the RAOs developed for Parcel E.

Media / Receptor	Remedial Action Objective
Soil / Humans	Prevent exposure of humans to inorganic and organic chemicals in soil at concentrations exceeding preliminary remediation goals (PRGs) for the following exposure pathways: 1. ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet bgs by residents in areas zoned for mixed-use reuse; 2. ingestion of homegrown produce in native soil in areas zoned for mixed-use reuse; 3. ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 2 feet bgs by recreational users in areas zoned for open space reuse; and 4. Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet bgs by construction workers in all areas. 5. Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet bgs by industrial users of the railroad right-of-way.
Soil Gas / Humans	Prevent exposure of humans to VOCs in soil gas at concentrations that would pose unacceptable risk via indoor air inhalation of vapors. The Navy has developed soil gas action levels (SGALs) to guide future vapor mitigation or remediation (ChaduxTt, 2010). A focused soil gas survey is currently being implemented to identify locations where concentrations of COCs in soil gas may exceed SGALs and to evaluate the extent of the VOC area requiring institutional controls.
Shoreline Sediment / Humans	Prevent exposure of humans to COCs in shoreline sediment at concentrations exceeding the PRGs.
Shoreline Sediment / Wildlife	Prevent exposure of benthic invertebrates, birds, and mammals to COECs in shoreline sediment at concentrations exceeding the PRGs.
Groundwater / Humans	Prevent or minimize exposure of construction worker to VOCs in A-aquifer groundwater by dermal exposure and inhalation of vapors with chemicals exceeding PRGs. Prevent or minimize exposure of humans to COCs in the B-aquifer at concentrations exceeding PRGs via the domestic use pathway.

Media / Receptor	Remedial Action Objective
Groundwater / Wildlife	Prevent or minimize migration of arsenic, copper, lead, nickel, zinc, Aroclor-1254, Aroclor-1260, alpha-chlordane, and 4,4'-DDE to prevent discharge that would result in concentrations exceeding corresponding water quality criteria for aquatic wildlife. Prevent or minimize migration of A-aquifer groundwater containing total TPH concentrations greater than 1,400 micrograms per liter (µg/L) (where commingled with CERCLA substances) into San Francisco Bay.
Nonaqueous-Phase Liquids (NAPL) / Wildlife	Prevent or minimize migration of NAPL to prevent discharge that would result in COEC concentrations greater than water quality criteria for aquatic wildlife. Prevent or minimize migration of NAPL to prevent discharge that would result in total TPH groundwater concentrations greater than 1,400 µg/L into San Francisco Bay.

Preliminary Remediation Goals

Exposure scenario-specific risk-based concentrations were calculated based on a target cancer risk level of 1E-06 and target noncancer hazard index of 1, consistent with the exposure pathways and assumptions used in the HHRA to assess risks. The selection of these target risk levels is based on agreements with the BCT. Preliminary remediation goals (PRGs), which will be finalized in the Record of Decision, were developed for each COC based on the risk-based concentrations, chemical-specific applicable or relevant and appropriate requirements (ARARs), the laboratory practical quantitation limit, and the ambient level for the COC, if one was established. Goals were derived for both soil and groundwater and for COCs and COECs identified from both the HHRA and the SLERA for groundwater. As described in the table above, the Navy has developed SGALs and is implementing a focused soil gas survey to guide future vapor mitigation or remediation. Future actions and decisions to address potential risks from vapor intrusion will be based on soil gas data and the SGALs, rather than groundwater data and the risk-based concentrations developed in the HHRA for vapor intrusion (ChaduxTt, 2010). Accordingly, the potential exposure from the vapor intrusion pathway is addressed by the soil gas RAO presented in the table above. Tables 3-1 through 3-5 in Section 3 of the FS Report summarize all the PRGs for the relevant COCs and COECs.

General Response Actions, Remedial Technologies, and Process Options

General response actions (GRAs) are responses or remedies intended to meet RAOs. The following GRAs were selected for Parcel E:

Soil and Shoreline Sediment

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use and access restrictions implemented through legal and administrative mechanisms (such as restrictive covenants and deed restrictions) to mitigate potential unacceptable exposure to chemicals in soil and shoreline sediment

- Engineering controls – Includes fencing, barriers, and signs to restrict access and potential unacceptable exposure to contaminated soil and shoreline sediment
- Monitoring – Includes soil gas monitoring to evaluate the potential for vapor intrusion
- Removal – Includes excavation and off-site disposal of contaminated soil and shoreline sediment
- Treatment – Includes in-situ and ex-situ treatment of soil or shoreline sediment to reduce the toxicity, mobility, and volume of chemicals
- Containment – Includes covering (1) contaminated soil to prevent direct exposure of humans through dermal contact, inhalation, or ingestion; and (2) contaminated shoreline sediment to prevent direct contact with humans or wildlife

Groundwater

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use and access restrictions implemented through legal and administrative mechanisms (such as restrictive covenants and deed restrictions) to mitigate potential unacceptable exposure to chemicals in soil gas or groundwater
- Engineering controls – Includes vapor barriers, sub-slab depressurization, and epoxy coatings to mitigate potential unacceptable vapor intrusion risk from VOCs in soil gas or groundwater
- Monitoring – Includes groundwater monitoring to assess changes in the concentrations of chemicals in groundwater
- Treatment – Includes in-situ and on-site ex-situ treatment of contaminated groundwater
- Removal – Includes pumping to remove contaminated groundwater and off-site treatment or disposal
- Containment – Includes installing (1) vertical barriers to control groundwater flow and limit migration of contaminated groundwater and (2) barriers or covers to prevent vapor intrusion or limit infiltration

NAPL (IR-03)

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use and access restrictions implemented through legal and administrative mechanisms (such as restrictive covenants and deed restrictions) to mitigate potential unacceptable exposure to contaminated media at IR-03
- Engineering controls – Includes fencing, barriers, and signs to restrict access and potential unacceptable exposure to contaminated media at IR-03
- Monitoring – Includes groundwater monitoring to assess the adequacy of remediation
- Removal – Includes pumping or excavation to remove NAPL and associated contaminated soil and groundwater for off-site treatment or disposal

- Treatment – Includes in-situ and on-site ex-situ treatment of NAPL and associated contaminated soil and groundwater
- Containment – Includes (1) installing vertical barriers to control NAPL and limit migration of contaminated groundwater and (2) covering contaminated soil to limit infiltration and prevent direct exposure of humans through the dermal contact, inhalation, and ingestion exposure pathways

The technologies and associated process options identified for each GRA were screened using three criteria in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (specifically Title 40 Code of Federal Regulations Section 300.430 [e][7]) and U.S. Environmental Protection Agency (EPA) RI/FS guidance (EPA, 1988; Section 4.2.5): (1) effectiveness; (2) implementability; and (3) cost. Screening of the technologies and process options for each GRA is summarized in Tables ES-2, ES-3, and ES-4. A detailed analysis of each GRA and its associated process options is presented in Section 3 of the FS Report. In addition, a detailed evaluation of shoreline protection options, in accordance with the NCP and EPA RI/FS guidance, is presented in Appendix D of this FS Report.

Process options from all six of the GRAs (for each of the three media) were retained for further evaluation in the FS.

Development of Remedial Alternatives

Remedial alternatives were developed using combinations of the retained process options to meet RAOs. Remedial alternatives were derived using experience and engineering judgment that formulated the process options into the most plausible site-specific response actions. The remedial alternatives developed for further analysis are presented below. It should be noted that the thick, viscous nature of NAPL at IR-03 may limit the effectiveness of many remedial technologies, and may warrant consideration of multiple technologies used in combination. Accordingly, the NAPL remedial alternatives for IR-03 provide flexibility by identifying a range of removal and treatment options to address the NAPL source. For cost estimating purposes, electrical resistive heating (ERH) was identified as a representative thermal enhancement technology for addressing the NAPL source at IR-03; however, the Navy is performing bench-scale testing to better evaluate the performance of thermally-enhanced NAPL removal at IR-03. The range of removal and treatment options to address the NAPL source at IR-03 would be refined during the remedial design (RD) through additional characterization and field-scale testing.

Soil and Shoreline Sediment Alternatives

- **Alternative S-1 – No Action:** For this alternative, no remedial action would take place. Soil and shoreline sediment would be left in place without any response actions (such as, institutional controls, monitoring, containment, removal, and treatment). The no action alternative is retained throughout the FS process as required by the NCP to provide a baseline for comparison with and evaluation of other alternatives.
- **Alternative S-2 – Covers, Institutional Controls, and Shoreline Protection:** This alternative would involve covers, institutional controls, and shoreline protection, as well as engineering controls and monitoring to meet ARARs and RAOs. This alternative provides physical barriers to eliminate the exposure pathways to soil and shoreline sediment at Parcel E. Existing covers, such as concrete building foundations and asphalt parking lots, following appropriate rehabilitation, are considered adequate for this alternative. New covers are considered for construction only in areas where no covers exist. This alternative includes conservative assumptions for maintenance, upgrades, or repairs to the existing covers; the extent of these actions will be assessed in the RD and implemented for this alternative as necessary. In addition, the Navy would construct shoreline protection features to prevent contaminated shoreline sediment and onshore soil from entering San Francisco Bay, and to integrate with the proposed surface covers.
- **Alternative S-3 – Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, Institutional Controls, and Shoreline Protection.** This alternative would involve excavation of Tier 1 locations with off-site disposal of contaminated soil at a permitted disposal facility. This alternative also provides for the covers, institutional controls, and shoreline protection discussed in Alternative S-2. Tier 1 locations are defined, for the purposes of this FS Report, as locations containing COCs at concentrations greater than 10 times the PRGs. Alternative S-3 provides a permanent remedy to remove Tier 1 locations where excavation is feasible. Remaining low-risk contaminated soil is addressed by covers and institutional controls. The covers under this alternative would be used to prevent exposure to potential unacceptable risk posed by other COCs in soil (such as ubiquitous metals at concentrations above PRGs).
- **Alternative S-4 – Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection.** This alternative would involve excavation of Tier 1 and Tier 2 locations where PRGs are exceeded, with off-site disposal at a permitted disposal facility. This alternative also provides for the covers, institutional controls, and shoreline protection discussed in Alternative S-2. Soil containing COCs at concentrations greater than or equal to 5 times the PRGs (but less than 10 times the PRGs) would be excavated where feasible to reduce the concentrations of these COCs in the environment. For the purposes of this FS Report, such locations are defined as Tier 2 locations. Tier 2 locations are distinct from the Tier 1 locations defined as locations with COCs at concentrations greater than or equal to 10 times the PRGs. Alternative S-4 provides a permanent remedy to remove Tier 1 and Tier 2 locations where excavation is feasible. Remaining low-risk contaminated soil would be addressed by covers and institutional controls. In addition, this alternative includes SVE to address VOC soil contamination associated with the Building 406 TCE plume. The covers under this alternative would be used to prevent exposure to potential unacceptable risk posed by other COCs in soil (such as ubiquitous metals at concentrations above PRGs).

Groundwater Alternatives

- **Alternative GW-1: No Action.** For this alternative, no remedial action would take place. Groundwater would be left in place without any response actions (such as, institutional controls, monitoring, containment, removal, and treatment). The no action alternative is retained throughout the FS process as required by the NCP to provide a baseline for comparison with and evaluation of other alternatives.
- **Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring.** This alternative would involve institutional controls and long-term groundwater monitoring. Institutional controls would be implemented in areas where humans could be exposed to COCs at concentrations that pose a health risk. Long-term groundwater monitoring would serve a two-fold purpose. It would (1) provide awareness of the size and behavior of COC plumes, helping to ensure that chemicals do not migrate beyond controlled areas; and (2) provide baseline information on the size and behavior of COEC plumes to be used in preventing chemical discharge to San Francisco Bay.
- **Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls.** This alternative would involve (1) groundwater containment, (2) in-situ bioremediation (ISB) (both anaerobic and aerobic), (3) monitored natural attenuation (MNA), and (4) institutional controls. This alternative addresses plumes in nearshore areas using groundwater containment and addresses organic chemicals through anaerobic and aerobic ISB. Groundwater would be monitored during the bioremediation and natural attenuation phases of this alternative. Institutional controls for this alternative would be similar to those discussed for Alternative GW-2. Institutional controls would be implemented prior to active remediation and would remain in effect for as long as COC and COEC concentrations exceed their PRGs.
- **Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and Institutional Controls.** This alternative would involve (1) groundwater containment, (2) anaerobic and aerobic ISB, (3) in-situ chemical reduction using zero-valent iron (ZVI), (4) MNA, and (5) institutional controls. This alternative attempts to more efficiently achieve remediation compared with Alternative GW-3A by using ZVI to address VOC concentrations at the Building 406 TCE plume, which contains the highest and most laterally extensive VOC concentrations at Parcel E. Because the risk of post-bioremediation rebound is highest at this plume, the cost and duration to remediate this plume could increase significantly. This would occur if a single ISB implementation does not have the treatment capacity to fully address the contaminant source at this plume and additional substrate injections are required. For this reason, a more aggressive treatment technology was incorporated into Alternative GW-3B to address the Building 406 TCE plume. Otherwise, this alternative is identical to Alternative GW-3A. As with Alternative GW-3A, groundwater would be monitored during the in-situ treatment and natural attenuation phases and institutional controls would be applied.
- **Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, Monitored Natural Attenuation, and Institutional Controls.** This alternative would involve (1) groundwater containment, (2), air sparging, (3) ISB, (4) MNA, and (5) institutional controls. As with Alternative GW-3B, this alternative provides a more aggressive treatment technology to address the Building 406 TCE plume. Air sparging is considered to address this plume because it would be relatively easy to implement if containment and SVE are implemented at this location under a soil alternative. This alternative is intended to enhance and integrate soil and groundwater remediation at Building 406. This alternative would only be implemented if the SVE alternative for soil (Alternative S-4) is selected for implementation. Except for air sparging, this alternative is identical to Alternatives GW-3A and GW-3B.

NAPL Alternatives

- **Alternative N-1: No Action.** For this alternative, no remedial action would take place. Groundwater would be left in place without any response actions (such as, institutional controls, monitoring, containment, removal, and treatment). The no action alternative is retained throughout the FS process as required by the NCP to provide a baseline for comparison with and evaluation of other alternatives.
- **Alternative N-2: Source Containment, Monitoring, and Institutional Controls.** This alternative would involve source containment, followed by long-term groundwater monitoring and institutional controls. Source containment would be achieved by (1) limiting infiltration and direct exposure with an engineered cover, and (2) isolating the NAPL source and contaminated groundwater with a vertical subsurface barrier. Long-term groundwater monitoring would provide information on the size and behavior of COC plumes to be used in preventing contaminant discharge to San Francisco Bay. Institutional controls, consisting primarily of restrictive covenants identifying specific land use and activity restrictions, would be implemented to prevent exposure to potential unacceptable risks posed by COCs in soil and groundwater. The institutional controls would be a combination of those presented for Alternative S-2 and for Alternative GW-2.
- **Alternative N-3: Source Removal or Treatment, Containment, Monitored Natural Attenuation, and Institutional Controls.** This alternative would involve a combination of source removal or treatment, containment, MNA, and institutional controls. The NAPL source would be removed or treated using multiple process options including excavation with off-site disposal, in-situ stabilization, and thermally-enhanced extraction with off-site disposal. These actions would remove or treat the NAPL source to extent practical, but residual concentrations of chemicals posing a risk to humans and wildlife are expected to remain in the subsurface based on the nature and extent of NAPL contamination. The migration of these chemicals would be controlled through the containment portion of this remedial alternative. Remediation of any residual contamination would occur through MNA. The institutional controls would be a combination of those presented for Alternative S-2 and for Alternative GW-2.
- **Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls.** This alternative would involve a combination of source removal or treatment, followed by groundwater treatment (by aerobic ISB), containment, MNA, and institutional controls. Alternative N-4A is the same as Alternative N-3, with the addition of ISB to remediate groundwater upon completion of NAPL source removal. The institutional controls would be a combination of those presented for Alternative S-2 and for Alternative GW-2.
- **Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, Monitored Natural Attenuation, and Institutional Controls.** This alternative would be a combination of source removal or treatment, followed by groundwater treatment (by steaming), containment, MNA, and institutional controls. This alternative assumes that ERH can be phased to first mobilize NAPL and then to boil (or steam) groundwater to remove remaining VOCs and semivolatile organic compounds in groundwater. Alternative N-4B is included to separately evaluate heating to steam the groundwater and remove dissolved-phase chemicals. Alternative N-4B is the same as Alternative N-4A, except that organic chemicals in groundwater would be addressed by a steaming process following ERH treatment, rather than ISB. The institutional controls would be a combination of those presented for Alternative S-2 and for Alternative GW-2.

- **Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls.** This alternative would involve a combination of source removal by excavation in the unsaturated zone, followed by NAPL removal or treatment, groundwater treatment (by aerobic ISB), MNA, and institutional controls. Alternative N-5 is the same as Alternative N-4, but includes the excavation of all potential source material in the unsaturated zone. The institutional controls would be a combination of those presented for Alternative S-2 and for Alternative GW-2.
- **Alternative N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls.** This alternative would involve a combination of source removal by excavation in the unsaturated and saturated zones, followed by MNA, and institutional controls. Alternative N-6 considers excavating to and below the groundwater table with the objective of removing the entire NAPL source and achieving clean closure of IR-03. The institutional controls would be a combination of those presented for Alternative S-2 and for Alternative GW-2.

Detailed Evaluation of Remedial Alternatives

Each remedial alternative was evaluated in comparison to the two threshold and five balancing evaluation criteria established in the NCP. The two modifying criteria, state and community acceptance, will be assessed in the Record of Decision following comment on the FS Report and the proposed plan. A comparative analysis was then conducted to evaluate the relative performance of the remedial alternatives developed for the three media at Parcel E.

NCP EVALUATION CRITERIA

Threshold Criteria
- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements

Balancing Criteria
- Long-term effectiveness and permanence
- Reduction of mobility, toxicity, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost

Modifying Criteria
- State acceptance
- Community acceptance

Comparative Analysis of Remedial Alternatives

Tables ES-5, ES-6, and ES-7 summarize the comparative analysis for soil and shoreline sediment, groundwater, and NAPL, respectively; showing each alternative's rating under the two threshold criteria and five balancing criteria. The no action alternatives (S-1, GW-1, and N-1), as well as Alternative GW-2, would not be effective in protecting human health and the environment.

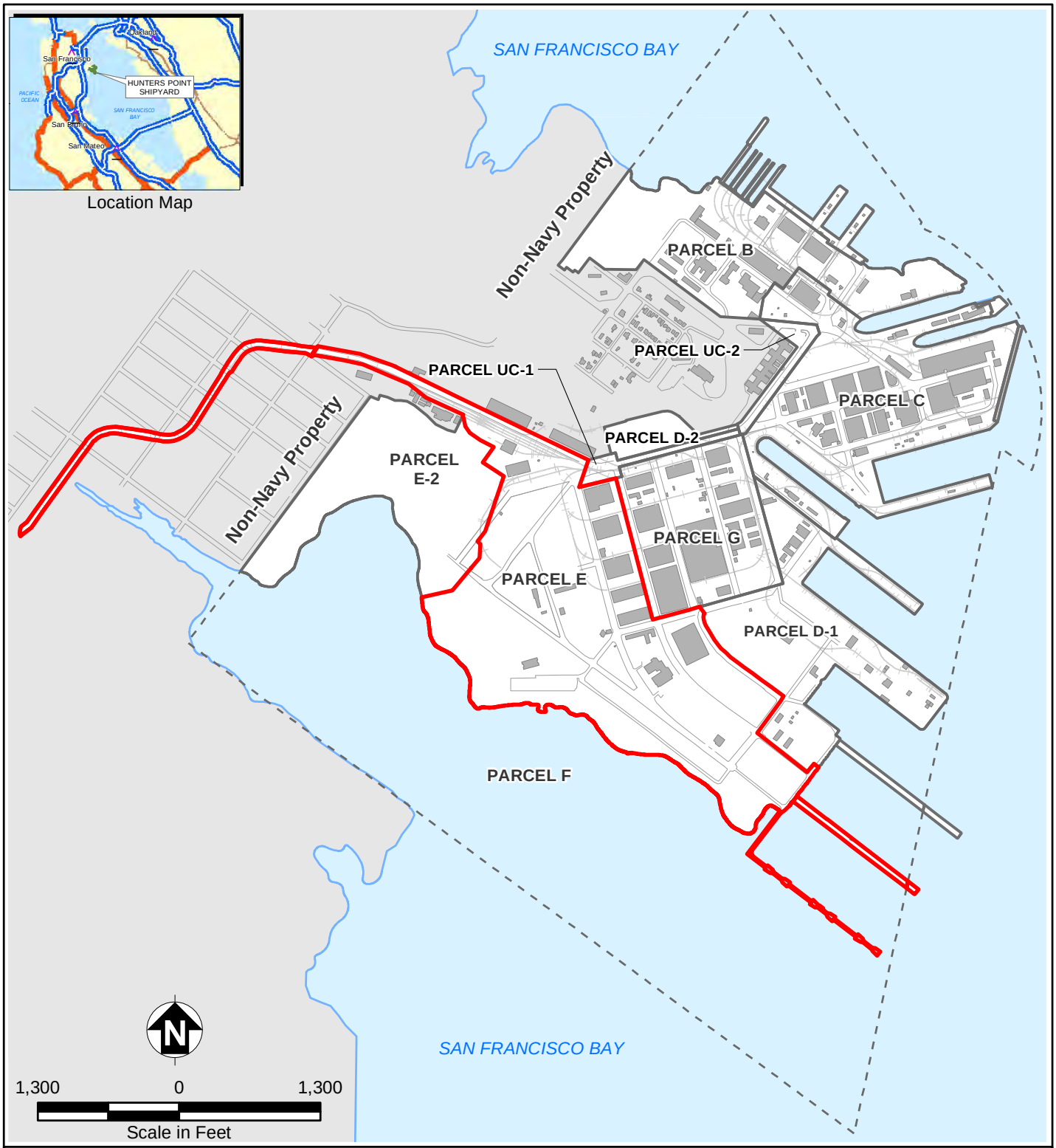
For soil, Alternative S-4 is rated very good overall for the two threshold and five balancing NCP evaluation criteria. Alternative S-3 is rated lower mainly because it would be less effective in the long-term, as compared with Alternative S-4, because contaminated soil would not be removed at the Tier 2 locations. Alternative S-2 was rated very good overall, mainly because it would be relatively easy and inexpensive to implement and would not require any intrusive activities that could expose workers, the community, or the environment to risk in the short-term.

For groundwater, Alternatives GW-3A and GW-3B were assigned overall ratings of very good. Alternative GW-4 was assigned an overall rating of good; the lower rating for this alternative is attributed to the challenges and limitations of air sparging if implemented at the Building 406 TCE Plume. Although Alternatives GW-3A and GW-3B were both rated very good, Alternative GW-3B is significantly more expensive to implement than Alternative GW-3A. The increased cost of Alternative GW-3B is attributed to the ZVI injection at the Building 406 TCE Plume. The ZVI injection is proposed because it would be more effective in treating high-concentration VOCs that may be present at the Building 406 TCE Plume. The Navy continues to collect groundwater data at this plume and will evaluate the groundwater data during the RD to determine if the remaining VOC concentrations are high enough to warrant ZVI injection.

For NAPL, Alternative N-4A was assigned an overall rating of very good. Alternatives N-2, N-3 and N-4B were assigned overall ratings of good because of lesser degrees of treatment (Alternatives N-2 and N-3) or because of issues related to short-term effectiveness and implementability (Alternative N-4B). Alternatives N-5 and N-6 were assigned overall ratings of poor because of issues related to short-term effectiveness and cost. For Alternative N-5, the issues related to short-term effectiveness and cost would not be offset by any improved long-term effectiveness because of the relatively low volume of unsaturated zone soil that contain NAPL. For Alternative N-6, significant issues related to implementability (in addition to the issues related to short-term effectiveness and cost) would not offset the slight improvement in long-term effectiveness.

The remedy for Parcel E will be selected in the Record of Decision following comment on the FS Report and the proposed plan.

Figures



LEGEND

- Parcel E Boundary
- Parcel Boundary
- Parcel F Boundary
- University of California, San Francisco (UCSF) Compound
- Non-Navy Property
- Road
- Rail Line
- Building

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FIGURE ES-1

SITE VICINITY MAP

Feasibility Study Report for Parcel E

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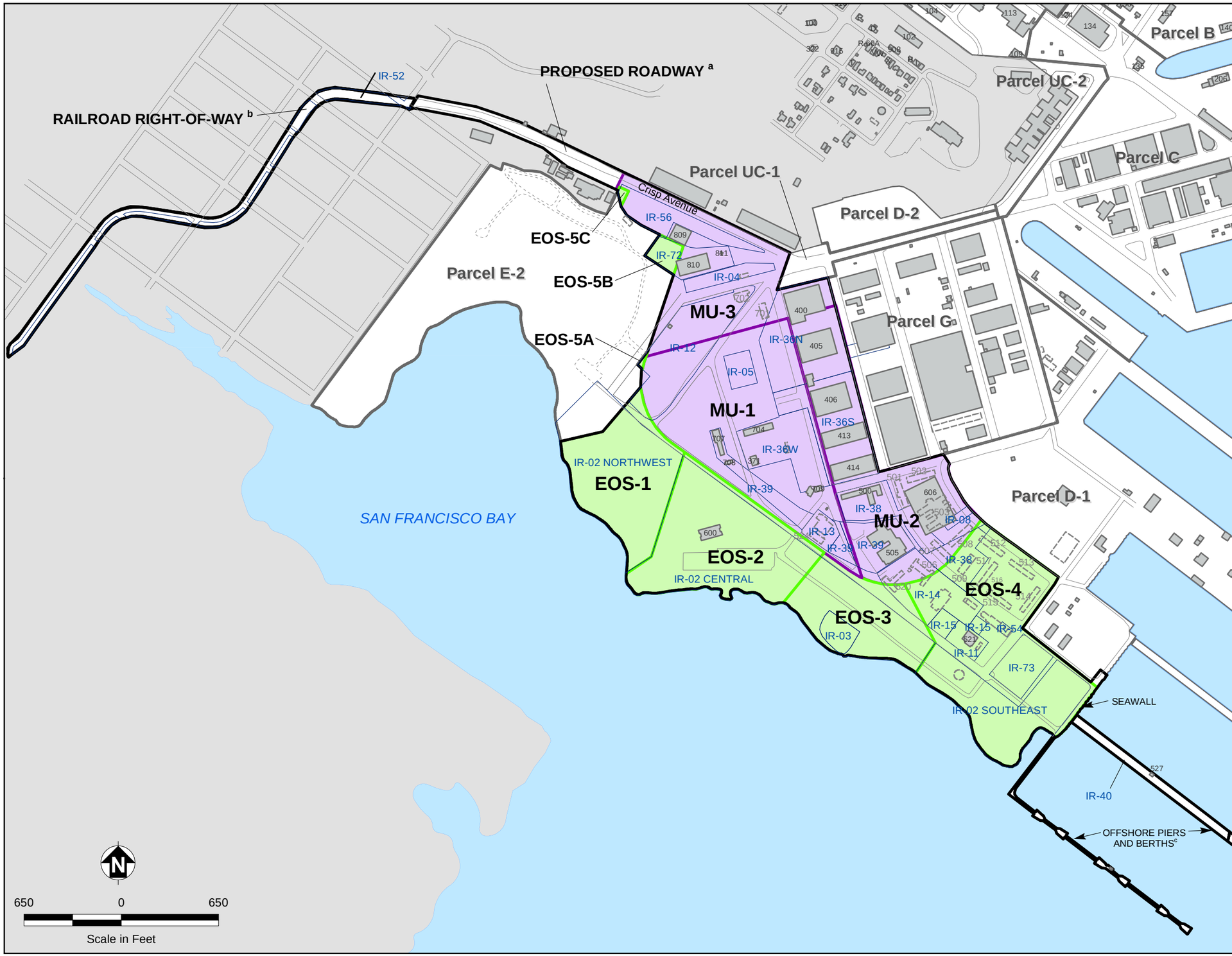

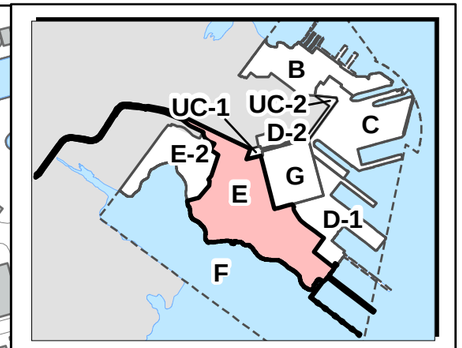

LEGEND

- IR Site Boundary
- Parcel E Boundary
- Other HPS Parcels
- Non-Navy Property
- Existing Building
- Demolished Building
- Road
- Gravel Road

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

[a] Proposed roadway identified in 2010 Redevelopment Plan for Hunters Point Shipyard. Based on Revised RI Report, this area does not contain chemicals in soil or groundwater at concentrations requiring evaluation in FS report.

[b] Railroad right-of-way is part of the 2010 Redevelopment Plan for Bayview Hunters Point, and is proposed for predominantly light industrial reuse.

[c] Piers and berths are considered part of offshore Parcel F but are identified in this document for completeness (because they were not discussed in FS report for Parcel F).

HPS = Hunters Point Shipyard
IR = Installation Restoration
RI = Remedial Investigation

Reference:
San Francisco Redevelopment Agency, 2010. "Hunters Point Shipyard Redevelopment Plan." City and County of San Francisco. August 3.

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FIGURE ES-2

REUSE AREAS, REDEVELOPMENT BLOCKS AND IR SITES AT PARCEL E

Feasibility Study Report for Parcel E

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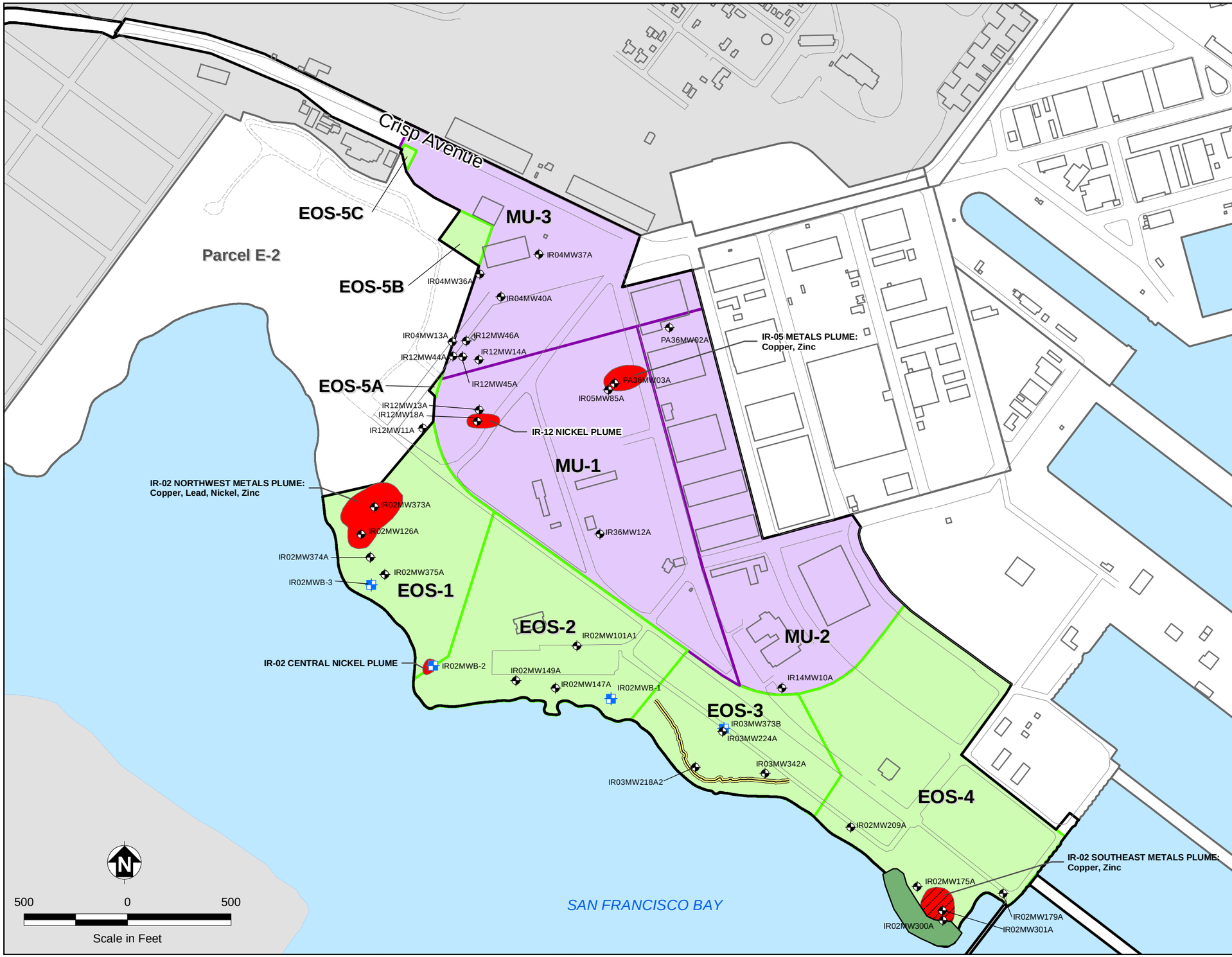

LEGEND

- A-Aquifer Monitoring Wells
- B-Aquifer Monitoring Wells
- 2004 Metals Plume
- Plume no longer exists based on evaluation of updated data (March 2005 to October 2009).
- Metal Debris Reef Removal Action Area
- Sheet Pile Wall
- Road
- Gravel Road
- Building
- Non-Navy Property
- Parcel E Boundary
- Other HPS Parcels

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

RI plume delineations were re-evaluated using all available groundwater data collected between March 2005 and October 2009. None of the metals plumes presented in the RI required updating except for the IR-02 Southeast Metals Plume. Concentrations of copper and zinc in groundwater have been attenuated since the RI, and the plume no longer exists.

All plume extents shown are limited to the A-aquifer.

The railroad right-of-way is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E. No groundwater plumes are present in the railroad right-of-way.

HHRA Human Health Risk Assessment
IR Installation Restoration
RI Remedial Investigation

Reference:

Barajas & Associates, Inc., 2008. Final Revised Remedial Investigation Report for Parcel E. Hunters Point Shipyard, California. May 2.

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FIGURE ES-3

UPDATED RI PLUME DELINEATIONS FOR METALS

Feasibility Study Report for Parcel E

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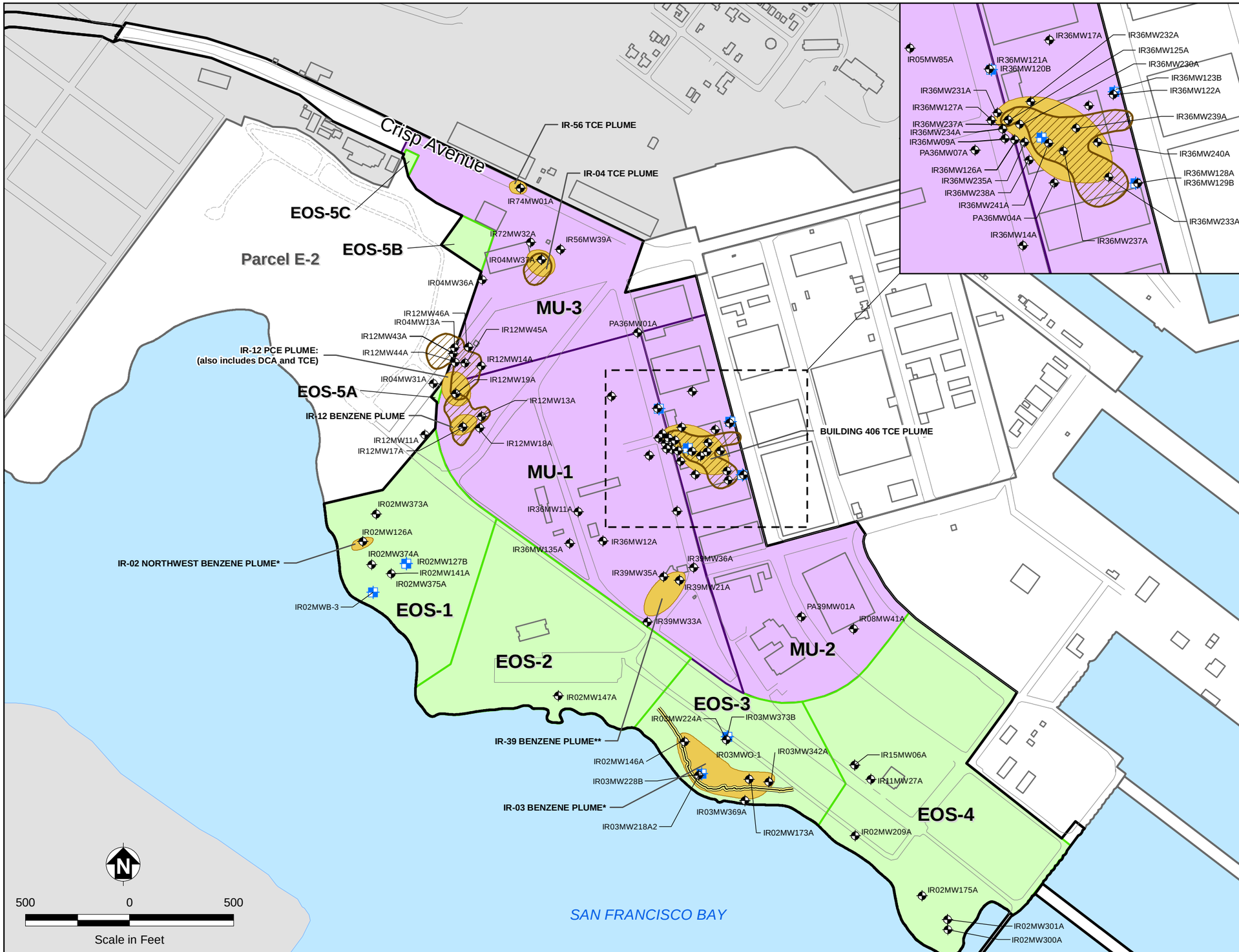

LEGEND

- A-Aquifer Monitoring Wells
- B-Aquifer Monitoring Wells
- 2004 VOC Plume
- Updated VOC Plume (see note)
- Sheetpile Wall
- Road
- Gravel Road
- Building
- Non-Navy Property
- Parcel E Boundary
- Other HPS Parcels

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

RI plume delineations were re-evaluated using all available groundwater data collected between March 2005 and November 2009. Four of the VOC plumes presented in the RI required updating.

All plume extents shown are limited to the A-aquifer.

*Benzene plumes in the open space areas will not be evaluated in this FS because, consistent with the Revised RI Report, the vapor intrusion pathway is incomplete. These plumes will not require evaluation in the groundwater remedial alternatives, other than the application of institutional controls and incidental treatment of other collocated chemical plumes.

**Benzene plume IR-39 will be addressed in the Petroleum Hydrocarbon Corrective Action Program.

The railroad right-of-way is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E. No groundwater plumes are present in the railroad right-of-way.

DCA	1,1-Dichloroethane
FS	Feasibility Study
HHRA	Human Health Risk Assessment
IR	Installation Restoration
PCE	Tetrachloroethene
RI	Remedial Investigatoin
TCE	Trichloroethene
VOC	Volatile organic chemical

References:

Barajas & Associates, Inc., 2008. Final Revised Remedial Investigation Report for Parcel E. Hunters Point Shipyard, California. May 2.

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FIGURE ES-4

UPDATED RI PLUME DELINEATIONS FOR VOCs

Feasibility Study Report for Parcel E

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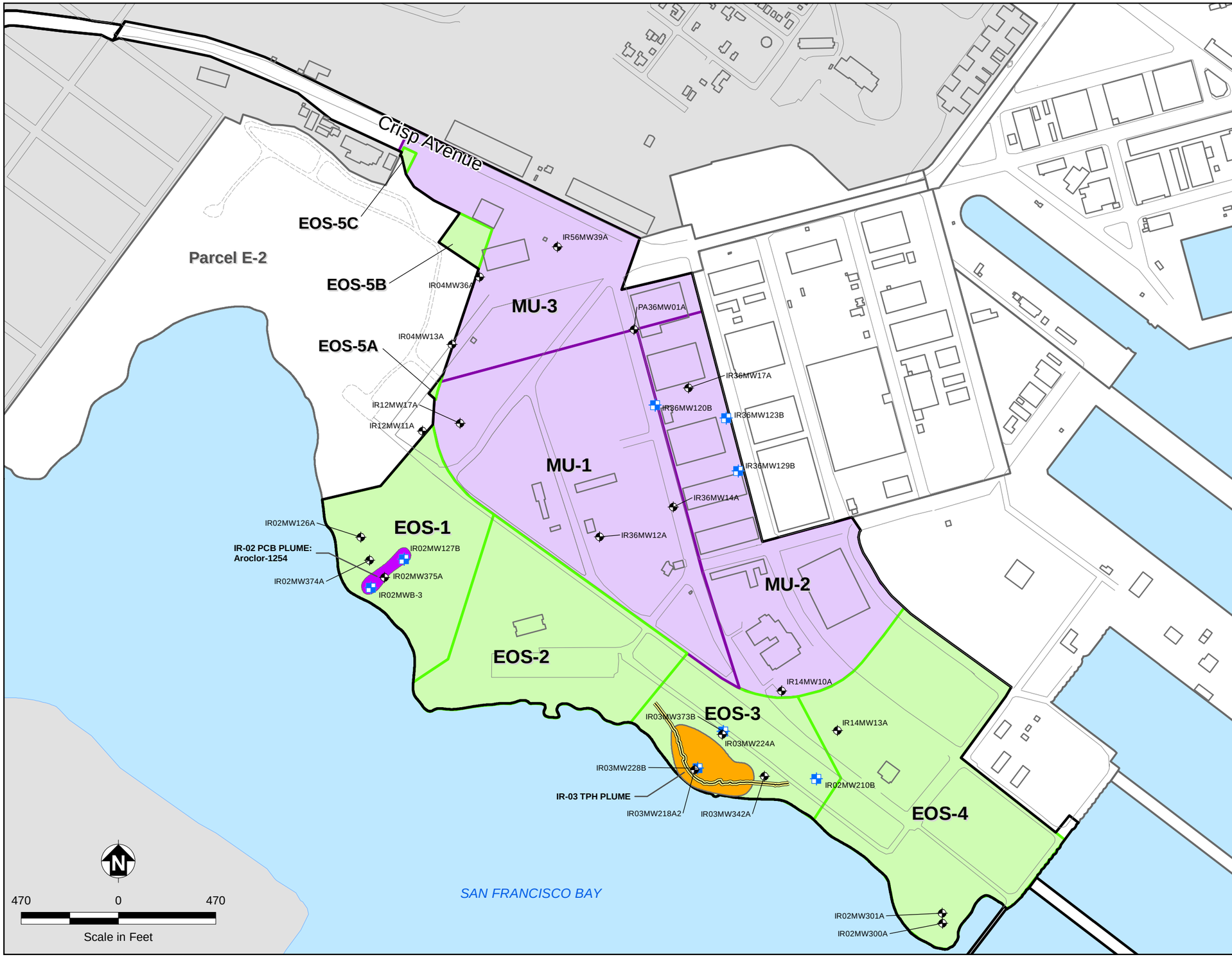

LEGEND

- A-Aquifer Monitoring Wells
- B-Aquifer Monitoring Wells
- 2004 PCB Plume
- 2004 TPH Plume
- Sheet Pile Wall
- Road
- Gravel Road
- Building
- Non-Navy Property
- Parcel E Boundary
- Other HPS Parcels

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

RI plume delineations were re-evaluated using all available groundwater data collected between March 2005 and October 2009. The PCB and Total TPH plumes presented in the RI did not require updating.

All plume extents shown are limited to the A-aquifer.

The railroad right-of-way is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E. No groundwater plumes are present in the railroad right-of-way.

FS	Feasibility Study
HHRA	Human Health Risk Assessment
IR	Installation Restoration
TPH	Total petroleum hydrocarbons
PCB	Polychlorinated biphenyl
RI	Remedial Investigation

References:

Barajas & Associates, Inc., 2008. Final Revised Remedial Investigation Report for Parcel E. Hunters Point Shipyard, California. May 2.

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FIGURE ES-5

UPDATED RI PLUME DELINEATIONS FOR TOTAL TPH AND PCBS

Feasibility Study Report for Parcel E

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Tables

Table ES-1. Groundwater Plumes Identified during RI at Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Plume Name	Redevelopment Block (IR Site)	Well(s) within RI plume boundary	Plume Constituents
Metals			
IR-02 Northwest Metals Plume	EOS-1 (IR-02 Northwest)	IR02MW373A and IR02MW126A	Copper, lead, nickel, zinc
IR-05 Metals Plume	MU-1 (IR-05)	PA36MW03A	Copper and zinc
IR-12 Nickel Plume	MU-1 (IR-12)	IR12MW18A	Nickel
IR-02 Central Nickel Plume	EOS-2 (IR-02 Central)	IR02MWB-2	Nickel
IR-02 Southeast Metals Plume	EOS-4 (IR-02 Southeast)	IR02MW300A	Copper and zinc
Volatile Organic Compounds			
IR-02 Northwest Benzene Plume	EOS-1 (IR-02 Northwest)	IR02MW126A	Benzene
IR-03 Benzene Plume	EOS-3 (IR-03)	IR02MW146A, IR03MWO-1, IR03MW225A, IR03MW371A, IR03MW218A1, IR03MW218A2, IR03MW218A3, IR03MW370A, IR03MW226A, IR03MW369A, IR02MW173A, and IR03MW342A	Benzene
IR-12 Benzene Plume	MU-1 (IR-12)	IR12MW13A and IR12MW17A	Benzene
IR-39 Benzene Plume	MU-1 (IR-39)	IR39MW21A	Benzene
Building 406 TCE Plume	MU-2 (IR-36 South)	IR36MW232A, IR36MW237A,IR36MW237A, and PA50MW04A	TCE
IR-04 TCE Plume	MU-3 (IR-04)	IR04MW37A	TCE
IR-56 TCE Plume	MU-3 (IR-74)	IR74MW01A	TCE
IR-12 PCE Plume	MU-1 and MU-3 (IR-12)	IR12MW19A, IR12MW45A	1,1-DCA and PCE

Table ES-1. Groundwater Plumes Identified during RI at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Plume Name	Redevelopment Block (IR Site)	Well(s) within RI plume boundary	Plume Constituents
Polychlorinated Biphenyls			
IR-02 Northwest PCB Plume	EOS-1 (IR-02 Northwest)	IR02MW375A	Aroclor-1254
Total Petroleum Hydrocarbons			
IR-03 TPH Plume	EOS-3 (IR-03)	IR02MW146A, IR03MW225A, IR03MW371A, IR03MW218A1, IR03MW218A2, IR03MW218A3, IR03MW370A, IR03MW226A, IR03MW369A, IR03MWO-1, IR02MW173A, and IR03MW342A	TPH

Notes:
DCA = dichloroethane
IR = Installation Restoration
PCB = polychlorinated biphenyl
PCE = tetrachloroethene
RI = remedial investigation
TCE = trichloroethene
TPH = total petroleum hydrocarbons
VOC = volatile organic compound

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
No Action	Not Applicable	Not Applicable	No Action	Retained Required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restricts use of parcel through environmental restrictive covenants that will run with the land; allows only designated land use in accordance with the proposed redevelopment plan (EPA, 2000a); includes criteria during and after future development to ensure mitigated exposure conditions are maintained, such as covers, barriers, or other engineering controls (Navy and DTSC, 2000).	Retained Easily implemented and effective; usually required to restrict activity based on land use.
	Administrative Mechanisms	Land Use Plans and Soil and Groundwater Management Procedures and Policies	Manage and prevent exposure to humans during future site activities.	Eliminated Covenants to Restrict Use of Property and Deed Restrictions are sufficient to enforce land use and activity restrictions.
Engineering Controls	Physical Barriers	Fencing, Barriers, and Signs	Restrict land use where there is exposure to potentially contaminated soil using fencing, barriers, and posting signs (EPA, 2000a).	Retained Easily implemented and effective; usually required to restrict activity based on land use. Not applicable for use in open space areas.
Monitoring	Soil Gas Monitoring	Periodic Soil Gas Monitoring	Collect and analyze soil gas samples periodically to evaluate the potential for vapor intrusion.	Retained Easily implemented; required to evaluate effectiveness of other process options; low cost.

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Removal[1]	Excavation and Off-Site Treatment/ Disposal	Conventional Excavation and Disposal at Licensed Treatment/Disposal Facility (e.g., RCRA, non-RCRA, and LLRW)	Excavate soil containing chemicals using conventional mechanical equipment; limit to depths of less than 10 feet bgs. Transport and dispose of soils at a permitted treatment and disposal facility.	Retained for some COCs Effective for non-ubiquitous metals and PAHs; easily and quickly implemented; permanent remedy; and moderate cost.
Removal[1] *(cont.)*	Excavation and Off-Site Treatment/ Disposal *(cont.)*	Conventional Excavation and Disposal at Licensed Treatment/Disposal Facility (e.g., RCRA, non-RCRA, and LLRW)	Excavate soil containing chemicals using conventional mechanical equipment; limit to depths of less than 10 feet bgs. Transport and dispose of soils at a permitted treatment and disposal facility.	Eliminated for ubiquitous metals Not implementable or cost-effective for entire redevelopment blocks
Treatment[1]	Physical/ Chemical Treatment	Soil Vapor Extraction (with or without thermally enhanced recovery)	Extract VOCs from unsaturated zone with vacuum pumps; extraction performance can be enhanced with active volatilization of VOCs in groundwater (EPA, 1997b). May be used with thermal enhancement (e.g., six-phase heating or steam injection) to enhance volatilization of chemicals.	Retained for some COCs Effective in treating VOCs; effectiveness enhanced when implemented with active volatilization
		Mechano-Chemical Destruction	Treat chemicals with a proprietary reagent in a high-intensity ball mill; includes pretreatment (drying/sieving) and solidification/stabilization of treated soil. Offgas treatment required.	Eliminated High risks to workers associated with on-site treatment, high cost, stringent regulatory requirements.
		Thermal Treatment: Thermal Desorption or Incineration	Volatilize chemicals in soil. Thermal desorption raises temperature to levels just below oxidation (destruction) temperatures. Incineration raises temperature to combustion temperatures (FRTR, 2005).	Eliminated Effective for organic chemicals; however, not effective for metals. Can volatize metals, creating additional environmental concerns from potential air emissions. High cost, stringent regulatory requirements

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	Physical/ Chemical Treatment *(cont.)*	Soil Washing	Remove chemicals in soil using an aqueous-based wash solution. Usually combined with mechanical screening methods to remove debris.	Eliminated Limited effectiveness with hydrophobic compounds such as PCBs and PAHs; high O&M cost.
		Solidification/Stabilization	Reduce chemical mobility through physical or chemical reaction with stabilizing agents (EPA, 1998b).	Eliminated Limited effectiveness for treatment of PAHs.
		Solvated Electron Process	Treat soil by first mixing with liquid ammonia to form a soil/ammonia slurry, adding elemental calcium or sodium to the slurry; then separate ammonia from soil as a liquid until most of the ammonia is removed; and finally as a vapor by warming the soil (FRTR, 2005).	Eliminated Not applicable for metals; highly exothermic reaction with health and safety concerns; not cost-effective for small volumes of PAHs.
		Chemical Oxidation	Convert inorganic chemicals to nonhazardous compounds using an oxidizing agent (EPA 1998a). Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate	Eliminated Low effectiveness for treatment of low-level VOCs in soils; high cost. Also, difficult to effectively deliver to nonaqueous phase (e.g., soil and NAPL).
	Biological Treatment	Phytoremediation	Use plants to remediate contamination in soil. Phytoremediation can be used for various chemicals, including metals, solvents, PAHs, pesticides, petroleum hydrocarbons, and explosives.	Eliminated Low implementability and high cost per unit area

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	Biological Treatment *(cont.)*	Bioremediation	Reduce chemicals in soil by metabolizing organic chemicals with biological amendments (FRTR, 2005)	Eliminated Not effective for metals; not efficient for small volumes of soils containing low-level PAHs.
Containment[1]	Covers	Soil Covers	Place soil cover over contaminated soil; prevents direct contact with contaminated soil.	Retained for areas that are not paved or do not require paving to achieve planned land uses. Effective for metals and PAHs; easily and quickly implemented; moderate cost per unit area.
		Asphalt or Concrete Covers	Place an asphalt or concrete cover over contaminated soil; prevents direct contact with contaminated soil.	Retained for areas that are paved or require paving to achieve planned land uses. Effective for metals and PAHs; moderate cost per unit area.
		Engineered Alternative Caps	Place a soil cover with a geomembrane liner that is made of an impermeable, synthetic material; prevents direct contact with contaminated soil and minimizes migration of contamination. Can also include engineered soil caps using clay instead of synthetic material.	Retained for areas with elevated concentrations of mobile chemicals that are not paved or do not require paving to achieve planned land uses. Effective; easy to moderate implementability.
		Maintained Landscaping	Maintain a vegetative cover over soil over contaminated areas to eliminate the direct exposure pathway.	Eliminated Not considered applicable to bare soil areas at Parcel E with organic chemical concentrations exceeding RBCs. Would not be an effective method for eliminating exposure.

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Containment[1] *(cont.)*	Shoreline Armoring[2]	Protective Revetments[2]	Install an erosion control structure consisting of riprap, large armor units, gabions, articulating concrete mats, or engineered concrete structures along the shoreline.	Retained for detailed evaluation. Rock revetment successfully implemented along HPS shoreline in the past.
		Seawalls[2]	Install a massive concrete structure with its weight providing its stability. Prevents inland flooding from major storm events accompanied by large, powerful waves.	Eliminated High implementation cost. However, maintenance of existing seawalls may be incorporated as part of a shoreline protection alternative.
		Bulkheads[2]	Install vertical retaining walls to hold or prevent soil from sliding seaward. Reduces land erosion and loss to the sea; does not mitigate coastal flooding or wave damage.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
	Shoreline Stabilization (Structural)[2]	Breakwaters[2]	Install rock structure offshore or adjacent to headlands with crest above MHHW. Protects shore from large, powerful waves from major storm events.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Groins[2]	Install narrow rock or timber structure(s) perpendicular to shoreline. Reduces erosion associated with longshore currents.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Containment[1] *(cont.)*	Shoreline Stabilization (Structural)[2] *(cont.)*	Nearshore Sills[2]	Install narrow rock structure(s) parallel to shoreline with crest at or below MHHW. Rock may be substituted with natural material (such as oyster shells) and be combined with vegetation to reduce erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Offshore Reefs[2]	Install rock structure offshore with crest at or below MHHW. Rock may be substituted with natural material (such as oyster shells) and be combined with vegetation to reduce erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
	Shoreline Stabilization (Nonstructural)[2]	Aquatic Vegetation (submerged or intertidal)[2]	Plant aquatic vegetation either offshore or within intertidal zone. Reduces erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Sand Fill (or other clean, imported soil type meeting design objectives)[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. May be combined with aquatic vegetation offshore and within intertidal zone to reduce erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Natural Shoreline Materials with Offshore Reef[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock structure offshore[4], with crest at or below MHHW to reduce wave energy, and plant aquatic vegetation to reduce erosion potential.	Retained for detailed evaluation. Assumes that offshore reef and aquatic vegetation could be developed in a manner that adequately controls erosion potential in intertidal shoreline zone.

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Containment[1] *(cont.)*	Shoreline Stabilization (Hybrid)[2]	Natural Shoreline Materials with Underlying Rock Armor[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock armoring layer under soil if wave action causes erosion of soil.	Retained for detailed evaluation. Stabilization options successfully implemented following removal action at Metal Debris Reef in 2007.
	Shoreline Nourishment[2]	Berms or Dunes[2]	Place additional sand (in a berm or dune) at higher tidal elevations to protect onshore property and provide stabilizing soil source following storm-related erosion.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs. Difficult to implement at narrow Parcel E shoreline (substantial excavation would be required).
		Feeder Beach[2]	Construct a wider beach to protect onshore property and provide stabilizing soil source following storm-related erosion.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs. Difficult to implement at narrow Parcel E shoreline (substantial excavation would be required).

Table ES-2. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes: Shaded process options are eliminated for further evaluation as a remedial alternative. Eliminated technologies are not presented in text.

1. GRA applies to soil only.
2. Shoreline protection technologies and process options are evaluated in Appendix D.
3. Eliminated as stand-alone stabilization option but may be incorporated with hybrid stabilization option.
4. Offshore reef consisting of rocks is identified as a representative structural element for this hybrid stabilization option; however, alternative structural elements may be proposed that meet the design objectives and provide equal (or superior) performance relative to effectiveness, implementability, and cost. Alternative structural elements may use natural materials (such as oyster shells) or may involve placing the structure closer to the shore (such as a nearshore sill). See Table 3-9 for a more detailed evaluation of this option.

bgs = below ground surface
DTSC = Department of Toxic Substances Control
EPA = U.S. Environmental Protection Agency
FRTR = Federal Remediation Technologies Roundtable
GRAs = general response actions
HPS = Hunters Point Shipyard
IR = Installation Restoration
LLRW = low-level radioactive waste
MHHW = mean higher high water
NAPL = non-aqueous-phase liquid
Navy = Department of the Navy
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
PAHs = polycylic aromatic hydrocarbons
PCBs = polychlorinated biphenyls
RAOs = remedial action objectives
RBCs = risk-based concentrations
RCRA = Resource Conservation and Recovery Act
VOCs = volatile organic compounds

Sources:

Atlantic States Marine Fisheries Commission, 2010. "Living Shorelines: Impacts of Erosion Control Strategies on Coastal Habitats." Habitat Management Series #10. J.C. Thomas-Blate, Editor. February. Available Online at: <http://www.asmfc.org/publications/habitat/hms10LivingShorelines.pdf>.

EPA. 1997a. "Best Management Practices (BMPs) for Soils Treatment Technologies." EPA 530-R-97-007. May.

EPA. 1997b. "Analysis of Selected Enhancements for Soil Vapor Extraction." EPA 542-R-97-007. September.

EPA. 1998a. "Evaluation of Subsurface Engineered Barriers at Waste Sites." EPA 542-R-98_005. August.

EPA. 2000a. The Office of Solid Waste and Emergency Response Publication on Land Use Controls. Available Online at: <http://www.epa.gov/oerrpage/superfund/action/ic/guide/index.htm>.

FRTR. 2005. Federal Remediation Technologies Roundtable Website. Accessed in January 2008. Available Online at: <http://www.frtr.gov>.

U.S. Army Corps of Engineers, 2006. "Coastal Engineering Manual." April.

Table ES-3. Screening of GRAs and Process Options for Groundwater
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
No Action	Not Applicable	Not Applicable	No Action	Retained Required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restricts the use of the parcel using environmental restrictive covenants on the land. Includes criteria during and after future development to ensure mitigated exposure conditions are maintained, such as vapor barriers or other engineering controls (Navy and DTSC, 2000). Also restricts subsurface intrusive activities that might result in or aid the movement of contaminated groundwater.	Retained Easily implemented and effective; prevents exposure to COCs and COECs.
	Administrative Mechanisms	Land Use Plans and Soil and Groundwater Management Procedures and Policies	Manage and prevent exposure to humans during future site activities.	Eliminated Covenants to Restrict Use of Property and Deed Restrictions are sufficient to enforce land use and activity restrictions.
Engineering Controls	Physical Barriers	Security Features and Signs	Prohibits activities that could spread groundwater contamination by requiring locked well caps and secured utility access covers, and identifying and securing any additional conduit where humans or wildlife could potentially be exposed to groundwater. Requires posted signs and locked doors to prohibit occupancy of buildings or other enclosures where unacceptable risk exists from the vapor intrusion pathway.	Retained Easily implemented and effective; prevents exposure to COCs and COECs.
	Vapor Barrier	Sub-Slab Depressurization	Install blowers and vapor collection points below a building to maintain a negative pressure gradient and prevent vapor intrusion.	Retained for new construction Effective and low-cost method to minimize vapor intrusion only.

Table ES-3. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Engineering Controls *(cont.)*	Vapor Barrier *(cont.)*	Sub-Slab Depressurization	Install blowers and vapor collection points below a building to maintain a negative pressure gradient and prevent vapor intrusion.	Eliminated for existing buildings Extensive investigation into conditions under the building would be necessary to ensure the systems cover the entire foundation and utility conduits or other preferential pathways are not present
		Epoxy Coating	Seal the floor of a building with an epoxy-based sealant, providing a physical barrier to vapor migration into buildings.	Eliminated as a stand-alone technology. May be used in conjunction with sub-slab depressurization to improve effectiveness.
		Raised-Floor System	Install a new floor above the building slab foundation and a depressurization system between the floors to maintain a negative pressure gradient and prevent vapor intrusion.	Eliminated High cost; reduces the functionality of the structure.
Monitoring	Groundwater Monitoring	Periodic Groundwater Monitoring	Collect and analyze groundwater samples periodically to monitor aquifer hydraulics and chemistry and variations in groundwater contamination. Chemicals are identified for detection monitoring and evaluation monitoring programs.	Retained Easily implemented; required to evaluate effectiveness of other process options; low cost.
Treatment	Passive	Monitored Natural Attenuation	Allow chemicals to naturally attenuate via biodegradation, dispersion, dilution, or adsorption. Requires monitoring to assess recovery rates and success.	Retained for use as a component of remedial alternatives Periodic monitoring is easily implemented; low cost.

Table ES-3. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	In-Situ Physical Treatment	Air Sparging with SVE	Inject air into the bottom of a saturated zone to strip VOCs from groundwater. Extract VOCs from the unsaturated zone with SVE.	Retained Easily implemented in conjunction with SVE; improves effectiveness of SVE at reducing VOC mass in groundwater.
		Pneumatic/ Hydraulic Fracturing	Inject air and water under pressure into soil to enhance permeability by developing cracks in low-permeability and consolidated sediments to increase removal efficiency. Used as part of injection processes (e.g., in-situ bioremediation, ZVI).	Retained Effective at enhancing distribution of reagents; demonstrated to be implementable in treatment studies at HPS; low cost.
	In-Situ Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to groundwater in areas where chlorinated solvents are present to enhance biodegradation of chlorinated VOCs. Amendments include electron donors, electron receptors, nutrients, and microorganisms, if necessary. Requires monitoring to assess program (FRTR, 2005).	Retained Effective for VOCs at moderate to low concentrations; easily implemented; moderate cost; no O&M costs; requires monitoring, but treatment should reduce long-term monitoring effort.
		Phytoremediation	Allow plants to uptake water (including dissolved chemicals in water) and release it to the atmosphere through transpiration. Plant uptake is used to remove, transfer, stabilize, and destroy inorganic and organic chemicals in groundwater; requires monitoring to assess remedial progress. Note that phytoremediation may also be used to provide hydraulic control by uptake of contaminated groundwater (known as phytohydraulics).	Eliminated Effective for organic COCs and COECs at low concentrations; may not be implementable with planned reuse; moderate implementation cost; moderate to low O&M cost; requires monitoring; lengthy treatment period likely

Table ES-3. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	In-Situ Biological Treatment *(cont.)*	Biosparging	Add oxygen and nutrients to the injected air stream to enhance air sparging; enhances growth of naturally occurring microbes and accelerates bioremediation.	Eliminated Low effectiveness (unlikely to meet RAOs within a reasonable time frame). Other more effective oxidation processes are available.
	In-Situ Chemical Groundwater Treatment	Chemical Reduction: ZVI Injection	Inject ZVI into an aquifer to encourage enhanced reductive dechlorination of chlorinated VOCs.	Retained Highly effective for VOCs; most efficient at high concentrations; implementable as a fast-reacting remedy; moderate to high success in pilot tests at HPS; high implementation costs with low O&M costs; requires monitoring, but treatment should reduce long-term monitoring effort.
		In-Situ Chemical Oxidation	Inject chemical oxidants into the vadose zone and groundwater to oxidize site chemicals, leaving water and carbon dioxide. Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate.	Eliminated Not effective for low-level VOC contamination in groundwater; challenges posed by heterogeneous fill (preferential flowpaths), and availability of other relevant and effective technologies.

Table ES-3. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(continued)*	In-Situ Chemical Groundwater Treatment *(cont.)*	Electrokinetic Separation	Induce acidic (low pH) conditions through electronic current, creating an acid front at the anode and a base front (high pH) at the cathode. Acidic conditions mobilize metals for transport and collection at the cathode. Requires monitoring to assess remedial progress (Ground-Water Remediation Technology Analysis Center, 1997).	Eliminated Highly effective for metals but less effective for VOCs; requires subsequent disposal of collected COCs and COECs that may need additional treatment prior to disposal; reactions may form undesirable byproducts; high implementation and O&M cost.
		Ozone Sparging with SVE	Inject ozone into the aquifer to mobilize and react with VOCs into unsaturated vadose zone soil and create a highly oxygenized environment; oxygenized groundwater chemically degrades VOCs (EPA, 1998b).	Eliminated Possibility that ozone may follow preferential pathways or accumulate under or in buildings.
		Permeable Reactive Barriers	Install passive or reactive treatment walls across the flow path of a contaminant plume, allowing the plume groundwater to passively move through walls while prohibiting movement of chemicals by using agents such as zero-valent metals, chelators (ligands selected for their specificity for a metal), sorbents, microbes, or others. The chemicals will either degrade or be retained in a concentrated form by the barrier material; requires monitoring to assess remedial effectiveness.	Eliminated High level of effort to implement; only treats water that moves through the wall, not the source area; may have slow results based on groundwater gradients at HPS; ineffective where preferential pathways exist; implementation may conflict with planned reuse; limited field data concerning the longevity of wall reactivity or loss or permeability through precipitation (EPA, 2000b); would not reduce the vapor intrusion pathway risk; high implementation and O&M cost.

Table ES-3. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Removal	Extract and Dispose	Pump and Treat	Remove groundwater from the subsurface for ex-situ treatment. Treatment of extracted groundwater would be required or discharge to the POTW.	Eliminated Not effective for low-level contamination in groundwater; challenges posed by heterogeneous fill (preferential flowpaths), and availability of other relevant and effective technologies.
		Surfactant Enhanced In-Situ Flushing	Inject surfactants or cosolvents into the source area to enhance groundwater pump and treat process and solubilize DNAPL. Accomplish dissolved-phase capture through a series of extraction wells.	Eliminated Difficult to implement; risk of mobilizing NAPL beyond site boundary.
Containment	Physical and Hydraulic Barriers	Slurry or Sheet-Pile Wall (with groundwater extraction wells, if necessary)	Install slurry or sheet-pile walls below ground to contain, capture, or redirect groundwater flow. Can be used to decrease the groundwater flow gradient and consequently increase the residence time during which chemical concentrations would be reduced through physical, chemical, and biological processes. Where needed, groundwater extraction wells might be used behind a wall to further mitigate migration (e.g., at a landfill where landfill leachate poses an unacceptable risk to downgradient receptors).	Retained Effective in containing chemicals in groundwater; implemented successfully at HPS in the past, low to moderate cost

Table ES-3. Screening of GRAs and Process Options for Groundwater *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes: Shaded process options are eliminated for further evaluation as a remedial alternative.

COCs = chemicals of concern
COECs = chemicals of ecological concern
DNAPL = dense nonaqueous-phase liquid
EPA = U.S. Environmental Protection Agency
FRTR = Federal Remediation Technologies Roundtable
FS = Feasibility Study
GRAs = general response actions
HPS = Hunters Point Shipyard
IR = Installation Restoration
NAPL = nonaqueous-phase liquid
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
POTW = publicly owned treatment works
RAOs = remediation action objectives
SVE = soil vapor extraction
TtEMI = Tetra Tech EM Inc.
VOCs = volatile organic compounds
ZVI = zero-valent iron

Sources:

EPA. 1998b. "Field Applications of In Situ Remediation Technologies: Chemical Oxidation." EPA 542-R-98_008. September.

EPA. 2000a. The Office of Solid Waste and Emergency Response Publication on Land Use Controls. Available Online at: <http://www.epa.gov/oerrpage/superfund/action/ic/guide/index.htm>.

EPA. 2000b. "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study." EPA/540/R-00/002. Washington, D.C. July. Available Online at: <http://www.epa.gov/superfund/resources/remedy/costest.htm>.

FRTR. 2005. Federal Remediation Technologies Roundtable Website. Accessed in January 2008. Available Online at: <http://www.frtr.gov>.

Ground-Water Remediation Technology Analysis Center. 1997. "Electrokinetics." July.

Navy and DTSC, 2000. "Memorandum of Agreement Between the United States Department of the Navy and the California [Environmental Protection Agency] Department of Toxic Substances Control." Signed March 10.

Table ES-4. Screening of GRAs and Process Options for NAPL at IR-03
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
NAPL PROCESS OPTIONS				
No Action	None	None	No further response actions.	Retained No action as required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restrictions placed on the use of land or activities that may take place in a given area. Complete description provided in Tables 3-5 and 3-6.	Retained Easily implemented and effective; prevents exposure to COCs and COECs.
	Administrative Mechanisms	Land Use Plans and Soil and Groundwater Management Procedures and Policies	Manage and prevent exposure to humans during future site activities.	Eliminated Covenants to Restrict Use of Property and Deed Restrictions are sufficient to enforce land use and activity restrictions.
Engineering Controls	Physical Barriers	Security Features and Signs	Prohibits activities that could spread groundwater contamination by requiring locked well caps and secured utility access covers, and identifying and securing any additional conduit where potential humans and wildlife could be exposed to groundwater.	Retained Easily implemented and effective; prevents exposure to COCs and COECs; low cost.
Monitoring	Groundwater Monitoring	Periodic Groundwater Monitoring	Collect and analyze groundwater samples periodically to monitor variations in aquifer chemistry and hydraulics and changes in groundwater contamination.	Retained Easily implemented; effective for all COCs; low cost.
Removal	Physical Extraction	Liquid-Phase Pumping	Recover NAPL to the maximum extent practicable through either traditional pumping techniques.	Retained Potential high effectiveness when combined with thermal treatment.
		Dual-Phase Extraction	Use vacuum pumps to remove various combinations of contaminated groundwater; separate phase petroleum product and hydrocarbon vapor from the subsurface. Extracted liquids and vapor are collected and treated.	Retained Potential high effectiveness when combined with thermal treatment.

Table ES-4. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
		NAPL PROCESS OPTIONS *(continued)*		
Removal *(cont.)*	Physical Extraction *(cont.)*	Thermally Enhanced Extraction by Hot Water Circulation, Electrical Resistive Heating, Thermal Conductive Heating, or Steam Injection	Use hot water circulation, electrical resistive heating, thermal conductive heating, or steam injection to decrease viscosity in NAPL, mobilizing it for extraction. May need to be implemented in conjunction with containment action (to retain heat within treatment zone and prevent off-site migration of NAPL).	Retained Significantly improves effectiveness in recovering viscous NAPL source areas using standard extraction techniques. Extraction not feasible without enhancement; moderate capital cost; moderate to high operational cost due to power consumption. Capital cost can be partially offset if equipment is used for thermal treatment upon completion of NAPL extraction.
		Treatment and Off-Site Disposal of Extracted NAPL/ Groundwater	Treat extracted NAPL, groundwater, and vapor prior to disposal. Depending on the POTW facility pretreatment requirements and other potential regulatory issues, extracted groundwater can be conveyed and discharged to a POTW facility.	Retained for further evaluation as a component of remedial alternatives. High effectiveness and implementability.
		Excavation	Remove contaminated material with heavy equipment. Excavated soil can be stockpiled on site for treatment or transported to a permitted off-site treatment and disposal facility.	Retained for consideration of ex-situ treatment or off-site disposal scenarios.
		Off-Site Disposal of Excavated NAPL/ Soil	Collect and transport soil to an appropriate treatment, storage, or disposal facility. Disposal of soil would involve constructing on-site staging area from which soil would be transferred to trucks and transported to an off-site facility.	Retained Highly effective; off-site disposal could be used for (1) disposal of small volumes of process residuals or (2) sitewide cleanup of soil from IR-03.

Table ES-4. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
NAPL PROCESS OPTIONS *(continued)*				
Containment	Covering and Capping	Soil Cover or Engineered Alternative Cap	Isolate contaminated soil and buried debris from potential humans or wildlife at the site using a soil cover or engineered alternative cap.	Retained Easily implemented; a low-permeability geosynthetic clay cap was installed over the surface of IR-03 in 1997; effective in eliminating exposure; low to moderate cost.
	Hydraulic Barriers	Slurry or Sheet-Pile Wall	Install slurry or sheet-pile walls below the ground to contain, capture, or redirect groundwater flow in the vicinity of IR-03.	Retained Effective in containing NAPL and groundwater contaminants. Easy to moderate implementability; may be difficult to implement close to shoreline because large debris is present; moderate to high cost.
In-Situ Treatment	Solidification/ Stabilization	In-Situ Mixing	Mix one or more reagents directly into contaminated soil/NAPL with mechanical equipment. Reagents may include stabilizing agents (such as cement or bentonite) and reactive agents (such as a chemical oxidant).	Retained Effective in stabilizing NAPL if homogeneous mixing is achieved; may be difficult to implement close to shoreline because large debris is present. Moderate to high capital cost; low O&M cost.
		Ex-Situ Mixing	Excavate contaminated soil and NAPL, transport to on-site location, and spread in layers. Mix a binding reagent into soil/NAPL with mechanical equipment and transport/place stabilized material in excavation.	Retained Effective in stabilizing NAPL with homogeneous mixing process; implementation may be limited by available on-site area. High capital cost; low O&M cost.

Table ES-4. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
NAPL PROCESS OPTIONS *(continued)*				
In-Situ Treatment	Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to subsurface to enhance biodegradation of NAPL. Amendments include electron donors/receptors, nutrients, and microorganisms.	Eliminated as stand-alone option for NAPL treatment, but may be considered to address associated groundwater contamination. Thick, viscous nature of NAPL would limit effectiveness of in-situ biodegradation and chemical oxidation.
	Chemical Treatment	In-Situ Chemical Oxidation	Inject chemical oxidants into subsurface to oxidize NAPL. Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate.	
ADDITIONAL OPTIONS TO ADDRESS ASSOCIATED GROUNDWATER				
In-Situ Treatment	Thermal Treatment	Thermal Treatment by Electrical Resistive Heating, Thermal Conductive Heating, or Steam Injection	Use electrical resistive heating, thermal conductive heating, or steam injection to vaporize VOCs and SVOCs in groundwater. The vaporized chemicals are subsequently captured using vacuum extraction (e.g., SVE). May need to be implemented in conjunction with containment action (to retain heat within treatment zone and prevent off-site migration of NAPL).	Retained Easily implemented as a follow-up step to thermally-enhanced extraction; effective at treating organic compounds in groundwater, short treatment duration; high operational cost due to power consumption.
	Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to groundwater to enhance biodegradation of organic chemicals. Amendments include electron donors, electron receptors, nutrients, and microorganisms, if necessary. Requires monitoring to assess program.	Retained Effective at moderate to low concentrations; easily implemented at moderate cost; no O&M cost; requires monitoring, but treatment should reduce long-term monitoring effort.
	Passive	Monitored Natural Attenuation	Allow chemicals to naturally attenuate via biodegradation, dispersion, dilution, or adsorption. Requires monitoring to assess reduction rates.	Retained Periodic monitoring is easily implemented; low cost.

Table ES-4. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
ADDITIONAL OPTIONS TO ADDRESS ASSOCIATED GROUNDWATER *(continued)*				
In-Situ Treatment	Chemical Treatment	Treatment Barrier	Integrate reactive components into a hydraulic barrier to mediate contaminant destruction using "funnel and gate" approach.	Eliminated Low effectiveness and high cost due to long treatment period.
		In-Situ Chemical Oxidation	Inject chemical oxidants into vadose zone and groundwater to oxidize site chemicals to water and carbon dioxide. Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate.	Eliminated Low effectiveness due to difficulty achieving contact of injected agent with low-level, widespread residual contamination. Pilot tests using chemical oxidation with permanganate at Parcel C were found to be difficult to implement because of unanticipated preferential flow paths.

Notes: Shaded process options are eliminated for further evaluation as a remedial alternative.
COCs = chemicals of concern
COECs = chemicals of ecological concern
DPE = dual-phase extraction
IR = Installation Restoration
NAPL = nonaqueous-phase liquid
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
POTW = publicly owned treatment works
SVE = soil vapor extraction
VOCs = volatile organic compounds

Table ES-5. Comparative Analysis of Soil Remedial Alternatives for Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

ALTERNATIVES	Overall Protection of Human Health and the Environment [a]	Compliance with ARARs [a]	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost ($ Million)	Overall Rating by Alternative
Alternative S-1: No Action	Not Protective	Not Applicable	○	◐	●	●	$0	○
Alternative S-2: Covers, ICs, and Shoreline Revetment	Protective	Meets ARARs	◐	◐	◑	◑	$35.2	◑
Alternative S-3: Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, ICs, and Shoreline Revetment	Protective	Meets ARARs	◑	◐	◐	◑	$48.7	◐
Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, SVE, ICs, and Shoreline Revetment	Protective	Meets ARARs	●	◐	◐	◑	$50.2	◑

Legend:

- ○ Not acceptable
- ◐ Poor
- ◐ Good
- ◑ Very Good
- ● Excellent

Notes:

a Overall protection of human health and the environment and compliance with ARARs are threshold criteria and alternatives are judged as either meeting or not meeting the criteria.

ARARs applicable or relevant and appropriate requirements
ICs institutional controls

Table ES-6. Comparative Analysis of Groundwater Remedial Alternatives for Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

ALTERNATIVES	Overall Protection of Human Health and the Environment [a]	Compliance with ARARs [a]	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost ($ Million)	Overall Rating by Alternative
Alternative GW-1: No Action	Not Protective	Not Applicable	○	◐	●	●	$0	○
Alternative GW-2: ICs and Long-Term Groundwater Monitoring	Not Protective	Does Not Meet ARARs	◐	◐	◕	●	$2.6	○
Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and ICs	Protective	Meets ARARs	◕	◕	◕	◕	$4.5	◕
Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and ICs	Protective	Meets ARARs	◕	◕	◕	◕	$5.7	◕
Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, Monitored Natural Attenuation, and ICs	Protective	Meets ARARs	◐	◐	◐	◕	$5.9	◐

Legend:

- ○ Not acceptable
- ◐ Poor
- ◐ Good
- ◕ Very Good
- ● Excellent

Notes:

a Overall protection of human health and the environment and compliance with ARARs are threshold criteria and alternatives are judged as either meeting or not meeting the criteria.

ARARs applicable or relevant and appropriate requirements
ICs institutional controls

Table ES-7. Comparative Analysis of NAPL Remedial Alternatives for Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

ALTERNATIVES	Overall Protection of Human Health and the Environment [a]	Compliance with ARARs [a]	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost ($ Million)	Overall Rating by Alternative
Alternative N-1: No Action	Not Protective	No	○	◐	●	●	$0	○
Alternative N-2: Source Containment, Long-Term Monitoring, and ICs	Protective	Meets ARARs	◐	◐	◕	◕	$1.7	◐
Alternative N-3: Source Removal or Treatment, Containment, MNA, and ICs	Protective	Meets ARARs	◐	◐	◕	◕	$13.1	◐
Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, MNA, and ICs	Protective	Meets ARARs	◐	◕	◕	◕	$14.7	◕
Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, MNA, and ICs	Protective	Meets ARARs	◐	◕	◐	◐	$16.2	◐
Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, MNA, and ICs	Protective	Meets ARARs	◐	◕	◐	◕	$22.0	◐
Alternative N-6: Source Removal by Excavation, MNA, and ICs	Protective	Meets ARARs	◕	◐	◐	◐	$21.8	◐

Legend:

○ Not acceptable
◐ Poor
◐ Good
◕ Very Good
● Excellent

Notes:

a Overall protection of human health and the environment and compliance with ARARs are threshold criteria and alternatives are judged as either meeting or not meeting the criteria.

ARARs applicable or relevant and appropriate requirements
ICs institutional controls

Section 1. Introduction

This report summarizes the results of a Feasibility Study (FS) performed for Parcel E at Hunters Point Shipyard (HPS) in San Francisco, California (Figure 1-1). In 1989, the U.S. Environmental Protection Agency (EPA) identified HPS as a National Priorities List site. As a result, the Department of the Navy (Navy) is conducting investigations in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Title 42 United States Code [U.S.C.] Sections [§§] 9601-9675) at a number of Installation Restoration (IR) sites at HPS where releases of CERCLA hazardous substances have occurred. As a management tool to accelerate site investigation, cleanup, and reuse, HPS was divided into parcels and IR sites within each parcel are evaluated concurrently.

HPS is currently divided into 10 parcels, as shown on Figure 1-1. In 1992, the Navy divided HPS into five contiguous parcels (A through E). In 1996, the Navy added a sixth parcel (Parcel F), which encompasses immediately adjacent areas of San Francisco Bay; Parcel F is referred to as the "offshore area." In September 2004, the Navy divided Parcel E into two parcels (Parcels E and E-2) to facilitate closure of the Parcel E-2 Landfill and its adjacent areas. In December 2004, the Navy transferred Parcel A to the San Francisco Redevelopment Agency (SFRA). In July 2008, the Navy subdivided Parcel D into four separate parcels (Parcels D-1, D-2, G, and UC-1) and separated the western edge of Parcel C to create Parcel UC-2; these changes were made to expedite closure and transfer of the new parcels. In August 2012, concurrent with the final version of the Parcel E FS Report, the Navy changed the boundary between Parcels E and E-2 to better align the CERCLA documentation with the City and County of San Francisco's (CCSF) amended redevelopment plan for HPS (SFRA, 2010c). The August 2012 boundary change is shown on Figure 1-2 and is discussed further in Section 2.1.2.

The Navy previously completed parcel-wide Remedial Investigation (RI) and FS Reports (Tetra Tech EM Inc. [TtEMI], Levine-Fricke-Recon [LFR], and Uribe & Associates [U&A] 1997; TtEMI 1998a) for Parcel E, which encompassed the area later subdivided as Parcel E-2. During review of the previous RI and FS Reports, the Navy and the regulatory agencies identified additional tasks to better characterize Parcel E and support the remedy evaluation at the parcel. The Navy conducted additional field investigations to gather supplementary information needed to support the Parcel E remedy evaluation. The Navy finalized a Revised RI Report for Parcel E that evaluated information from field investigations, ongoing groundwater monitoring, and removal actions performed through December 2004 (Barajas and Associates, 2008b).

This FS Report is part of ongoing efforts by the Navy to address contamination at HPS Parcel E in accordance with CERCLA. The FS is a mechanism for developing, screening, and evaluating remedial

alternatives to address risk identified during an RI under the CERCLA process. This FS Report also evaluates, for the purposes of developing remedial alternatives, the following additional data collected since December 2004: (1) analytical results of confirmation soil samples collected during recently completed removal actions (Tetra Tech EC, Inc. [TtECI], 2007a, 2007b, and 2007c); (2) groundwater data from the ongoing monitoring program (Kleinfelder, Inc. and CDM Federal Programs Corporation, 2006a, 2006b, and 2006c; CE2-Kleinfelder Joint Venture, 2006, 2007a through 2007e, 2008a and 2008b, 2009a and 2009b, and 2010a and 2010b); and (3) groundwater and soil gas data collected as part of groundwater treatability studies conducted at Parcel E (Shaw Environmental, Inc. [Shaw], 2011).

The Revised RI Report, as well as the Draft FS Report, was based on CCSF's original redevelopment plan for HPS, which was published in 1997. In 2010, CCSF published an amended redevelopment plan, which resulted in significant changes in the proposed land use for Parcel E. Specifically, the amended redevelopment plan identifies two land use districts within the Parcel E boundaries: the Shipyard South Multi-Use District, encompassing the central and northern portion of Parcel E, and the Shipyard Shoreline Open Space District, encompassing the shoreline area and the southern portion of Parcel E. Accordingly, the redevelopment blocks evaluated in the FS and the corresponding evaluation of remedial alternatives have changed significantly from the draft version of the FS Report. This change is discussed in further detail in Section 2.1.2.

For the purposes of this FS Report, the Navy divided Parcel E into smaller evaluation areas in three sequential steps. First, the Navy divided Parcel E into general reuse areas based on the CCSF amended redevelopment plan for HPS (SFRA, 2010c). Second, each reuse area at Parcel E was divided into "redevelopment blocks" to facilitate data presentation in this FS Report. Third, conceptual roadways within each reuse area were incorporated into Navy-defined redevelopment blocks that corresponded with planned reuse boundaries and IR sites, where possible. Figure 1-2 shows the boundaries of reuse areas, redevelopment blocks, and IR sites at Parcel E.

As noted on Figure 1-2, the proposed roadway at the western half of Crisp Avenue does not contain chemicals in soil or groundwater requiring evaluation in this FS Report, thus this area was not included in the Navy-defined redevelopment blocks. However, this area contains storm drain and sanitary sewer lines (part of IR-50) that were determined to be radiologically impacted in the Historical Radiological Assessment (HRA) (Naval Sea Systems Command [NAVSEA], 2004). As defined in the HRA, radiologically impacted areas have the potential for radioactive contamination based on historical information or are known to contain or have contained radioactive contamination. These lines are being removed under a basewide removal action to address potential radioactive contamination (Navy, 2006a). Removal of the storm drain and sanitary sewer lines along Crisp Avenue will expedite closure and transfer of this area, which will be used as a utility corridor. Similar to the approach used at other HPS parcels, the Navy has established an interim designation for Crisp Avenue (Parcel UC-3) to reflect its plan to separate this future utility corridor from the rest of Parcel E. The Navy will describe the subdivision of

Parcel E in the proposed plan. In addition, the railroad right-of-way comprising IR-52 is part of the CCSF's redevelopment plan for the Bayview Hunters Point redevelopment project adjoining HPS (SFRA, 2010b), and is planned for predominantly light industrial reuse. The Navy plans to include IR-52 as part of future Parcel UC-3 because it is directly adjacent to Crisp Avenue.

As the lead agency, the Navy is working with EPA Region 9 and the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) and the San Francisco Bay Regional Water Quality Control Board (Water Board) to develop and implement the remedial alternatives for Parcel E. The Navy coordinates activities at HPS with the regulatory agencies under the terms of a Federal Facility Agreement (FFA), which provides a procedural framework and schedule for the CERCLA cleanup process at HPS (Navy, EPA, DTSC, and Water Board, 1991). The Navy, EPA, DTSC, and Water Board representatives are collectively referred to as the Base Realignment and Closure (BRAC) Cleanup Team (BCT) for HPS.

1.1. PURPOSE AND SCOPE

The purpose of this FS Report for Parcel E is to evaluate remedial alternatives applicable at Parcel E based on the findings of the Revised RI Report and additional data collected since December 2004. The BCT will use this FS Report to assist in evaluating the appropriate remedial actions for Parcel E to allow transfer of the property to the CCSF.

This FS report was prepared in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 Code of Federal Regulations [CFR] Part 300) and EPA guidance, "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA, 1988). The NCP states that remediation should be accomplished through the use of cost-effective remedial alternatives that effectively lessen threats to and provide adequate protection of public health, welfare, and the environment (55 Federal Register [Fed. Reg.] 8850, March 8, 1990). Remedial alternatives that are protective of human health and the environment are evaluated in this FS Report.

During the FS process, remedial alternatives are developed by incorporating medium-specific technologies into cleanup alternatives. The process consists of the following general steps:

- Develop remedial action objectives (RAOs) specifying the chemicals and media of concern, exposure pathways, and preliminary remediation goals (PRGs) that permit a range of treatment and containment alternatives to be developed. The RAOs are developed based on chemical-specific applicable or relevant and appropriate requirements (ARARs) and the risk evaluation results included in the RI Report.
- Develop general response actions (GRAs) for each medium defining containment, removal, treatment, or other actions (such as institutional controls, engineering controls, or monitoring), singly or in combination, that may be taken to satisfy the RAOs for the site. Identify volumes or areas to which GRAs would apply.

- Identify and screen remedial technologies for each GRA to determine which technologies could be implemented technically and cost effectively at the site.
- Identify and screen process options for each remedial technology that are most appropriate for use at the site.
- Develop remedial alternatives by combining retained process options.
- Evaluate the alternatives against the evaluation criteria established by the NCP and against each other.

This FS Report addresses only CERCLA-regulated chemicals that are not radioactive. As a result, a radiological addendum to the FS Report is being prepared to evaluate the nature and extent of radiological contamination and risk to human health and the environment, as well as to develop alternatives to address the radiologically impacted sites identified in the HRA (NAVSEA, 2004). As defined in the HRA, radiologically impacted sites have the potential for radioactive contamination based on historical information or are known to contain or have contained radioactive contamination. A draft final version of the radiological addendum to the FS Report was submitted in 2011 (Engineering/Remediation Resources Group, Inc. [ERRG] and Radiological Survey and Remedial Service, LLC [RSRS], 2011). The following sites at Parcel E were designated as radiologically impacted (Figure 1-3):

- Building 406
- Building 414
- Former Building 500 Series Site, which includes the following sites and surrounding area:
  - Building 500
  - Building 503 Site
  - Building 506 Site
  - Building 507 Site
  - Building 508 Site
  - Building 509 Site
  - Building 510 Site
  - Building 510A Site
  - Building 517 Site
  - Building 520 Site
  - Building 521
  - Building 529 Site
- Building 701 Site
- Building 704 Animal Pens
- Building 704 Former Radioactive Material Storage Yard
- Building 707 and Kennels
- Building 707B Site
- Building 707C Site
- Building 707 Triangle Area
- Building 708
- Building 807 Site
- Building 810
- Building S-719 Site (suspected incinerator site in IR-02 Northwest)
- Shack 79 Site
- Shack 80 Site
- IR-02 (Bay Fill Area)
- IR-03 (Former Oil Reclamation Ponds Area)
- IR-04 Scrap Yard
- Former Salvage Yard
- Parcel E Shoreline
- Pier 2 and 3 (including Building 527)
- Sanitary Sewer System
- Storm Drain Lines
- Septic Sewer Lines

The radiological addendum includes the following components:

- A conceptual site model (CSM) for radiological contamination, including a risk evaluation
- Radionuclides of concern
- RAOs for radionuclides
- Potential ARARs for radionuclides
- Evaluation of additional costs for soil and groundwater alternatives to include radionuclides
- Remedial alternatives for relevant media for radiological contamination, such as structures
- Evaluation of the performance of remedial alternatives relative to NCP criteria
- Radiological dose and risk assessments

Both chemical and radiological contaminants will be addressed together in the Proposed Plan.

Based on the operational history of HPS, total petroleum hydrocarbons (TPH) are likely to be present in Parcel E soil and groundwater at concentrations that pose risks to human health and the environment. To evaluate these potential risks at Parcel E, the Navy included TPH in previous investigations at Parcel E. Although TPH is not included in the definition of hazardous substances under CERCLA, some sites where TPH is commingled with CERCLA-regulated substances are being addressed under the Navy's IR Program process and are evaluated in this FS Report. Areas of TPH contamination that contain only fuel-related chemicals are addressed under the TPH corrective action program for Parcel E (Shaw, 2009b) and are not evaluated in this FS Report.

1.2. REPORT ORGANIZATION

This report has six sections, including this introduction. After this introduction, the second section summarizes site characterization from the Revised RI Report for Parcel E, and the remaining sections present the results of the FS process for Parcel E, as summarized below.

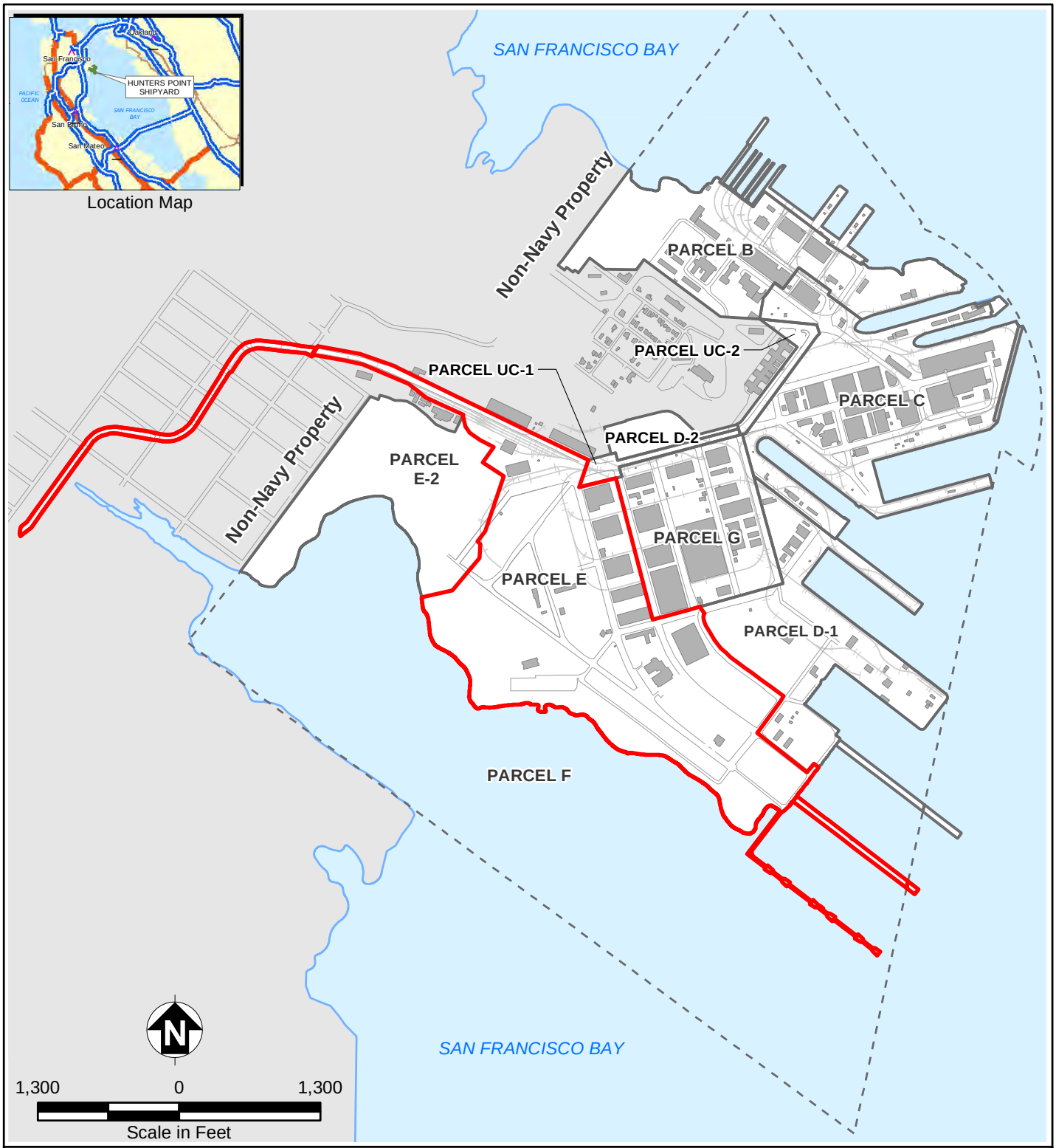
- **Section 2 – Site Characterization,** summarizes site characterization information for HPS and Parcel E, including (1) the history of HPS; (2) the environmental setting of HPS; (3) the nature and extent of contamination in soil, groundwater, and shoreline sediment; and (4) the CSM. Data presented in the Revised RI Report are supplemented with soil and groundwater data collected since December 2004. The site characterization presents the nature and extent of the chemicals of concern (COCs) identified in soil and groundwater based on the Revised RI Report.
- **Section 3 – Remedial Action Objectives, Applicable or Relevant and Appropriate Requirements, General Response Actions, and Process Options,** presents RAOs, PRGs, and ARARs for Parcel E based on the site characterization and risk evaluation results. GRAs are then identified that address the RAOs and ARARs. Process options associated with each GRA are screened for technical effectiveness, implementability, and cost.

- **Section 4 – Development and Description of Remedial Alternatives,** presents a detailed description of the remedial alternatives that were developed based on the retained process options in Section 3 that will satisfy the RAOs. Process options recommended for consideration are assembled, singularly or in combination, to create the remedial alternatives.
- **Section 5 – Detailed and Comparative Analysis of Remedial Alternatives,** presents the evaluation of each remedial alternative developed in Section 4 against the NCP's evaluation criteria and against each other to evaluate their relative advantages and disadvantages with respect to the nine evaluation criteria.
- **Section 6 – References,** presents a list of documents and supporting material used to generate this report.

In addition, evaluations and additional information for this FS Report are presented in the following appendices:

- **Appendix A – Evaluation of Migration of Chemicals in Groundwater to the Aquatic Environment,** presents the results of the screening evaluation to select chemicals of ecological concern (COECs) based on the potential effects to San Francisco Bay. Appendix A also presents the trigger levels developed for Parcel E to protect marine organisms in the bay.
- **Appendix B – Applicable or Relevant and Appropriate Requirements,** identifies and evaluates potential federal and state of California ARARs, and presents the Navy's determinations regarding the applicability of the ARARs to the alternatives in this report. The ARARs are summarized in Section 3 of this FS Report.
- **Appendix C – Conceptual Groundwater Monitoring Approach and Exit Strategies,** presents the basis for and the proposed groundwater monitoring at Parcel E. The proposed monitoring approach is used as the basis for estimating costs associated with a potential future remedial action monitoring plan.
- **Appendix D – Evaluation of Shoreline Protection Options,** evaluates the various shoreline protection options for Parcel E, identifies the most viable shoreline protection options, and analyzes the proposed shoreline protection relative to pertinent ARARs.
- **Appendix E – Remedial Alternatives Cost Estimates,** presents detailed costs and associated assumptions for each alternative that were used to support the evaluation of the cost criterion in Section 5. Appendix E includes detailed spreadsheets that provide per unit costs and quantities for each line item.
- **Appendix F – Analysis of Green and Sustainable Remediation Metrics,** provides information regarding the environmental footprint of the technologies that make up the remedial alternatives. This analysis allows sustainability metrics to be considered qualitatively in evaluating the short-term effectiveness of each remedial alternative.
- **Appendix G – Responses to Comments on Draft and Draft Final Feasibility Study Report,** presents responses to comments received on the Draft and Draft Final FS Report for Parcel E.

Figures



LEGEND

- Parcel E Boundary
- Parcel Boundary
- Parcel F Boundary
- University of California, San Francisco (UCSF) Compound
- Non-Navy Property
- Road
- Rail Line
- Building

ENGINEERING/REMEDIATION RESOURCES GROUP, INC.
ERRG

Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 1-1

SITE VICINITY MAP

Feasibility Study Report for Parcel E

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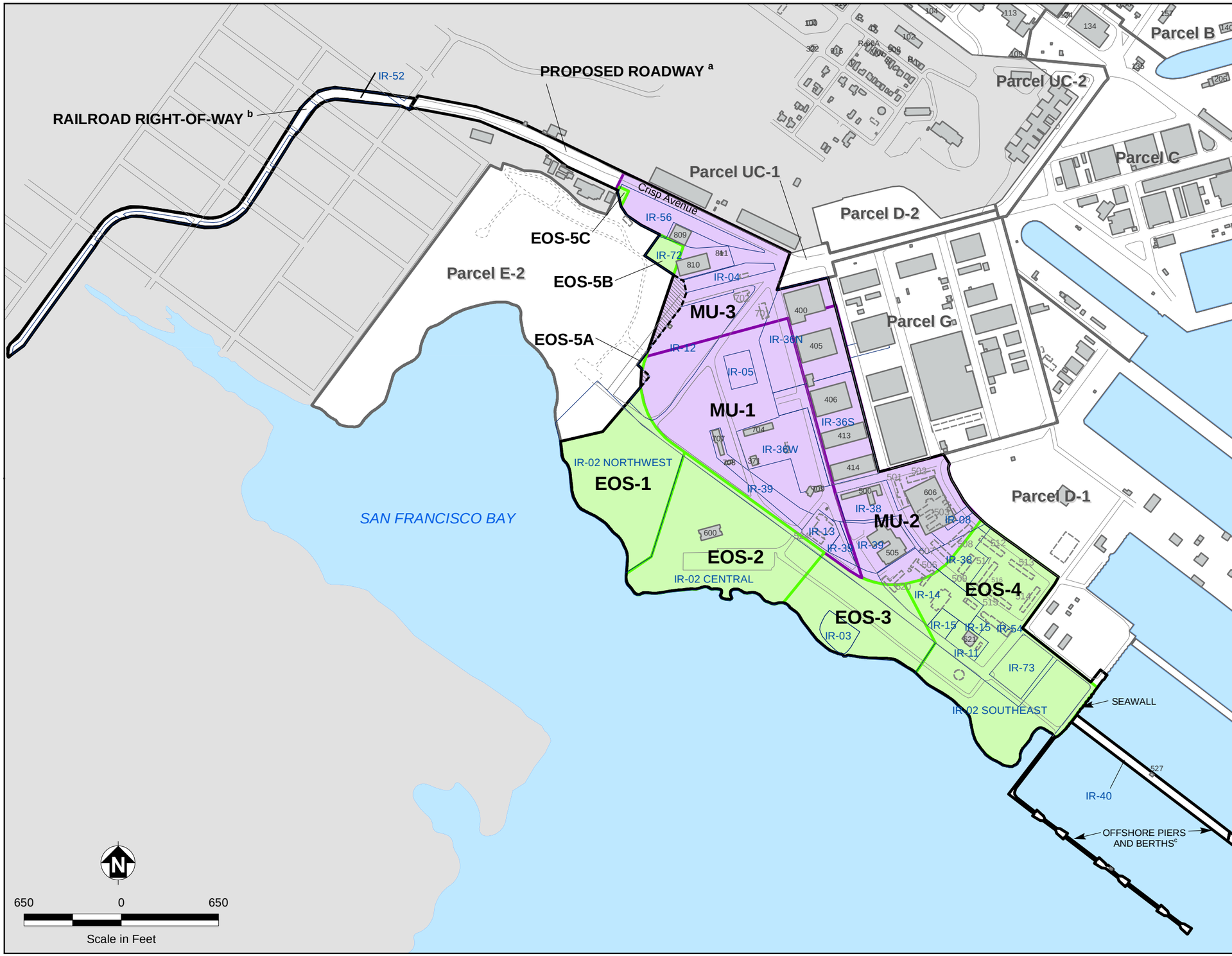

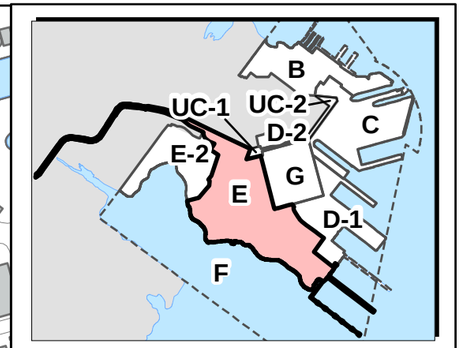

LEGEND

- IR Site Boundary
- Parcel E Boundary
- Area of Parcel E Formerly within Parcel E-2
- Other HPS Parcels
- Non-Navy Property
- Existing Building
- Demolished Building
- Road
- Gravel Road

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

[a] Proposed roadway identified in 2010 Redevelopment Plan for Hunters Point Shipyard. Based on Revised RI Report, this area does not contain chemicals in soil or groundwater at concentrations requiring evaluation in FS report.

[b] Railroad right-of-way is part of the 2010 Redevelopment Plan for Bayview Hunters Point, and is proposed for predominantly light industrial reuse.

[c] Piers and berths are considered part of offshore Parcel F but are identified in this document for completeness (because they were not discussed in FS report for Parcel F).

HPS = Hunters Point Shipyard
IR = Installation Restoration
RI = Remedial Investigation

Reference:
San Francisco Redevelopment Agency, 2010. "Hunters Point Shipyard Redevelopment Plan." City and County of San Francisco. August 3.

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 1-2

REUSE AREAS, REDEVELOPMENT BLOCKS AND IR SITES AT PARCEL E

Feasibility Study Report for Parcel E

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Legend

- Impacted Site or Building
- Impacted Building (Demolished)
- Nonimpacted Building
- Impacted Sites With Designation
- Impacted Storm Drain System
- Impacted Sanitary Sewer System
- IR Site Boundary
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- Existing Building
- Demolished Building
- Road
- Gravel Road

Notes:

HPS Hunters Point Shipyard
IR installation restoration

Impacted Sites are individual sites or buildings that have known contamination or where site history indicates that radiological contamination may be present. Impacted Sites with Designation refer to an entire geographic unit that has been radiologically impacted, such as an IR site.

For planning purposes, all storm drains and sanitary sewers should be considered impacted. Storm drain and sanitary sewer line locations are based on data from the Navy's Caretaker Site Office and the Historical Radiological Assessment; locations will be verified in the field. Construction documentation for septic sewer lines does not exist. Potential septic sewer lines, if found to originate from radiologically impacted buildings in Parcel E, would be considered impacted.

Buildings 505, 515, 600, and 616 are non-impacted buildings within an impacted site; radiological precautions may be required.

[a] Piers and berths are considered part of Parcel F but are identified in this document for completeness.

575 0 575

Scale in Feet

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FIGURE 1-3

RADIOLOGICALLY IMPACTED BUILDINGS AND SITES AT PARCEL E

Feasibility Study Report for Parcel E

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Section 2. Site Characterization

This section presents site characterization information concerning HPS and Parcel E. Section 2.1 provides HPS's history, including occupancy over time, geographic units, and a summary of prior investigations, removal actions, and treatability studies. Section 2.2 provides information about HPS's environmental setting, including land use, historic areas, climate, topography and surface water drainage, ecology, geology, hydrogeology, and current groundwater use and potential beneficial uses. Section 2.3 summarizes the nature and extent of chemicals in soil, shoreline sediment, and groundwater in Parcel E. Section 2.4 presents the CSM for Parcel E. Section 2.5 summarizes the risk evaluations for humans and wildlife based on exposure to soil, shoreline sediment, and groundwater in Parcel E.

2.1. HUNTERS POINT SHIPYARD HISTORY

The purpose of this section is to provide a historical context for the reader. Section 2.1.1 presents the history of occupancy at HPS. Section 2.1.2 describes the spatial geographic units at Parcel E. Section 2.1.3 summarizes the history of investigations to provide further background on work completed to characterize Parcel E.

2.1.1. HPS Occupancy History

HPS was owned and operated by Bethlehem Steel as a commercial dry dock facility until 1939, when the Navy purchased the property. Upon entry of the U.S. into World War II in 1941, the Navy immediately began to expand HPS into a naval shipyard. The Navy began excavation of the hills surrounding the shipyard, using the resulting spoils to expand the shoreline into San Francisco Bay. Quays, docks, and support buildings were built on an expedited wartime schedule to support the shipyard's mission of fleet repair and maintenance (NAVSEA, 2004).

Immediately after the end of World War II, the Navy used the expansive berthing facilities at HPS for reserve fleet ships returning from the Pacific. By 1951, HPS shifted from operating as a general repair facility to specializing in submarine maintenance and repair. However, the Navy continued to operate Pacific Fleet carrier overhaul and ship maintenance repair facilities at HPS through the 1960s. In addition to these shipyard operations, the Naval Radiological Defense Laboratory (NRDL) occupied buildings at HPS, including several buildings at Parcel E, during the 1950s and 1960s to conduct practical and applied research on radiation decontamination methods and on the effects of radiation on living organisms and natural and synthetic materials. The NRDL ceased operations in 1969 (NAVSEA, 2004). Radiological operations at HPS are discussed in Section 2.1.3.5. Use of the shipyard began to decline steadily in the

late 1960s and early 1970s, and the shipyard was disestablished as an active Naval facility in 1974 (NAVSEA, 2004).

In 1976, the Navy leased 98 percent of HPS to a private ship repair company, Triple A Machine Shop, Inc. (Triple A). Triple A leased the property from July 1, 1976, to June 30, 1986. During the lease period, Triple A used dry docks, berths, machine shops, power plants, various offices, and warehouses to repair commercial and Navy vessels. Triple A also subleased portions of the property to various other businesses.

In 1986, the Navy resumed occupancy of HPS. Many of the subtenants under Triple A's lease remained tenants under the Navy's reoccupancy in 1986. Triple A vacated the property in March 1987. Only a few tenants remain at HPS, primarily the San Francisco Police Department and an artist colony.

2.1.2. Geographic Units at HPS and Parcel E

Geographic units at HPS include parcels, IR sites, and redevelopment blocks. This section discusses the relationship of these units. At each parcel, contaminated sites at HPS were designated as IR sites based on information developed during the previous investigations. IR sites were in most cases identified by a two-digit number; for example, IR-02. Site characterization activities and sampling data were mostly planned and organized by IR site. To assess risk, the BCT agreed to divide all of HPS into two different sized grids (residential and industrial) as a method of statistically calculating risk within an area for different future land use scenarios. The CCSF designated redevelopment blocks for portions of HPS in accordance with the planned future reuse. This report uses redevelopment blocks, adjusted by the Navy to facilitate data presentation and evaluation, as the basis for developing remedial alternatives to address potential unacceptable risk present within Parcel E. Accordingly, references to redevelopment blocks contained elsewhere in this FS Report refer to the Navy-defined redevelopment blocks. The Navy acknowledges that the boundaries of individual redevelopment blocks may be revised during redevelopment; the Record of Decision (ROD) will list the boundaries of the reuse categories consistent with the CCSF's amended redevelopment plan (SFRA, 2010c). The chemicals at Parcel E determined to pose a potential unacceptable risk to human health were identified as COCs. COCs are identified when the chemical-specific risk exceeds 1E-06 or the noncancer hazard exceeds 1. IR sites are still referred to in the characterization sections of this FS Report as they relate to historical operations and resulting sources of contamination found in soil, groundwater, and shoreline sediment at Parcel E.

The CCSF's amended redevelopment plan (SFRA, 2010c) identifies reuse areas at HPS and, as discussed briefly in Section 1, the Navy subdivided the reuse areas in Parcel E into redevelopment blocks to facilitate data presentation in this FS Report. In some cases, IR sites are completely contained within redevelopment blocks; and in other cases, the IR sites cross redevelopment block boundaries. Figure 1-2 shows Parcel E reuse area boundaries, the redevelopment blocks, and the IR site boundaries. Table 2-1 outlines the correlation between the redevelopment blocks and the IR sites.

Parcel E includes 21 IR sites associated with former shipyard operations: IR-02 Central, IR-02 Northwest, IR-02 Southeast, IR-03, IR-04, IR-05, IR-08, IR-11/14/15, IR-12, IR-13, IR-36 North, IR-36 South, IR-36 West, IR-38, IR-39, IR-40, IR-52, IR-54, IR-56, IR-72, and IR-73 (see Figure 1-2). IR-08, IR-36 North, IR-36 South, IR-36 West, IR-38, and IR-39 were initially located in Parcel D and addressed in the original Parcel D RI Report. IR-36 North, IR-36 South, and IR-36 were added to Parcel E in 1998 (TtEMI, 1998a), and IR-08, IR-38, and IR-39 were added to Parcel E in 2005 (Navy, 2005). Parcel E also includes four IR sites that were established for the former utility network at HPS (see Figures 2-1 and 2-2): IR-45 (steam line system), IR-47 (fuel distribution lines), IR-50 (storm drain and sanitary sewer systems), and IR-51 (former electrical transformer locations).

Based on the original (1997) redevelopment plan, Parcel E consisted of 13 redevelopment blocks. Land uses within the 13 redevelopment blocks included mixed use, industrial, research and development, maritime-industrial, and open space. Based on the CCSF's amended redevelopment plan (SFRA, 2010c), two land use districts are now located on Parcel E: the Shipyard South Multi-Use District and the Shipyard Shoreline Open Space District. The two districts and their proposed land uses are described below.

The Shipyard South Multi-Use District encompasses the central and northern portion of Parcel E. The proposed principal land uses in Shipyard South Multi-Use District include athletic and recreational facilities; office and industrial uses; multi-media and digital arts uses; institutional uses; retail sales and services; and civic, arts, and entertainment (SFRA, 2010c). The Shipyard South Multi-Use District also includes a proposed new stadium for the San Francisco 49ers (located in adjoining Parcel G with support facilities proposed at Parcel E). If the new stadium is not developed in this district, the principal uses allowed would be residential and institutional uses. As previously discussed, the Navy subdivided the Shipyard South Multi-Use District into smaller redevelopment blocks to facilitate the data presentation in this FS Report. These Navy-defined redevelopment blocks in Parcel E are MU-1, MU-2, and MU-3.

The Shipyard Shoreline Open Space District encompasses the shoreline area and the southern portion of Parcel E. The principal land uses in the Shipyard Shoreline Open Space District include active and passive recreation, plazas and promenades, wetlands restoration, and ancillary commercial use (SFRA, 2010c). Similar to the Shipyard South Multi-Use District, the Navy subdivided the Shipyard Shoreline Open Space District into smaller redevelopment blocks (EOS-1 through EOS-4, EOS-5A, EOS-5B, and EOS-5C) to facilitate the data presentation in this FS Report. As noted on Figure 1-2, the proposed roadway along the existing Crisp Avenue does not contain chemicals in soil or groundwater requiring evaluation in this FS Report, thus this area was not included in the Navy-defined redevelopment blocks. In addition, the railroad right-of-way comprising IR-52 is part of the CCSF's redevelopment plan for the Bayview Hunters Point redevelopment project adjoining HPS (SFRA, 2010b), and is planned for predominantly light industrial reuse.

This FS Report organizes the presentation of soil and shoreline sediment data by the Navy-defined redevelopment block, including the nature and extent of contamination, risk evaluation results, RAOs, GRAs, and remedial alternatives. Groundwater is presented based on identified groundwater plumes (regardless of redevelopment block) and includes the nature and extent of contamination, risk evaluation results, RAOs, GRAs, and remedial alternatives.

All data are assigned to a redevelopment block (for soil or shoreline sediment) or plume (for groundwater) and are evaluated in this FS Report. The August 2012 boundary change between Parcels E and E-2 involved moving a small area (0.98-acre in size) from Parcel E-2 to Parcel E. As shown on Figure 1-2, the small, 0.98-acre area is not located within an existing IR site boundary; however, previous soil and groundwater investigations, performed to determine the nature and extent of contamination at adjacent IR sites, identified chemicals at concentrations posing a potential risk to humans. The soil and groundwater data collected from the small, 0.98-acre area are described in Section 2.3. The small, 0.98-acre area included parts of the Shipyard South Multi-Use District and the adjoining roadway, which as described previously could be used for residential purposes. The Navy determined that it was more efficient to evaluate the potential remedial alternatives for this area (incorporating future residential use) within the FS Report for Parcel E because (1) the portion of the Shipyard South Multi-Use District located within Parcel E-2 is relatively small, with the planned reuse for Parcel E-2 consisting almost entirely of open space (part of the Shipyard Shoreline Open Space District), and (2) the change could be incorporated relatively easily into the existing evaluation of redevelopment blocks MU-1 and MU-3 (Figure 1-2).

Land areas without data are also addressed in the remedial alternatives. IR-40 consists of two reinforced concrete structures, Pier 2 and Building 527 (former electrical substation), that directly overlie San Francisco Bay; because IR-40 does not contain any soil or groundwater, it is not evaluated in this report. However, Pier 2 and Building 527 are considered radiologically impacted and are addressed in the Radiological Addendum to the FS Report (ERRG and RSRS, 2011). IR sites for the former utility network at HPS will be addressed as a component of the specific redevelopment block they affect. Table 2-2 lists the buildings at Parcel E by redevelopment block.

2.1.3. Previous Investigations and Removal Actions

This section summarizes investigations, evaluations, and removal actions conducted at or planned for Parcel E. The Navy first began investigating environmental conditions at HPS in 1984. Since that time, more than 20 investigations, evaluations, and removal actions have been conducted in Parcel E, including:

- Initial investigations that identified sites where releases of hazardous substances may have occurred using personnel interviews, records searches, and the evaluation of aerial photographs
- Investigations that characterized the nature and extent of CERCLA-regulated chemicals using biased sampling methods

- Removal actions conducted to mitigate unacceptable risks to human health and the environment until a final remedy is selected for Parcel E
- Treatability studies to evaluate the effectiveness of remediation technologies at specific IR sites
- Radiological investigations conducted in parallel with the main RI process

These activities support the development of the CSM, as well as the effectiveness and implementability of process options to clean up the parcel. Tables 2-3 and 2-4 provide the overall history of investigations and removal actions, including a summary of activities and recommendations and the reports in which the results were documented. The following sections briefly summarize the previous investigations and removal actions at Parcel E, based on information presented in Appendix A of the Revised RI Report (Barajas and Associates, 2008b).

2.1.3.1. Initial Investigations of Potential Source Areas

The investigations conducted to identify sites where releases of hazardous substances may have occurred involved various approaches, including conducting personnel interviews and records searches and reviewing aerial photographs. Through these investigations, the Navy evaluated all Parcel E activities that could have caused or contributed to releases of hazardous substances into the environment and identified areas that required more detailed characterization. The investigations are listed below in chronological order.

- 1984: Initial Assessment Survey
- 1986: Triple A Investigation
- 1987: Confirmation Study
- 1987: Area Study
- 1988: Fence-to-Fence Survey
- 1988 to 1989: Solid Waste Area Quality Assessment Test
- 1988: Remedial Investigation Phase 1 Reconnaissance
- 1989 to 1990: Preliminary Assessment
- 1993 to 1994: Site Inspection
- 1993 to 1994: Site Assessment

The 25 IR sites at Parcel E were identified through these initial investigations as areas requiring more detailed characterization (Table 2-1).

2.1.3.2. Focused CERCLA Investigations

The initial investigations described in Section 2.1.3.1 identified Parcel E areas requiring further characterization. These areas were further investigated under the CERCLA framework to determine if releases of hazardous substances had occurred and, if so, to characterize the nature and extent of chemicals in soil, shoreline sediment, and groundwater. The investigations typically consisted of collecting environmental samples for laboratory analysis from identified potential source areas. Analytical data collected from 1988 to 1996 was summarized in the original Parcel E RI Report (TtEMI, LFR, and U&A, 1997). Since the original 1997 RI Report was completed, the following additional field investigations and monitoring programs were conducted to fill data gaps at Parcel E:

- 1999 to 2000: Parcel E Validation Study and Protective Soil Concentrations Technical Memorandum
- 2000 to 2002: Groundwater Data Gaps Investigation
- 2001 to 2002: Wetland Delineation and Wetland Functions Assessment
- 2002: Standard Data Gaps Investigation
- 2004 to present: Basewide Groundwater Monitoring Program

Analytical data from these investigations are presented in the Revised RI Report (Barajas and Associates, 2008b). This FS Report considers all data collected within the current boundaries of Parcel E, including original RI data and data obtained from additional investigations, ongoing monitoring, and removal actions conducted through June 2008, when this FS Report was initiated. Overall, the focused investigations provided sufficient data to characterize the nature and extent of chemicals in soil, shoreline sediment, and groundwater at Parcel E; evaluate risk to humans and wildlife; and support the remedy evaluation in this FS Report.

2.1.3.3. Removal Actions

Numerous removal actions and cleanup activities have been performed at Parcel E. Removal and cleanup actions have addressed the following media:

- Soil
- Sediment in storm drain lines
- Underground storage tanks (USTs) and aboveground storage tanks (ASTs)
- Storm drain and sewer lines
- Industrial process equipment and other waste types (including construction debris and asbestos-containing materials)

Table 2-4 summarizes the removal actions and cleanup activities conducted at Parcel E. As discussed in Section 1.1, removal and cleanup actions associated with petroleum USTs and ASTs are being evaluated in the TPH corrective action program and are not summarized herein.

The following removal and cleanup actions have been performed to date:

- 1988: Basewide removal of polychlorinated biphenyl (PCB)-containing electrical transformers
- 1988: Removal of soil at IR-08 PCB spill area
- 1991: Removal of floating product at IR-03
- 1991 to 1994: Removal of 8 USTs, closure of 2 USTs in place, and removal of 12 ASTs
- 1991 to 1995: Removal and fixation of sandblast waste
- 1996 to 1998: Installation of a 900-foot long sheet-pile wall and low-permeability cap at the former oil reclamation ponds in IR-03
- 1996 to 1997: Removal of sediment from the storm drain system
- 1996: Removal of soil from the exploratory excavation at IR-11/14/15
- 2001: Time-critical removal of soil containing non-volatile organic compounds at IR-08
- 2002 to 2004: Decontamination of industrial process equipment and removal of various wastes and ASTs from Building 521
- 2003 to 2004: Removal of various debris from the Parcel E shoreline
- 2003 to 2004: Removal of five soil stockpiles from IR-02 Southeast and IR-73
- 2004: Removal of TPH-contaminated soil from IR-05, IR-36 West, IR-39, and IR-73
- 2005 to 2007: Removal of radioactive soil and debris at IR-02 Northwest and Central Area (see Figure 2-1)
- 2005 to 2007: Removal action of radioactive soil and debris at IR-02 Southeast Metal Debris Reef (see Figure 2-1)
- 2005 to 2007: Removal of PCB- and TPH-contaminated soil, as well as radioactive soil and debris, at PCB Hotspot Area (located primarily on Parcel E-2 but extending into Parcel E, IR-02 Northwest, see Figure 2-1)

2.1.3.4. Treatability Studies

The Navy has conducted two treatability studies at Parcel E to evaluate the effectiveness of remedial technologies at various IR sites. The objectives, approach, and conclusions of the treatability studies are discussed in the following sections.

2.1.3.4.1. 2001 and 2002 Soil Vapor Extraction Treatability Study

In 2000 and 2001, a soil vapor extraction (SVE) treatability study was performed inside and immediately northwest of Building 406 (Redevelopment Blocks MU-1 and MU-2). The SVE system, which consisted of 3 SVE wells and 15 vapor monitoring wells, operated for 3 months beginning in May 2001 (IT Corporation, 2002). Trichloroethene (TCE) was found to be the predominant volatile organic compound (VOC) in vadose zone soil. The cumulative VOC mass removed during the test performance period was estimated at 7 pounds, with over 90 percent of the VOC mass attributed to TCE (IT Corporation, 2002). This estimate was substantially higher than the initial amount of TCE assumed to be present in soil within the study area, indicating the potential presence of more extensive TCE contamination in the vadose zone. No soil samples were collected after operation of the SVE system; however, based on comparison of the estimated mass of TCE removed with original estimates of TCE in soil, additional investigation was recommended to further characterize the extent of VOCs in the vadose zone beyond the treatability study area (IT Corporation, 2002). Based on the results of the study, SVE appeared to be an effective remedial technology to remove VOCs from vadose zone soil.

2.1.3.4.2. 2009 and 2010 Zero Valent Iron Groundwater Treatability Study

In 2009 and 2010, the Navy performed a groundwater treatability study (GWTS) to evaluate the effectiveness of zero-valent iron (ZVI) injection in treating groundwater contamination at Parcel E. The GWTS was implemented in two phases: (1) a plume characterization phase, during which groundwater and soil vapor samples were collected to better delineate the groundwater plumes identified in the Revised RI Report (Phase I), and (2) treatment of select plumes using ZVI (Phase II) (Shaw, 2011).

Phase I of the study was conducted between April and November 2009 and consisted of initial characterization of the following plumes identified in the Revised RI Report: IR-04, IR-12 tetrachloroethene (PCE) plume, IR-12 benzene plume, Building 406 TCE plume (at IR-36 South), and IR-56 TCE plume (Shaw, 2011). Phase I included collection and analysis of (1) baseline groundwater samples from existing monitoring wells, (2) groundwater samples from direct-push borings and new wells installed for the GWTS, (3) soil vapor samples from soil vapor points installed for the GWTS, and (4) soil samples collected from direct-push borings. Based upon the Phase I characterization, ZVI injections were not recommended for the IR-04 TCE plume, IR-56 TCE plume, and the IR-12 benzene plume because concentrations of COCs did not significantly exceed their respective project-specific goals. In addition, the IR-12 benzene plume was not a candidate for ZVI injection because the plume is composed mainly of fuel-related hydrocarbons that would not be effectively treated by ZVI. Also, soil vapor data identified elevated concentrations of VOCs at several locations under Building 406 (Shaw, 2011). ZVI injections were recommended for two plumes (IR-12 PCE plume and Building 406 TCE plume) based on the Phase I characterization results.

For the two plumes, areas where VOCs were detected at concentrations greater than 10 times their respective project-specific goals were targeted for ZVI injections. At the Building 406 TCE plume (between January and March 2010), a total of 104,461 pounds of microscale ZVI was injected through 91 injection points and 400 gallons of nanoscale ZVI (approximately 5,440 pounds of ZVI) was injected through 4 injection points. At the IR-12 PCE plume, approximately 20,205 pounds of microscale ZVI were injected through 17 injection points in December 2009. Groundwater and soil vapor samples were collected at 2 weeks, 6 weeks, and 12 weeks after ZVI injections were completed at both plumes. The post-injection monitoring data indicated that, at several injection areas, ZVI was capable of reducing VOC concentrations to meet the project-specific goals; however, the study concluded that additional monitoring was needed at the plume areas to better assess post-injection groundwater conditions (Shaw, 2011). The Navy continues to collect groundwater data at the IR-12 PCE plume and Building 406 TCE Plume under the Basewide Groundwater Monitoring Program (BGMP). In addition, the Navy has initiated a follow-on study to collect additional soil and soil vapor data in high-concentration VOC areas at the Building 406 TCE Plume; the study is planned for implementation in 2012.

2.1.3.5. Radiological Program

Radioactive materials are present at HPS from past shipyard and NRDL operations and decontamination of ships that participated in atomic weapons testing (NAVSEA, 2004). These radioactive materials are defined as CERCLA hazardous substances and therefore must be addressed under the IR Program. To do so, the Navy established a basewide radiological program for HPS under the authority of the "Final Action Memorandum for Time-Critical Removal Action of Radiological Materials in Soils, Debris, or Structures at Hunters Point Shipyard, San Francisco, California" (Navy, 2006a). The goal of the action memorandum is to eliminate substantially identified pathways of exposure to radioactive contamination for surrounding populations and nearby ecosystems. This goal will be accomplished through site investigations and removal actions. "Mixed-waste" sites where chemicals and radioactive materials are both present will be addressed as part of the radiological actions to the extent practical, thereby simplifying the remedy evaluation and selection and accelerating the cleanup and transfer of HPS.

Remedial action may be required at mixed-waste sites, where it is not practical to eliminate pathways of exposure to radioactive contamination during removal actions. This FS Report evaluates potential remedies for mixed-waste sites to limit or eliminate potential exposures to COCs and COECs in soil, shoreline sediment, and groundwater. Potential remedies for mixed-waste sites will be refined as appropriate in a radiological addendum to this FS Report to ensure their protectiveness of humans and wildlife from exposure to radioactive contamination. In addition, potential remedies for areas affected by only radioactive materials will be evaluated in the radiological addendum to this FS Report. The radiological addendum and ROD for Parcel E will select remedies that address radiological and mixed waste issues.

2.2. HUNTERS POINT SHIPYARD ENVIRONMENTAL SETTING

This section provides information related to HPS's environmental setting, including land use, historical areas, climate, topography and surface water drainage, ecology, soils, geology, hydrogeology, and current and potential beneficial uses for groundwater.

2.2.1. HPS and Surrounding Land Use

The main portion of HPS is situated on a long headland located in the southeastern part of San Francisco, extending eastward into San Francisco Bay (see Figure 1-1). HPS is bounded on the north, south, and east by the bay and on the west by the Bayview/Hunters Point district of San Francisco. HPS consists of 866 acres: 420 acres on land and 446 acres under water in the bay.

Parcel E includes about 139 acres of relatively flat shoreline and lowland coast along the southwestern portion of HPS (see Figure 1-2). Parcel E is bounded to the north by non-Navy property, to the east by Parcels D-1, G, and UC-1, to the south by intertidal shoreline areas along San Francisco Bay, and to the west by Parcel E-2 and non-Navy-property. Parcel E contains 44 buildings, and the adjoining offshore area contains 14 ship berths and 2 piers.

Historically, most of Parcel E was used as industrial support area, consisting of supply and public works facilities for HPS. Shoreline areas at Parcel E were used to store construction and industrial materials, as well as to dispose of industrial waste and construction debris. The NRDL used several Parcel E buildings during the 1950s and 1960s to conduct practical and applied research on radiation decontamination methods and on the effects of radiation on living organisms and natural and synthetic materials. The NRDL ceased operations in 1969 (NAVSEA, 2004). Many operations conducted by the Navy at Parcel E are well documented, including the locations where routine and planned activities and waste disposal occurred. Undocumented activities also may have been conducted, such as storage of materials and equipment, short-term industrial activities, and waste disposal (TtEMI, LFR, and U&A, 1997). The Revised RI Report evaluated all available environmental data and made conservative conclusions regarding the nature and extent of contamination, particularly in areas where possible contamination may have resulted from undocumented activities (Barajas & Associates, 2008b).

2.2.2. Parcel E Historic Areas

No structures within Parcel E have been identified as qualifying for placement on the National Register of Historic Places (TtEMI, 1998a and 1998b). Enclosure 2 of the Memorandum of Agreement among the Navy, the Advisory Council on Historic Preservation (ACHP), and the State Historic Preservation Office (SHPO) identified archaeologically sensitive zones at HPS (Navy, ACHP, and SHPO, 2000). Based on this archaeological inventory, a historic shellmound site may be present along Crisp Avenue in the northwest portion of Parcel E (north of IR-75, a formerly used defense site). Future CERCLA actions in

this area must comply with the substantive provisions of § 106 of the National Historic Preservation Act and its implementing regulations at Title 36 CFR Part 800.

2.2.3. Climate

The climate at HPS is characterized by partly cloudy, cool summers with little precipitation and mostly clear, mild winters with moderate precipitation. Most of the annual precipitation falls between November and April. Summer temperatures are influenced by low fog in the mornings and a steady flow of marine air from the Pacific Ocean in the afternoons. The warmest temperatures in the area occur near the coast in late summer and fall (U.S. Soil Conservation Service [SCS] 1991).

Wind speed and direction data were collected from a meteorological tower located on Parcel E (in the vicinity of IR-12) between October 2002 and September 2008. Prevailing winds are from the west, west-northwest, and west-southwest. As a result, airborne dust would likely be transported primarily east toward San Francisco Bay. The average wind speed is approximately 8 miles per hour, although gusts may exceed 25 miles per hour (TtEMI, LFR, and U&A, 1997).

2.2.4. Topography and Surface Water Drainage

Land at HPS consists of relatively level lowlands constructed by excavating portions of surrounding hills and placing nonengineered fill materials along the margin of San Francisco Bay. The remaining land is a moderate to steep sloping, northwest-trending ridge. Parcel E is located in the lowlands with surface elevations ranging from 0 to 12 feet above mean sea level (msl); predominant ground surface elevations range from 7 to 10 feet above msl.

The only surface water features within Parcel E are the wetlands areas along the shoreline, as shown on Figure 3-3 of the Revised RI Report (Barajas & Associates, 2008b). Surface water at HPS drains to the San Francisco Bay primarily as sheet flow from either the highlands of the former Parcel A to the surrounding lowlands or from the lowlands themselves. In Parcel E, runoff is primarily collected by the storm drain system and is discharged to the bay through three stormwater discharge outfalls, with Outfall 33 receiving most of the stormwater drainage (MARRS Services, Inc. and MACTEC Engineering and Consulting, 2008). The stormwater discharge outfalls are located at the southeast corner of the parcel and may also receive incoming water from the bay from tidal fluctuations (Barajas & Associates, 2008b). Surface runoff not collected by the storm drain system, particularly where the storm drain system is absent along the shoreline, drains toward the bay. The existing storm drain system remains in place and is functioning; however, the Navy is in the process of removing the existing sanitary sewer and storm drain lines across HPS under a basewide removal action to address potential radioactive contamination (Navy, 2006a).

Surface water runoff at Outfall 33 is monitored in accordance with the Stormwater Discharge Management Plan (MARRS Services, Inc. and MACTEC Engineering and Consulting, 2008). The location of Outfall 33 is identified on Figure 2-2.

2.2.5. Ecology

This section describes the terrestrial and aquatic ecological habitat (including flora and fauna) identified at Parcel E. Section 3.7 of the Revised RI Report provides a detailed description of the habitat and wildlife present at Parcel E (Barajas & Associates, Inc., 2008b).

About 30 percent of Parcel E is ruderal habitat characterized by scattered shrubs and grasses, and about 65 percent is covered by pavement with some sparse vegetation. Ruderal and landscaped habitats at HPS typically support resident and migratory birds common to urban areas of northern California. The following special-status bird species were observed at HPS during previous surveys: peregrine falcon (*Falco peregrinus*), a state fully protected species; double-crested cormorant, a state species of special concern; and loggerhead shrike (*Lanius ludovicianus*), a state species of special concern (Harding Lawson Associates [HLA], 1991). The Navy conducted a site-specific assessment of the potential occurrence of species protected under the Endangered Species Act at Parcels E and E-2 (Tetra Tech FW, Inc. 2004). The primary conclusion of the assessment, which was performed to support the removal actions at the Metal Debris Reef, IR-02 Northwest and Central Area, and the PCB Hotspot Area, was that no suitable habitat exists at Parcels E or E-2 for any of the rail species (Tetra Tech FW, Inc. 2004). No special-status plants, mammals, reptiles, amphibians, or invertebrates are expected to be present within the terrestrial habitat at Parcel E (Barajas & Associates, Inc., 2008b).

The remaining 5 percent of Parcel E consists of beach areas, intertidal areas, and wetland areas. The dominant plants in the wetlands are saltgrass (*Distichlis spicata*) and pickleweed (*Salicornia virginica)*. Other organisms that live in the shoreline area of Parcel E include birds and invertebrates. Birds using the shoreline area include the willet (*Tringa semipalmata*), killdeer (*Charadrius vociferous*), great blue heron (*Ardea herodias*), and double-crested cormorant (*Phalacrocorax auritus*), which is a state species of special concern.

Aquatic invertebrates hide under rocks and feed on other small invertebrates or plant materials, such as crustacean crabs and isopods. Mussels (usually *Mytilus edulis*) have been observed at low tide attached to the rocks. Barnacles also attach to rocks and the shells of mussels, and can be seen at low tide. Harbor seals (*Phoca vitulina*) have been observed on an offshore concrete platform southeast of the Metal Debris Reef Area, and sea lions (*Zalophus californianus*) have been observed in the bay near Parcel E (Barajas & Associates, Inc., 2008b).

2.2.6. Parcel E Geology

This section provides an overview of Parcel E geology. For a more detailed description of the Parcel E geology, refer to the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b). Five geologic units underlie HPS: four unconsolidated sedimentary deposits of Quaternary age and the Jurassic-Cretaceous-age Franciscan Complex bedrock. In general, the stratigraphic sequence of these geologic units, from youngest (shallowest) to oldest (deepest), is as follows:

- Artificial Fill (Qaf)
- Undifferentiated Upper Sands (Quus)
- Bay Mud (Qbm)
- Undifferentiated Sediments (Qu)
- Bedrock (Kf)

Each of these geologic units is briefly discussed below.

2.2.6.1. Artificial Fill (Qaf)

Artificial fill material covers unconsolidated Holocene-age sediments (Quus, Qbm, and Qu). The Holocene-age sediments were deposited on an uneven eroded bedrock surface across HPS. The overburden (Artificial Fill and Unconsolidated Sediments) above the bedrock at Parcel E ranges from less than 5 feet thick at the northwestern border of Parcel E (in gas monitoring probes installed along Crisp Avenue) to about 280 feet thick at the south-central portion of Parcel E, along the bay shoreline. Geologic cross sections for Parcel E are presented on Figures 3-4, 3-5, and 3-6 in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b).

Artificial Fill at Parcel E is heterogeneous and ranges from silty and sandy clays with gravel to poorly graded sands, boulders, and debris deposits. Based on the large volume of bedrock quarried from the Hunters Point peninsula and the volume of Artificial Fill that is present, it appears that most of the coarse fill material is locally derived from the Franciscan Complex bedrock of which the main constituents are serpentinite, greenstone, shale, greywacke, and chert (TtEMI, LFR, and U&A 1997; TtEMI, 2004).

Chemical analysis of bedrock at HPS (Innovative Technical Solutions, Inc. [ITSI] and others, 2004), revealed elevated concentrations of arsenic, iron, and manganese in chert and elevated concentrations of nickel in serpentinite. These metals appear to be ubiquitous at HPS and occur at elevated concentrations in the bedrock-derived fill material. In this report, the term “ubiquitous” refers to metals that are naturally occurring or are detected in fill materials in the same concentration ranges as naturally occurring metals. The Navy acknowledges that industrial sources of metals exist at HPS and there is a potential that some concentrations of metals could be anthropogenic. However, as a result of filling operations at HPS that

involved redistribution of crushed bedrock, the fill materials would include redistributed, crushed bedrock with minerals that contain relatively high concentrations of arsenic, manganese, nickel, and other metals.

In addition to bedrock-derived fill, three other types of fill are present at Parcel E: (1) industrial and construction debris fill, (2) sediments dredged from San Francisco Bay to deepen shipping channels during construction of the shipyard, and (3) recently imported backfill materials. Industrial fill includes metal debris, processed wood fragments, bricks, concrete, sandblast waste, household refuse, and other materials. These materials are usually incorporated in a clay or sand matrix. The dredged sediment and the imported backfill materials are poorly graded, very fine- to fine-grained sand mixed with fine- to coarse-grained angular gravel and occasionally with well-graded, fine- to coarse-grained sand with gravel (TtEMI, LFR, and U&A 1997; TtEMI, 2004).

2.2.6.2. Undifferentiated Upper Sands (Quus)

The Undifferentiated Upper Sands, below Artificial Fill, are Holocene-age terrestrial alluvial deposits and estuarine marine sands that usually overlie, but in places are interbedded with, the Bay Mud.

2.2.6.3. Bay Mud (Qbm)

The Bay Mud consists of Holocene-age estuarine sediments that in Parcel E are almost exclusively composed of silt and clay. The Bay Mud mostly underlies Artificial Fill, but in places it underlies or is interbedded with Undifferentiated Upper Sands. The Bay Mud deposits have an irregular contact with the overlying units. The irregular contact may be attributed to both natural causes (such as former stream channels) and manmade causes (such as dredging or placement of heavier bedrock-derived fill and debris on softer Bay Mud and sand deposits). Bay Mud is present over most of Parcel E, but is absent at the bedrock highs in the central and southeastern portions of the parcel and at the northwestern border of Parcel E (along Crisp Avenue) where the depth to bedrock is less than 5 feet below ground surface [bgs].

2.2.6.4. Undifferentiated Sediments (Qu)

Undifferentiated Sediments are typically interbedded clay, silt, and sand. The Undifferentiated Sediments underlie Artificial Fill, Undifferentiated Upper Sands, and Bay Mud and overlie bedrock in areas where contacts have not been disturbed by human activities. Undifferentiated Sediments are about 230 feet thick in the south-central portion of Parcel E and become thinner to the north and east. Undifferentiated sediments are absent at the bedrock highs in the central and southeastern portions of the parcel and at the northwestern border of Parcel E (along Crisp Avenue) where the depth to bedrock is less than 5 feet bgs.

2.2.6.5. Bedrock (Kf)

Bedrock at HPS (and in Parcel E) is part of the Franciscan Complex, which comprises a diverse group of rocks assembled by the process of subduction (Wakabayashi, 1992). Rock types of the complex include basalt (greenstone), serpentinite, chert, sandstone, siltstone, and shale. The depth to bedrock is shallowest

(less than 5 feet bgs) at the northwestern border of Parcel E (along Crisp Avenue). The bedrock surface is deepest (about 280 feet bgs) in the south-central portion of the parcel. Two bedrock highs are located in Parcel E: one in the center of the parcel near Buildings 406, 413, and 414, and one in the southeastern corner of the parcel at Building 521. Bedrock surface elevation contours at Parcel E are shown on Figure 3-8 in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b).

2.2.7. Parcel E Hydrogeology

This section presents a brief overview of the Parcel E hydrogeology by hydrostratigraphy, aquifer parameters, groundwater flow, and tidal influence. A more detailed description of the Parcel E hydrogeology is presented in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b).

2.2.7.1. Parcel E Hydrostratigraphy

The hydrostratigraphic units at HPS include (1) the A-aquifer, (2) the B-aquifer, and (3) the bedrock water-bearing zone. An aquitard composed of the Bay Mud separates the A-aquifer from the B-aquifer across most of Parcel E. Cross sections for Parcel E are presented on Figures 3-4, 3-5, and 3-6 in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b).

The A-aquifer at Parcel E primarily consists of heterogeneous Artificial Fill (Qaf), although it may include (1) Undifferentiated Upper Sands; (2) sandy units within the Bay Mud, when these units are hydraulically connected to the A-aquifer; and (3) the upper weathered bedrock zone, when the A-aquifer directly overlies bedrock (such as in the southeastern corner of Parcel E at Building 521). The A-aquifer covers almost all of Parcel E and ranges from a few feet thick to over 50 feet thick. The lateral continuity of the A-aquifer is disrupted by numerous low-permeability zones because of the heterogeneous nature of the Artificial Fill. The A-aquifer is unconfined throughout most of Parcel E, but semiconfined conditions may exist in many places where fine-grained sediments below the water table overlie more permeable materials. Depth to groundwater ranges from 4 to 15 feet bgs, with an average depth to groundwater across Parcel E of about 8 feet bgs.

Bay Mud acts as an aquitard that typically separates the A-aquifer from the underlying B-aquifer. Bay Mud deposits range from 5 to 76 feet thick under most of Parcel E; the aquitard is thickest in the southern portion of the parcel, along the shoreline. The Bay Mud aquitard is absent in the northern portion of Parcel E, along Crisp Avenue, and in the areas of the bedrock highs.

The B-aquifer in Parcel E consists of Undifferentiated Sediments, in a sequence of relatively thick (about 30 to 40 feet), laterally continuous layers of sand and silty and clayey sand, which are separated by laterally continuous layers of silt and clay. The lower portions of the B-aquifer are overlain by layers of silts and clay; therefore, it is less likely to be affected by contamination from site activities. The uppermost B-aquifer generally corresponds to the upper 20- to 40-foot-thick layer of sand and silty sand

of Undifferentiated Sedimentary deposits. The B-aquifer is generally confined by the Bay Mud aquitard, which separates it from the A-aquifer across most of Parcel E. The aquitard is absent along the northern border of Parcel E. In these locations, the A- and B-aquifers are in hydraulic communication and behave as a single aquifer.

Deeper portions of saturated fractured bedrock that are not in direct contract with the A- or B-aquifers are hydrostratigraphically classified as the bedrock water-bearing zone. The fractured, unweathered bedrock is not considered an aquifer because of its limited flow capability and low storage capacity.

Groundwater monitoring has been limited to the uppermost B-aquifer, and no monitoring has been required in the lower portions of the B-aquifer or the bedrock WBZ. The A-aquifer and uppermost B-aquifer present at HPS are potentially affected by contamination from Parcel E.

2.2.7.2. Hydraulic Characteristics

The calculated hydraulic conductivities of the A-aquifer at Parcel E range from 2.7 feet per day (ft/day) to 1,520 ft/day (Barajas & Associates, Inc., 2008b; TtEMI, 2004b). The 1,520 ft/day value is likely not representative of aquifer characteristics because (1) the value was calculated solely from recovery data collected from a pumping well; (2) documentation on this pumping test does not indicate the duration of the test; and (3) no observation wells were included or drawdown in the observation wells was insufficient to calculate hydraulic conductivity, suggesting that the cone of depression for this test may have been limited. If this value is considered an outlier, the actual range for hydraulic conductivities in the A-aquifer at Parcel E would be 2.7 to 510 ft/day (Barajas & Associates, Inc., 2008b). Based on average hydraulic conductivities and gradients measured in the A-aquifer, the estimated average groundwater velocity in the A-aquifer is 408 feet per year (ft/yr).

The calculated hydraulic conductivities in the B-aquifer ranged from 0.18 to 3.1 ft/day. Based on the average hydraulic conductivity and gradients measured in the B-aquifer, the estimated average groundwater velocity for the B-aquifer is approximately 2 ft/yr. Only two slug tests were performed for the bedrock-water bearing zone, and calculated hydraulic conductivities were 0.34 and 0.12 ft/day. The slug tests assumed a porous medium such as sand, rather than the fractured porosity of the bedrock. Therefore, these calculated values are, at best, approximations of the flow velocity (Barajas & Associates, Inc., 2008b).

2.2.7.3. Groundwater Flow

This section discusses the pattern of groundwater flow at Parcel E, including the vertical flow of groundwater and recharge and discharge of groundwater in each aquifer and water-bearing zone. During previous investigations, water levels were measured during wet and dry seasons during periods of low tidal fluctuation to minimize the effect of tides on groundwater elevations. Water levels continue to be

monitored on a quarterly basis using similar procedures. The ongoing water level data should be reevaluated, prior to preparing the remedial design, to verify groundwater flow directions.

A-aquifer groundwater flow patterns at Parcel E are complex. The predominant flow directions have historically been influenced by two major features: (1) a groundwater depression along the boundary between Parcels E and G, and (2) a groundwater divide in the central shoreline area. The natural flow of groundwater toward San Francisco Bay from the topographically high area of the former Parcel A has typically been disrupted by these two features. The groundwater depression is most likely the residual effect of groundwater infiltrating damaged sanitary sewer lines during pumping at a nearby lift station. The sanitary sewer lift station, located at the former Parcel A, ceased operation in May 2007. The lateral extent of the groundwater depression had decreased from approximately 73 acres in May 2007 to 5 acres in March 2008 (CE2-Kleinfelder Joint Venture, 2008b). In March 2009, the groundwater depression was nearly nonexistent at 0.1 acres, indicating that natural hydrogeological conditions were being reestablished (CE2-Kleinfelder Joint Venture, 2009b). The influence of the groundwater divide along the central shoreline area remains unchanged. Figure 2-2 presents the groundwater elevations for A-aquifer wells in Parcel E for March 2009, which show the reduced size of the groundwater depression along the boundary between Parcels E and G.

Two groundwater mounds are associated with groundwater flow within the A-aquifer: one mound (about 2,000 feet long) is parallel to the shoreline in the central portion of Parcel E and extends into Parcel E-2; and one is a small mound in the southeastern portion of Parcel E that coincides with the bedrock high at Building 521. Groundwater on the inland side of the first mound flows to the south-southeast toward bay at an average gradient of less than 0.001 feet per foot (ft/ft). Groundwater on the bayward side flows toward San Francisco Bay at an average gradient of 0.011 ft/ft. Groundwater has historically flowed radially away from the second mound at an average gradient of 0.018 ft/ft (Barajas & Associates, Inc., 2008b); however, recent groundwater elevations have indicated limited influence on groundwater flow (likely the result of lower than normal rainfall in recent years). Groundwater levels in the A-aquifer are generally higher during the wet season (winter and spring) than during the dry season (summer and fall), indicating that precipitation is a primary recharge source for groundwater in the A-aquifer.

The groundwater flow direction in the uppermost B-aquifer appears to be to the southeast at a gradient of 0.002 ft/ft (Barajas & Associates, Inc., 2008b). Figure 2-3 presents groundwater elevations for B-aquifer wells in Parcel E for the March 2008 measurement event. Similar to the A-aquifer, groundwater elevations in the uppermost B-aquifer are generally higher in the wet season than in the dry season.

Groundwater elevations in the B-aquifer wells are generally higher than in the A-aquifer wells indicating an upward vertical hydraulic gradient. Based on data in the Revised RI Report (Barajas & Associates, Inc., 2008b), the differences in groundwater elevations are more pronounced in the northeastern portion of the parcel near the Parcel G boundary and less pronounced near the shoreline. Additionally, elevation

differences are more pronounced during the wet season than the dry season. The B-aquifer appears to exhibit an upward vertical gradient; however, the Bay Mud aquitard separates the B-aquifer from the A-aquifer across most of Parcel E, suggesting little hydraulic communication between the two aquifers in areas where the aquitard is present (Barajas & Associates, Inc., 2008b).

The groundwater elevation has only been measured in one bedrock water-bearing zone well (February 2002). Given the limited data, the direction of groundwater flow in the bedrock water-bearing zone is unknown, but it is assumed to follow the regional flow patter from the upland areas toward San Francisco Bay (Barajas & Associates, Inc., 2008b).

The primary sources of recharge to the A-aquifer in Parcel E are (1) infiltration of precipitation and ponded runoff in unpaved areas, (2) leakage from utility supply lines, (3) intrusion of bay water, (4) horizontal flow (lateral influx or baseflow) of groundwater from areas upgradient of Parcel E, and (5) vertical flow of water in some areas from the underlying B-aquifer. Discharge from the A-aquifer occurs through lateral flow to San Francisco Bay (outflux).

The primary source of recharge to the B-aquifer in Parcel E is considered to be (1) infiltration of precipitation and ponded runoff in outcrop areas in the northern portion of Parcels E and E-2 and (2) horizontal groundwater flow (baseflow) from upgradient areas to the north and west of Parcel E. The upper B-aquifer may discharge to San Francisco Bay in some areas (TtEMI, 2004b), although the deeper B-aquifer may have connate water (i.e., water trapped in sediment or rock at the time of deposition), with discharge to the surface or to the bay limited or prevented by overlying confining layers.

Recharge to the bedrock water-bearing zone is similarly derived from infiltration of precipitation at outcrop areas to the north and northwest of Parcels E and E-2. Groundwater in the bedrock water-bearing zone likely discharges into the B-aquifer (recharging the B-aquifer) at upgradient contacts.

2.2.7.4. Tidal Effects

Tidal effects at HPS have been studied and generally categorized into either tidal influence or tidal mixing. Tidal influence refers to the hydraulic response of near-shore groundwater by daily tidal action. Tidal influence is measured at near-shore groundwater wells and quantified as tidal fluctuations (difference in near-shore groundwater level between consecutive high and low tides), mean tidal efficiency (the ratio of tidally induced changes in groundwater levels to the tidal changes in the surface water), and mean time lag (time difference between the tidal changes in the surface water body and corresponding changes in groundwater levels). Tidal mixing refers to the influx and mixing of San Francisco Bay's saline surface water into near-shore groundwater by daily tidal action; this results in degradation of groundwater with a significant increase of total dissolved solids (TDS) to above 10,000 milligrams per liter (mg/L). Figure 3-14 in the Revised RI Report for Parcel E shows the location of the tidal influence and tidal mixing zone study wells in Parcel E (Barajas & Associates, Inc., 2008b).

Results of a tidal influence study conducted in 2002 indicated the A-aquifer tidal influence zone in Parcel E extends about 100 to 400 feet inland from San Francisco Bay. During the study, the maximum fluctuation of bay water levels (between high and low tides) was about 9 feet (TtEMI, 2004b). Tidal effects on A-aquifer groundwater are generally stronger closer to the bay; however, exceptions exist that likely reflect the heterogeneity of the A-aquifer materials.

In May and June 2002, a tidal mixing study was conducted for the A-aquifer because physical mixing of groundwater and bay water only occurs in the A-aquifer along the shoreline. During the study, specific conductance fluctuations related to tidal fluctuations in water levels were observed along the shoreline in nearshore well IR02MW206A1, located 70 feet from San Francisco Bay in the area east of IR-03, but not in inland well IR15MW06A, located 335 feet from the bay at IR-15. These data indicate that the tidal mixing zone in Parcel E extends at least 70 feet inland from the shoreline (Barajas & Associates, Inc., 2008b).

2.2.8. Groundwater Beneficial Use Evaluation

This section summarizes the evaluation of beneficial use of groundwater in the A-aquifer and B-aquifer at Parcel E. The Revised RI Report evaluated the municipal and domestic drinking water beneficial uses of Parcel E groundwater, focusing on the A-aquifer with respect to federal criteria and the B-aquifer with respect to federal and state criteria. Appendix F of the Revised RI Report provides a detailed discussion of the beneficial use evaluation of groundwater at Parcel E (Barajas & Associates, Inc., 2008b). The Revised RI Report did not evaluate the A-aquifer with respect to state criteria because the Water Board staff concurred with the Navy's determination (Navy, 2003) that the A-aquifer at HPS is not suitable or potentially suitable as a municipal or domestic water supply and meets exemption criteria in State Water Resources Control Board (SWRCB) Resolution 88-63 and Water Board Resolution 89-39 (Water Board 2003b; SWRCB 1988).

Section 3.6 of the Revised RI Report includes a table that summarizes the beneficial use evaluation with respect to nine site-specific factors (SSFs) (Barajas & Associates, Inc., 2008b); these SSFs were provided to the Navy by EPA in an attachment to a 1998 letter (referred to as Enclosure 5) (EPA, 1999a). Based on the federal groundwater classification criteria and the evaluation of SSFs, the A-aquifer is not a viable source of drinking water and federal maximum contaminant levels (MCLs) are not ARARs for the CERCLA action. Furthermore, based on the SSF evaluation, the B-aquifer has potential beneficial use as drinking water across most of the parcel and MCLs are ARARs; however, CCSF regulatory controls prohibit domestic use of groundwater at Parcel E without CCSF approval, and the CCSF has no current plans to install wells for drinking water.

Agricultural beneficial use of the A- and B-aquifer groundwater is limited to areas with TDS at concentrations less than 1,500 mg/L for irrigation and less than 10,000 mg/L for livestock. Both the A- and B-aquifers have potential industrial beneficial use. According to the Basin Plan (Water Board, 2007), site-by-site determinations of the freshwater replenishment beneficial use will be made. Freshwater

replenishment has been determined to be a beneficial use of the groundwater at Parcel E; Appendix A of this FS Report evaluates the potential for chemicals in groundwater to pose a risk to aquatic life in San Francisco Bay.

2.3. PARCEL E NATURE AND EXTENT OF CONTAMINATION

2.3.1. Parcel E RI Summary

The Revised RI Report evaluated the nature and extent of chemicals in soil, groundwater, and shoreline sediment at Parcel E (Barajas & Associates, Inc., 2008b). The fate and transport of chemicals at Parcel E were evaluated by identifying (1) probable migration pathways and (2) physical and chemical characteristics that influence mobility in a specific medium. Section 4.0 and Appendix G in the Revised RI Report provide a complete description of the nature and extent evaluation at Parcel E (Barajas & Associates, Inc., 2008b).

Chemical concentrations for soil, groundwater, and shoreline sediment were compared with screening criteria for protection of human health and the environment. Table 4-1 in the Revised RI Report presents the screening criteria for each medium and analytical group evaluated at Parcel E (Barajas & Associates, Inc., 2008b). Results of the nature and extent evaluation are briefly summarized below by medium. The soil and groundwater data collected from the small, 0.98-acre area, which was moved from Parcel E-2 to Parcel E, were not evaluated in the Revised RI Report. These data, which were derived from 11 sampling locations (Figure 2-4), were compared with the same criteria used in the Revised RI Report. The results of this evaluation are briefly summarized in the following paragraphs.

Soil. The RI nature and extent evaluation identified metals, semivolatile organic compounds (SVOCs), PCBs, and TPH as the predominant chemicals in soil that exceeded screening criteria. The nature and extent of these chemicals in soil are summarized in Table 2-5. Table 2-5 also provides references to the sections of the Revised RI Report that contain detailed descriptions of the nature and extent of chemicals within each redevelopment block, as well as figures depicting sampling locations and analytical results. Because the redevelopment blocks have changed since the Revised RI Report and the nature and extent evaluation was based on the former redevelopment blocks, Table 2-5 refers to both the former (referred to as “1997 Redevelopment Block”) and current (referred to as “2010 Redevelopment Block”) blocks. Figures depicting sampling locations exceeding risk-based criteria, consistent with the amended redevelopment plan (SFRA, 2010c), are provided as Figures 4-2 through 4-9 of this report. Table 2-6 provides a statistical summary of the soil data located within the small, 0.98-acre area that was moved from Parcel E-2 to Parcel E. Table 2-7 identifies the soil concentrations in this area that exceeded residential screening criteria. Each chemical identified in Table 2-7 was identified elsewhere in redevelopment block MU-3, and the range of reported concentrations in the small, 0.98-acre area were generally comparable to the concentrations reported elsewhere in redevelopment block MU-3.

Soil Gas. Between October 1988 and February 1989, a Solid Waste Air Quality Assessment Test (SWAQAT) was conducted at several IR sites, including IR-02, IR-03, IR-12, and IR-14 at Parcel E (HLA, 1989a). The SWAQAT included an evaluation of meteorological conditions, outdoor air quality, landfill gas compositions, surface gas emissions, and subsurface gas migration. The evaluation of gases covered a wide range of organic compounds, including VOCs and methane. Surface gas emissions were not detected during this investigation. Subsurface methane gas was detected in isolated pockets at IR-03 and in the southern portion of IR-12 (near the former disposal trenches); however, no available information suggested that subsurface methane was migrating from these locations. The only migration of subsurface methane observed during the SWAQAT was in Parcel E-2 (at the northern edge of the Parcel E-2 Landfill). Depending on the type of remedial alternatives considered for IR-03 and IR-12 (such as alternatives involving containment), further evaluation of subsurface methane may be warranted during the remedial design. In addition, the Navy is implementing a focused soil gas survey to guide future vapor mitigation or remediation for VOCs. The soil gas survey is discussed further in Sections 2.3.3.2 and 3.1.1.1.

Groundwater. The nature and extent evaluation identified groundwater plumes with concentrations of metals, VOCs, PCBs, and TPH that exceeded screening criteria. The groundwater plumes are listed below and presented on Figures 2-4, 2-5, and 2-6.

- Metals (Figure 2-4): IR-02 Northwest (copper, lead, nickel, and zinc); IR-02 Central (nickel); IR-02 Southeast (copper and zinc); IR-05 (copper and zinc); and IR-12 (nickel).
- VOCs (Figure 2-5): IR-02 Northwest (benzene); IR-03 (benzene); IR-12 (benzene); IR-12 (dichloroethane [DCA], PCE, and TCE), IR-39 (benzene); Building 406 (TCE); IR-04 (TCE); and IR-56 (TCE).
- PCBs and TPH (Figure 2-6): IR-02 Northwest (Aroclor-1254); and IR-03 (TPH)

Table 2-8 provides a statistical summary of the A-aquifer groundwater data located within the small, 0.98-acre area that was moved from Parcel E-2 to Parcel E. As shown in Table 2-8, VOCs were the only chemical group reported in this area at concentrations exceeding vapor intrusion criteria (which are the most appropriate screening criteria for A-aquifer groundwater under a residential exposure scenario). Table 2-9 identifies the VOC concentrations at wells in and around the existing VOC plumes, and the four A-aquifer wells within the small, 0.98-acre area. As shown in Table 2-9, there are no persistent VOC detections at the four A-aquifer wells within the small, 0.98-acre area, and there is no indication that the existing VOC plumes extend into this area.

Shoreline sediment. Results of the nature and extent evaluation indicated that concentrations of copper, lead, mercury, zinc, PCBs, and DDT exceeded screening criteria in most locations along the Parcel E shoreline and could be a source of contamination to sediments in the adjacent offshore area (Parcel F).

Nonaqueous-phase liquids (NAPL). The nature and extent evaluation identified extensive NAPL at IR-03, the former oil reclamation ponds located within Redevelopment Block EOS-3 (formerly Redevelopment Block EOS-2 in the Revised RI Report and Draft FS Report). Characterization work performed in 1996, prior to the IR-03 removal action involving construction of a sheet-pile wall and low-permeability cap (see Section 2.1.3 and Table 2-4), reported free-phase petroleum as deep as 25 feet bgs (IT Corporation, 1997a). From January through April 1991, NAPL was measured on seven separate occasions in four wells (IR03MW218A1, IR03MWO-1, IR03MWO-2, and IR03MWO-3) at IR-03. Product thickness ranged from a minimum of 0.07 feet in well IR03MW218A1 to a maximum of 6.93 feet in well IR03MWO-2 (Barajas & Associates, Inc., 2008b). In 1991, approximately 25 gallons of floating product and 70 gallons of waste oil were recovered from the four wells (Barajas & Associates, Inc., 2008b).

In 2002, the extent of NAPL was further evaluated at IR-03 during the Phase III groundwater data gaps investigation (Barajas & Associates, Inc., 2008b). NAPL was found in nine IR-03 wells IR-03, at thicknesses ranging from less than 0.01 feet (in well IR03MWO-1) to 10.85 feet (in well IR03MW370A). The NAPL was described as highly viscous and consisted of a 2:1 ratio of diesel- to motor oil-range TPH (Barajas & Associates, Inc., 2008b). Under the current BGMP, NAPL measurements are taken annually (generally during the 3rd or 4th quarter) at a select group of wells where NAPL has been present historically. During the most recent monitoring and sampling event for which NAPL measurements were taken (September 2009), NAPL measurements in the IR-03 area ranged from 0.16 feet (in well IR03MW226A) to 4.62 feet (in well IR03WMO-3) (CE2-Kleinfelder Joint Venture, 2010b). A conceptual cross section depicting the location and occurrence of NAPL at IR-03 is presented as Figure 2-8.

During 2004, the Navy conducted a focused investigation and cleanup action along the Parcel E shoreline, and no discharge of NAPL was observed. In addition, riprap along the IR-03 shoreline is covered in concrete, which prevents direct contact with NAPL and contaminated soil. The available information is adequate to document the general nature of NAPL at IR-03 (such as the range of thicknesses and viscosities) and provide a preliminary indication of the extent of NAPL. The Navy performed additional characterization of NAPL at IR-03 in September and October 2011 in accordance with a work plan that was approved by the regulatory agencies (ITSI, 2011). The Navy is preparing a report, concurrent with the final version of this FS Report, summarizing the results of the additional characterization and the bench-scale treatability study that was performed under the same project. The Navy expects that the additional characterization will refine the nature and extent of NAPL at IR-03; however, once the findings of the study are reviewed, the Navy will consult with the regulatory agencies to determine whether additional characterization is required prior to the remedial design (RD).

In addition to IR-03, light NAPL has been identified at four other wells in Parcel E (IR12MW21A, IR14MW13A, PA36MW08A, and IR39MW21A), each of which contain only TPH and thus are being addressed by the TPH corrective action program.

2.3.2. Removal Action Summary

The Revised RI Report evaluated data collected through December 2004. Since that time, removal actions have been performed in IR-02 Northwest and Central Excavation Area, the Metal Debris Reef Area in IR-02 Southeast, and the PCB Hotspot Area (located primarily in Parcel E-2 but extending slightly into IR-02 Northwest). The sections below briefly discuss each removal action, which are shown on Figure 2-1. Additional detail is provided in the respective removal action completion reports (TtECI, 2007a, 2007b, and 2007c).

2.3.2.1. IR-02 Northwest and Central Excavation Area

A TCRA was implemented between May 2005 and April 2007 in IR-02 Northwest and Central (TtECI, 2007c). The purpose of the TCRA was to remove debris and other materials with radioactivity above the radiological remedial objectives (RROs) within a predetermined excavation boundary based on previous radiological investigations. The RROs used in the TCRA were consistent with the basewide radiological remediation goals established and used at other parcels at HPS (Navy, 2006a). The excavation was performed in a series of 6-inch or 12-inch lifts, to a maximum depth of approximately 11 feet bgs. Approximately 49,500 cubic yards of soil was excavated and screened ex situ to identify radioactive material. Out of this total volume, the following material was identified, segregated, and disposed of off site as low-level radiological waste:

- 2,342 point sources and pieces of radioactively contaminated debris
- 11,840 tons of soil
- 1,940 tons of metal debris
- 420 tons of fire brick
- 18 tons of concrete and plastic
- 20 tons of hoses
- 20 tons of rocks

In addition to this radiologically impacted debris, 48 drums and 33 small containers were recovered from the removal area and were characterized prior to off-site disposal. The drums, which were discovered in varying degrees of decay, contained diesel-contaminated soil, grease, plastic, metal pieces, and wood. Waste characterization data indicated that the drums contained various chemicals, including PCBs. Three of the drums contained mixed waste with radiological contamination. The small containers contained various solids and liquids with organic and inorganic chemical concentrations that required off-site disposal. Also, approximately 1,100 cubic yards of soil that was not radiologically impacted but was visibly stained (indicative of potential organic contamination) was segregated, characterized, and disposed of off site (TtECI, 2007c).

Finally, 134 pieces of material potentially presenting an explosive hazard (MPPEH) were discovered in the removal area. MPPEH is defined as any component of ordnance or explosive munitions that may have come into contact with energetic material (i.e., high explosives or propellant) and could have energetic residue remaining. This interim designation applies to items for which the presence or absence of energetic residue cannot be immediately verified by visual inspection. Following verification and documentation that MPPEH does not present an explosive hazard, as performed by two competent unexploded ordnance (UXO) technicians, such items are referred to as material documented as safe (MDAS). MPPEH scrap encountered during the project included expended cartridge casings and empty projectiles of various calibers, as well as protective caps for 5-inch projectiles. All MPPEH was inspected by UXO technicians for possible explosive hazards. Most of the MPPEH items identified during the removal action were verified to not pose an explosive hazard and were reclassified as MDAS. The remaining MPPEH items appeared to have been subject to previous demilitarization actions and could not be completely inspected by UXO technicians for possible explosive hazards. The type, age, and condition of the recovered MPPEH do not indicate that residual munitions-related chemicals would be present in soil or groundwater at Parcel E. Although the type, age, and condition of the MPPEH items did not suggest a high potential for residual energetic material, the Navy, as a precautionary measure, properly handled, transported, and disposed of these items as either material documented as an explosive hazard or munitions and explosives of concern (TtECI, 2010).

MPPEH were also radiologically screened, and all but three MPPEH items were verified to have no radiological contamination. The three MPPEH items that could not be verified to be free of radioactive contamination were disposed of off site with the other low-level radiological waste (TtECI, 2007c).

Post-excavation radiological soil samples were collected and analyzed for radium-226, cesium-137 and strontium-90 (the radionuclides of concern identified in the HRA [NAVSEA, 2004]). Analytical results indicated the following:

- Cesium-137 and strontium-90 results in post-excavation bottom and sidewall samples were all less than their respective RROs.
- Radium-226 results in 155 of 160 systematic grid samples were below the RRO.
- Radium-226 results in 59 of 63 random grid samples were below the RRO.
- Radium-226 results in all 29 sidewall samples were below the RRO.

The RAOs for radiological materials were achieved within the predetermined boundaries of IR-02. Any radiological materials potentially remaining beneath the excavation area are now under a cap of clean imported soil, thereby eliminating some of the pathways of exposure to hazardous substances for surrounding populations and ecosystems at the limit of the excavation (TtECI, 2007c).

Concurrent with the radiological soil analyses, post-excavation soil samples were also collected and analyzed for metals, SVOCs, organochlorine pesticides, PCBs, and TPH. Because the focus of the TCRA was to remove radiological material, these chemical results did not prompt additional excavation activities and were intended only to supplement the soil characterization in IR-02 Northwest and Central. The reported concentrations of metals, SVOCs, organochlorine pesticides, PCBs, and TPH in these samples warrant further analysis in this FS Report. Post-excavation chemical sampling results are evaluated in conjunction with the development of the soil alternatives (Section 4). Sample locations with chemical concentrations exceeding the risk-based criteria, consistent with the amended redevelopment plan, are identified on Figure 4-2. These data are used to identify areas requiring further remedial action, which are discussed in Sections 4.2.3.1 and 4.2.4.1.

The top 3 feet of the excavation was backfilled with clean imported soil that met chemical acceptance criteria presented in the TCRA Work Plan (TtECI, 2005). In addition, clean imported soil was placed at the bottom of the excavation to bridge standing water. The remaining excavation volume was backfilled with approximately 33,900 cubic yards of excavated soil that, following radiological screening, was released for use as backfill (TtECI, 2007c). The excavated soil used as backfill is not radiologically impacted, but does contain concentrations of select chemicals that exceed industrial screening criteria used in the Revised RI Report and may contribute to known groundwater contamination in IR-02 Northwest. The chemical results of the excavated soil used as backfill are summarized in the table below.

Analytical Group	Chemical	95 UCL (mg/kg) [a]	Industrial Screening Criteria (mg/kg) [b]
Metals	Arsenic [c]	12.9	11.1
	Copper [d]	8,100	76,000
	Lead [e]	5,200	800
	Nickel [d]	490	21,000
	Zinc [d]	7,100	610,000
Volatile Organic Compounds	Benzene [e]	0.79	0.39
Semivolatile Organic Compounds	Benzo(a)pyrene [c]	0.77	0.18
Pesticides	Heptachlor [c]	0.83	0.55
Polychlorinated Biphenyls	Aroclor-1248 [e]	11	1.0
	Aroclor-1254 [e]	4.3	1.0

Notes:

a Calculated based on 77 soil stockpile samples analyzed for metals, PCBs, pesticides, VOCs, SVOCs, and TPH; chemical results are presented in Appendix E of the Removal Action Completion Report (TtECI, 2007c)

b Industrial screening criteria (adjusted to reflect ambient levels) are presented in Table 4-1 of the Revised RI Report (Barajas & Associates, Inc. 2008b)

c Chemical exceeds industrial screening criteria (from Revised RI Report), but does not correspond to known groundwater contamination in IR-02 Northwest.

d Chemical does not exceed industrial screening criteria (from Revised RI Report), but may contribute to known groundwater contamination in IR-02 Northwest.

e Chemical exceeds industrial screening criteria (from Revised RI Report) and may contribute to known groundwater contamination in IR-02 Northwest.

95 UCL 95th percent upper confidence limit of mean concentration

mg/kg milligrams per kilogram

Future recreational users and wildlife at IR-02 Northwest and Central will not be directly exposed to these chemical concentrations because the excavated soil used as backfill was placed deeper than 3 feet bgs. Consistent with the human health and ecological risk assessments in the Revised RI Report (Barajas & Associates, Inc., 2008b), future recreational users may be exposed to soil from 0 to 2 feet bgs and terrestrial wildlife may be exposed to soil from 0 to 3 feet bgs. The chemical concentrations in the excavated soil used as backfill are generally comparable with post-excavation chemical sampling results; both sets of chemical results are evaluated in conjunction with development of the soil alternatives (Section 4).

2.3.2.2. Metal Debris Reef in IR-02 Southeast

The TCRA at the Metal Debris Reef was performed in conjunction with the removal of the Metal Slag Area located in the southeast portion of Parcel E-2. The purpose of the TCRA was to remove metal debris and slag containing low-level radiological material, as well as nonradiological chemical contamination incidental to the area. Site characterization was performed to delineate the vertical and lateral extents of the metal debris and slag prior to excavation. The excavation was performed in a series of 12-inch lifts, to maximum depth of 4 feet bgs. After the initial excavation was completed, trenches were extended beyond the excavation perimeter to confirm the extent of metal debris and slag. No additional metal debris or slag was found at the edges of the excavation and, as a result, the initial excavation boundaries did not require expansion (TtECI, 2007b).

Approximately 11,200 cubic yards of soil, metal slag, and debris was removed from the Metal Debris Reef and disposed of off site (TtECI, 2007b). Out of this total volume, approximately 1,626 cubic yards of soil and shoreline sediment was segregated as radiologically impacted. Also, 131 radiological point sources (including devices, buttons, and pieces of radioactively contaminated debris) and approximately 31 cubic yards of metal debris were identified within the removal area (Navy, 2006b and 2006c; TtECI, 2007b). In addition to this radiologically impacted debris, six small containers were recovered from the removal area that contained liquids with inorganic chemical concentrations requiring off-site disposal. Also, 62 MPPEH items were discovered in the removal area, consisting primarily of expended cartridge casings of various calibers and protective caps for 5-inch projectiles. All MPPEH was inspected by UXO technicians for possible explosive hazards. Most of the MPPEH items identified during the removal action were verified to not pose an explosive hazard and were reclassified as MDAS. The remaining MPPEH items appeared to have been subject to previous demilitarization actions and could not be completely inspected by UXO technicians for possible explosive hazards. The type, age, and condition of the recovered MPPEH do not indicate that residual munitions-related chemicals would be present in soil or groundwater at Parcel E. Although the type, age, and condition of the MPPEH items did not suggest a high potential for residual energetic material, the Navy, as a precautionary measure, properly handled, transported, and disposed of these items as either material documented as an explosive hazard or

munitions and explosives of concern (TtECI, 2010). MPPEH were also radiologically screened, and all MPPEH items were verified to have no radiological contamination (TtECI, 2007b).

The entire Metal Debris Reef excavation was backfilled with clean imported fill material that was tested prior to use (TtECI, 2007b). Post-excavation soil samples were collected and analyzed for cesium-137, radium-226, and strontium-90 (the radionuclides of concern identified in the HRA [NAVSEA, 2004]). Analytical results for 191 of the 193 post-excavation soil samples met the specified RROs. The two samples with results that failed to meet the specified RROs were collected at the bottom of the excavation and were surrounded by other samples with results that met the specified RROs, thereby confirming that no widespread radiological contamination is present at the Metal Debris Reef. In addition, remaining radiological materials are covered with clean soil, thereby preventing direct exposure to surrounding populations and wildlife (TtECI, 2007b).

Concurrent with the radiological soil analyses, post-excavation soil samples were also collected and analyzed for metals, organochlorine pesticides, and PCBs. Because the focus of the TCRA was to remove radiological material, these chemical results did not prompt additional excavation activities and were intended only to supplement the soil characterization in the Metal Debris Reef. The reported concentrations of several metals and PCBs in these samples warrant further analysis in this FS Report. Post-excavation chemical sampling results are evaluated in conjunction with the development of the soil alternatives (Section 4). Sample locations with chemical concentrations exceeding the risk-based criteria, consistent with the amended redevelopment plan, are identified on Figure 4-5. These data are used to identify areas requiring further remedial action, which are discussed in Sections 4.2.3.1 and 4.2.4.1. Wetlands mitigation activities (which are associated with the removal action) are currently being planned for Parcel E-2 and are anticipated to occur in conjunction with the Parcel E-2 remedial action.

2.3.2.3. PCB Hotspot Area

The TCRA at the PCB Hotspot Area, which is located primarily in Parcel E-2 with a small portion in Parcel E, was designed to remove PCB- and petroleum hydrocarbon-contaminated soil and debris, possibly containing low-level radiological material. Excavation involved (1) removal of soil containing PCBs at concentrations greater than the depth-based removal action goals (1 mg/kg from the surface to 3 feet bgs and 100 mg/kg deeper than 3 feet bgs); (2) TPH at concentrations greater than 3,500 mg/kg; or (3) radiological contaminants above the RROs. The removal action goals also included removal of free-phase petroleum hydrocarbons to the extent practicable. The excavation was performed in a series of 12-inch lifts to a maximum depth of 21 feet bgs. During excavation activities, oil-stained soil and free-phase product were observed along the western and southwestern sidewall of the excavation boundary; however, further excavation in these areas was not possible because of their proximity to San Francisco Bay. Visual observation and field-screening test kits of exploratory potholes excavated between the excavation and the bay identified contamination (including oil staining and free-phase product)

(TtECI, 2007a). The Navy initiated a follow-on removal action to address contaminated soil and free-phase product between the 2007 excavation boundary and the bay (Navy, 2010); the follow-on removal action was initiated in March 2010 and is projected to be completed in 2011.

Approximately 44,500 cubic yards of soil and debris was removed and disposed of off site as part of this removal action. Out of this total volume, 533 cubic yards of soil and fire brick was segregated as radiologically impacted. Also, 40 radiological devices, 78 cubic yards of metal debris, and 19 pieces of other radioactively contaminated debris were identified within the removal area (TtECI, 2007a). In addition to this radiologically impacted debris, 110 drums and 537 assorted waste containers were recovered from the central portion of the removal area (in Parcel E-2) and were characterized prior to off-site disposal. The drums, which were in varying degrees of decay, contained grease, oil, soil, asphalt, and tar substances. Waste characterization data indicated that the drums contained various chemicals, including PCBs. Two of the drums contained mixed waste with radiological contamination. The small containers contained various laboratory chemicals, ranging from strong acids and bases to solvents, alcohols, and inorganic salts (TtECI, 2007a).

In addition, 47 MPPEH items were discovered in the removal area. MPPEH scrap encountered during the project primarily included expended cartridge casings of various calibers and protective caps, but also included an empty 5-inch practice projectile and a 3-pound practice bomb filled with inert, nonexplosive material (TtECI, 2007a). All MPPEH was inspected by UXO technicians for possible explosive hazards. Most of the MPPEH items identified during the removal action were verified to not pose an explosive hazard and were reclassified as MDAS. The remaining MPPEH items appeared to have been subject to previous demilitarization actions and could not be completely inspected by UXO technicians for possible explosive hazards. The type, age, and condition of the recovered MPPEH do not indicate that residual munitions-related chemicals would be present in soil or groundwater at Parcel E. Although the type, age, and condition of the MPPEH items did not suggest a high potential for residual energetic material, the Navy, as a precautionary measure, properly handled, transported, and disposed of these items as either material documented as an explosive hazard or munitions and explosives of concern (TtECI, 2010). MPPEH were also radiologically screened, and all MPPEH items were verified to have no radiological contamination (TtECI, 2007a).

The entire PCB Hotspot Area excavation was backfilled with clean imported fill material that was tested prior to use (TtECI, 2007a). Post-excavation soil samples were collected and analyzed for PCBs and petroleum hydrocarbons. In addition to the PCB and petroleum hydrocarbons analyses, post-excavation sidewall samples were also analyzed for metals, organochlorine pesticides, and, if petroleum hydrocarbons were present, polycyclic aromatic hydrocarbons (PAHs). Additional analysis for VOCs, SVOCs, and organochlorine pesticides were performed for bottom samples collected in the vicinity of the buried drums. The reported concentrations of PCBs and petroleum hydrocarbons in samples collected in Parcel E (along the southeast sidewall) warrant further analysis in this FS Report. Post-excavation

chemical sampling results are evaluated in conjunction with the development of the soil alternatives (Section 4). Sample locations with chemical concentrations exceeding the risk-based criteria, consistent with the amended redevelopment plan, are identified on Figure 4-2. These data are used to identify areas requiring further remedial action, which are discussed in Sections 4.2.3.1 and 4.2.4.1.

Additional post-excavation soil samples were collected and analyzed for cesium-137, radium-226, and strontium-90 (the radionuclides of concern identified in the HRA [NAVSEA, 2004]). Analytical results for all post-excavation soil samples met the specified RROs.

2.3.3. Groundwater Plume Delineation Update

The Revised RI Report used data collected through December 2004 to delineate A-aquifer groundwater plumes for metals, VOCs, PCBs, and TPH (see Figures 4-3 through 4-6 and Figure 6-2 in the Revised RI Report [Barajas & Associates, Inc., 2008b]). Since that time, groundwater data have been collected on a quarterly basis as part of the BGMP. The BGMP includes wells located within and in the vicinity of some of the RI plumes. Where available, these data were evaluated to determine if the plume delineations established in the Revised RI Report have significantly changed since 2004. In addition, as discussed in Section 2.1.3.4.2, additional groundwater data were collected as part of a GWTS conducted at several of the VOC plumes at Parcel E. The data used for this evaluation are summarized in Tables 2-9 through 2-12. Where appropriate, the plume delineations presented in the Revised RI Report were adjusted using updated data from the BGMP (from March 2005 to October 2009) and Phase I of the GWTS (April and November 2009). The following sections summarize the results of this evaluation for each of the aforementioned analytical groups. A complete list of all groundwater plumes and their associated redevelopment block, identifying wells, and plume constituents is shown in Table 2-13. The Revised RI Report did not identify any B-aquifer plumes at Parcel E, and data collected during the ongoing BGMP have confirmed that B-aquifer plumes are not present at Parcel E.

2.3.3.1. Metals

During the RI, plumes were delineated for the following metals detected in A-aquifer groundwater above screening criteria: copper, lead, nickel, and zinc. In total, two plumes and three composite plumes (i.e., plumes comprising more than one chemical) were presented in the Revised RI Report. The evaluation of the updated BGMP data (from March 2005 to October 2009) at the metals plumes in Parcel E is summarized below and shown on Figure 2-5.

- **IR-02 Northwest Metals Plume** – Samples were collected recently from wells IR02MW373A and IR02MW126A during the BGMP. In January 2006, copper concentrations in well IR02MW126A increased to nearly 36 times the Hunters Point groundwater ambient level (HGAL) and then gradually decreased to below the HGAL by late 2007. Copper was not detected at concentrations exceeding laboratory reporting limits during the most recent three sampling events (May 2009 through October 2009). However, it is assumed that the composite plume (copper, lead, nickel, and zinc) has not changed since the RI plume delineation.
- **IR-05 Metals Plume** – No wells within or near this plume were sampled recently during the BGMP. Because no additional groundwater data exist, the composite (copper and zinc) RI plume delineation was not changed.
- **IR-12 Nickel Plume** – No wells within or near this plume were sampled recently during the BGMP. Because no additional groundwater data exist, the RI plume delineation was not changed.
- **IR-02 Central Nickel Plume** – Samples were collected recently from well IR02MWB-2 during the BGMP. In September 2008, nickel concentrations in well IR02MWB-2 increased to nearly twice the HGAL, and increased to nearly three times the HGAL in March 2009. However, because these concentrations are within the range of concentrations used in the RI plume delineation, the RI plume delineation was not changed.
- **IR-02 Southeast Metals Plume** – Samples were collected recently from wells IR02MW300A, IR02MW175A, and IR02MW179A during the BGMP. Copper and zinc concentrations detected in IR02MW300A remained consistent between 2004 and 2005, and were greater than the corresponding RI screening criteria. This well was decommissioned in 2005 prior to the Metal Debris Reef removal action and was replaced in 2007 with well IR02MW301A. Copper and zinc concentrations in well IR02MW301A from May 2007 to March 2009 were less than the corresponding RI screening criteria. Concentrations in IR01MW175A and IR02MW179A showed no expansion or migration of the composite plume delineation in the northeast and northwest directions, respectively. Therefore, it is assumed that the Metal Debris Reef removal action was successful in removing the contaminant source and the composite RI plume has been attenuated below the RI screening criteria. Lead was detected at wells IR02MW175A, IR02MW179A, and IR02MW301A in July 2008 at concentrations ranging from 14.7 to 18.4 micrograms per liter (µg/L). These lead concentrations are not attributed to site contamination because (1) they do not significantly exceed the HGAL (14.4 µg/L) and are generally consistent with variations in naturally occurring concentrations identified at other HPS sites; (2) the low lead concentrations were reported at wells located hydraulically upgradient and downgradient of the primary contaminant source (i.e., the Metal Debris Reef), which was previously removed; and (3) the lead concentrations in July 2008 represent a temporal anomaly because lead has not exceeded the HGAL at any of these wells (as well as former well IR02MW300A) during numerous sampling events performed since 1992 (see Appendix A).

As summarized above, it is assumed that for the purposes of the FS evaluation, none of the composite RI plume delineations for metals have changed, except for the IR-02 Southeast Metals Plume, since the RI was performed. The metals plume delineations considered in the FS evaluation are shown on Figure 2-5.

2.3.3.2. VOCs

During the RI, plumes were delineated for the following VOCs detected in A-aquifer groundwater at concentrations above screening criteria: benzene, chloroform, 1,1-DCE, PCE, and TCE. In total, seven plumes and one composite plume (i.e., plumes comprising more than one chemical) were presented in the Revised RI Report. The effects of the BGMP and GWTS data evaluation on the VOC plume delineations in the Revised RI Report is summarized below and shown on Figure 2-6.

- **IR-02 Northwest Benzene Plume** – Samples were collected recently from well IR02MW126A during the BGMP. Benzene concentrations in IR02MW126A were consistent between 2004 and 2008. Therefore, it is assumed that the RI plume delineation has not changed.
- **IR-03 Benzene Plume** – Samples were collected from well IR03MW342A during the BGMP through the second quarter of 2008. Benzene concentrations in IR03MW342A were consistent between 2004 and the second quarter of 2008. Otherwise, no recent data since 2004 are available in and around this plume. Therefore, it is assumed that the RI plume delineation has not changed.
- **IR-12 Benzene Plume** – Samples were collected in 2009 from wells IR12MW13A, IR12MW18A, and IR12MW19A and in 2005 from well IR12MW17A during the BGMP. In addition, samples were collected from 11 direct-push sampling locations to evaluate baseline conditions during the GWTS. Concentrations in the center of the plume (IR12MW17A) decreased to less than reporting limits in 2005; however, the reporting limits for benzene exceeded the PRG for this location. Based on 2009 data from the GWTS, the plume appears to have migrated to the north and south. Because of the lack of recent data in the center of the plume, the RI plume delineation was expanded in the north and south directions to reflect the baseline data collected during the GWTS.
- **IR-39 Benzene Plume** – Samples were collected recently from well IR39MW21A, in the northeastern portion of the plume, and from well IR39MW36A, located northeast of the plume, during the BGMP. Data from well IR39MW21A are within the range of historical concentrations used to delineate the plume, and data from IR39MW36A reveal that the plume has not expanded in the northeast direction. Otherwise, no recent data since 2004 are available in and around this plume. Therefore, it is assumed the RI plume delineation has not changed.
- **Building 406 TCE Plume** – Samples were collected recently from wells IR36MW125A, IR36MW126A, IR36MW127A, IR36MW128A, PA36MW04A, IR36MW122A, and IR36MW121A during the BGMP. In addition, samples were collected from 23 direct-push sampling locations and 13 newly-installed monitoring wells to evaluate baseline conditions during the GWTS (prior to injection of ZVI). TCE concentrations at all wells sampled after 2004 generally remained consistent except at IR36MW125A, where TCE concentrations rose from 110 µg/L in late 2004 to between 500 µg/L and 7,600 µg/L in 2005 and 2006, and declined to 1,300 µg/L in April 2009. The RI plume delineation was adjusted to reflect the southwestern expansion of the plume, as refined with data collected prior to the ZVI injection. The pre-injection data serve as a conservative basis for the plume delineation used in this FS Report. The post-injection groundwater data show that ZVI has reduced TCE concentrations, and additional post-injection data are being collected during the BGMP.

- **IR-04 TCE Plume** – Samples were collected recently from well IR04MW37A during the BGMP. TCE concentrations in IR04MW37A were consistent between 2004 and 2009. In addition, samples were collected from seven direct-push sampling locations to evaluate baseline conditions during the GWTS. The RI plume delineation was adjusted to the south, as refined with data collected during the GWTS.
- **IR-56 TCE Plume** – Samples were collected recently from well IR74MW01A, located south of IR-74 boundary within IR-56, during the BGMP. In addition, samples were collected from five direct-push sampling locations to evaluate baseline conditions during the GWTS. Data from well IR74MW01A and the GWTS indicate that the RI plume delineation has not changed.
- **IR-12 PCE Plume** – Samples were collected recently from wells IR04MW13A (located within Parcel E-2), IR12MW14A, and IR12MW19A during the BGMP. In addition, samples were collected from 19 direct-push sampling locations and four newly-installed monitoring wells to evaluate baseline conditions during the GWTS (prior to injection of ZVI). The RI plume delineation was adjusted to the north and west to reflect the additional data collected prior to the ZVI injection, including the upgradient extent within Parcel E-2. The pre-injection data serve as a conservative basis for the plume delineation used in this FS Report. The post-injection groundwater data show that the ZVI has reduced PCE concentrations, and additional post-injection data are being collected during the BGMP.

Of the eight VOC plume delineations presented in the Revised RI Report, three (IR-12 Benzene Plume, IR-12 PCE Plume, and Building 406 TCE Plume) were adjusted for purposes of the FS evaluation based on data collected since 2004. The adjusted plume delineations are shown on Figure 2-6.

Risks from exposure to groundwater in the A-aquifer from vapor intrusion (for residential and industrial receptors) and from trenching (for the construction worker receptor) were evaluated in the Revised RI Report for eight VOC risk plume-based areas. As discussed in Section 5.1.1.2 of the Revised RI Report, the risk plumes were delineated using a different methodology than that used to delineate the plumes as presented on Figure 2-5 (Barajas & Associates, Inc., 2008b). The risk assessment results for the vapor intrusion pathway indicated that risk from exposure to VOCs in the A-aquifer exceeded the excess lifetime cancer risk threshold of 1E-06 and noncancer HI threshold of 1.0 in several redevelopment blocks at Parcel E. The groundwater vapor intrusion risks are presented on Figure 5-8 of the Revised RI Report.

Since the time the HHRA was conducted for Parcel E, more recent guidance documents for the assessment of health risks from vapor intrusion have become available (California Environmental Protection Agency, 2005; Navy, 2008; U.S. Department of Defense [DoD], 2009). The new guidance documents specify a preference for the use of soil gas data over groundwater data in evaluating the vapor intrusion pathway because soil gas data represent a direct measurement of the contaminant that will migrate to indoor air and reduces the uncertainty related to partitioning of the contaminant to the vapor phase. The preference for soil gas data over groundwater data is also reflected in EPA's vapor intrusion guidance, which was used as a basis to conduct the inhalation risk assessment at Parcel E (EPA, 2002).

To comply with the new guidance and to identify exposure areas that indicate a risk associated with soil vapor intrusion, the Navy initiated a basewide soil gas investigation in 2010. The investigation includes collection and analysis of soil vapor samples from locations at Parcel E that have identified soil or groundwater subsurface impacts. Soil vapor samples will be collected over 100-by-100 foot grids over Parcel E, with one soil vapor sample collected from every grid that has potential subsurface impacts. Data collected during the investigation will be compared with soil gas action levels currently being developed by the Navy (ChaduxTt, 2010). The action levels will be used to evaluate potential risk from vapor intrusion, as well as identify areas where institutional controls or additional action may be required. The soil gas investigation is being performed in two phases, with the work in Parcel E slated for implementation during the second phase in 2014.

It should be noted that the benzene plumes in IR-02 Northwest and IR-03 are located in open space redevelopment blocks. These plumes were conservatively delineated in the Revised RI Report based on screening criteria (based on the vapor intrusion pathway for future industrial users); however, the human health risk assessment (HHRA) in the Revised RI Report clarified that the vapor intrusion exposure scenario was incomplete for the planned open space reuse in these redevelopment blocks (Barajas & Associates, Inc., 2008b). Based on this conclusion, as well as the fact that VOC concentrations do not exceed aquatic evaluation criteria (see Appendix A), this FS Report does not further evaluate these VOC plumes beyond evaluating ARARs and institutional controls for groundwater within the open space redevelopment blocks in this FS Report.

It should also be noted that evaluation of the IR-39 Benzene Plume is deferred to the TPH corrective action program because the former USTs at Building 709 (former Navy exchange gas station) are the source of this contamination.

2.3.3.3. PCBs

During the RI, one plume in A-aquifer groundwater was delineated for the PCB Aroclor-1254 (IR-02 Northwest PCB Plume). No wells within or near this plume were sampled during the BGMP. It is assumed that the RI plume delineation has not changed. The Aroclor-1254 plume delineation considered in the FS evaluation is shown on Figure 2-7. PCBs have also been detected in groundwater within the IR-03 TPH plume at concentrations warranting further evaluation in the FS. PCBs were detected in samples collected from well IR03MW218A2 between 2004 and the second quarter of 2008; samples were not collected from this well following the second quarter 2008. Appendix A identifies the PCBs and other non-petroleum chemicals detected in IR-03 groundwater at concentrations that may pose a risk to aquatic wildlife in the bay.

2.3.3.4. TPH

During the RI, one plume in A-aquifer groundwater was delineated for TPH (IR-03 TPH Plume). Samples were collected from well IR03MW218A2, located in the center of the plume, during the BGMP. TPH concentrations in IR03MW218A2 increased by nearly 50 percent between 2004 and 2008. Otherwise, no post-2004 data are available in and around this plume. Considering the lack of recent data along the plume's perimeter, it is assumed that the RI plume delineation has not changed. The TPH plume delineation considered in the FS evaluation is shown on Figure 2-7. It should be noted that the lack of BGMP data from IR-03 is associated with the fact that many of the wells located within the IR-03 plume contain free product and are not available for sampling.

2.4. CONCEPTUAL SITE MODEL

This section summarizes the CSM developed for Parcel E in the Revised RI Report (Barajas & Associates, Inc., 2008b). The purpose of the CSM is to illustrate and describe a basic understanding of potential sources of contamination and media pathways and to identify possible receptors based on available site information. The CSM is not intended to provide details or quantification of these potential sources and pathways. However, it is intended to provide the framework for characterizing site contamination and assessing risks. More detailed information about the CSM is presented in the Revised RI Report (Barajas & Associates, Inc., 2008b). Figure 3-18 in the Revised RI Report presents the CSM of the release mechanisms, affected media, and exposure pathways associated with Parcel E. The CSM developed for Parcel E includes the following:

- Generalized subsurface conditions
- Potential sources of contamination
- Potentially affected media
- Migration and exposure pathways
- Receptors (humans and wildlife)

2.4.1. Generalized Subsurface Conditions

The subsurface geology and hydrogeology at Parcel E are discussed in Sections 2.2.6 and 2.2.7, respectively. The aquifer system beneath Parcel E consists of A- and B-aquifers that are separated by the Bay Mud aquitard except for in the northernmost portion of Parcel E, where the aquitard is not present. The aquifer system at Parcel E is underlain by bedrock that slopes from former Parcel A toward San Francisco Bay. Bedrock depth ranges from less than 5 feet at the northwestern border of Parcel E (in gas monitoring probes installed along Crisp Avenue) to about 280 feet at the south-central portion of Parcel E, along the bay shoreline. Two exceptions are the Building 406 area and Building 521 area, where bedrock can be as shallow as 9 feet bgs and 15 feet bgs, respectively. The slopes of elevated

bedrock areas are covered by the Bay Mud aquitard under which the B-aquifer is present. Shallow bedrock in direct contact with Artificial Fill is considered part of the A-aquifer. Because of the Bay Mud aquitard, no interconnection exists between the A- and B-aquifers.

2.4.2. Potential Sources of Contamination

Potential sources of contamination include those sites where chemicals could have been placed, spilled, or leaked. Parcel E was part of a mixed use and industrial area supporting HPS and NRDL. The primary sources of potential contamination are from industrial operations, including shipyard operations and tenant activities. Section 4.3 in the Revised RI Report (Barajas & Associates, Inc., 2008b) provides more detail on the potential sources of contamination for each redevelopment block.

2.4.3. Potentially Affected Media

Based on Parcel E physical characteristics and historical uses, potentially affected media include soil, shoreline sediment, groundwater, surface water, and air.

2.4.4. Migration and Exposure Pathways

The following potential chemical migration pathways were identified at Parcel E:

- Leaching from soil to groundwater by infiltrating precipitation or as a result of fluctuating groundwater levels
- Discharge from groundwater to surface water through direct discharge or via leaking utility lines (including backfill material in utility line corridors that acts as a conduit to surface water)
- Volatilization from soil or groundwater to the atmosphere
- Transport of soil or shoreline sediment to surface water with overland flow of storm water

The primary mechanism for chemicals to migrate from soil to groundwater at Parcel E is through leaching by infiltrating precipitation or from a rise in the water table during the wet season. The average annual depth to water throughout Parcel E is about 8 feet bgs; because groundwater is shallow, more mobile chemicals may reach groundwater relatively quickly. As a result of increased precipitation during the wet season (December through March), the water table may be approximately 2 feet higher in the winter than during the dry season (April through November). Increased leaching of chemicals may occur during the wet season if groundwater comes into contact with chemicals in soil.

Migration of chemicals from soil and groundwater to surface waters may occur if groundwater discharges to San Francisco Bay or if a groundwater plume is in contact with storm drain or sanitary sewer lines that are below the water table. If groundwater leaks into these lines and these lines discharge to the bay, chemicals could be delivered directly to the bay. The Navy intends to remove storm drain and sanitary sewer lines throughout HPS by 2012, according to current plans under the FFA schedule. The line

excavations will be backfilled and compacted, eliminating this direct migration pathway. Once the storm sewer lines are removed, storm water will be managed through engineered drainage swales.

Migration of chemicals from soil to the atmosphere through volatilization is expected to be very limited at Parcel E, given the time that has elapsed since VOCs were last used in industrial processes at Parcel E. This conclusion is supported by the limited number of locations where VOCs were detected in soil at concentrations exceeding RI screening criteria (see Table 2-5). Migration of chemicals from groundwater to the atmosphere through volatilization may occur where VOC groundwater plumes exist.

Migration of chemicals from soil to surface water through transport of solids with overland flow is expected to be limited at most of Parcel E because of the following conditions: (1) most of the storm water runoff is currently controlled by a storm sewer system across Parcel E and in the future will be controlled by engineered drainage swales; and (2) flat surface topography throughout Parcel E inhibits transport of solids with overland flow over significant distances. Redevelopment Blocks EOS-1, EOS-2, EOS-3, and EOS-4 have the highest potential for erosion because of steeper topography.

2.4.5. Receptors

Potentially exposed receptors include:

- Adult and child residents
- On-site workers
- On- and off-site recreational populations and visitors
- On- and off-site aquatic and terrestrial wildlife

2.5. RISK EVALUATIONS

This section summarizes the potential human health and ecological risks from exposure to chemicals present in soil, groundwater, and shoreline sediment at Parcel E and identifies COCs and COECs for human and terrestrial wildlife, respectively. Previous risk evaluations provided in the Revised RI Report (Barajas & Associates, Inc., 2008b) include:

- HHRA for soil and groundwater (Appendix I of the Revised RI Report)
- HHRA for shoreline sediment (Section 5.3.1 and Attachment 1 of the Revised RI Report)
- Baseline ecological risk assessment (BERA) for onshore soil (Appendix J of the Revised RI Report)
- Screening-level ecological risk assessment (SLERA) for shoreline sediment (Appendix G of the Revised RI Report)

In addition, Appendix A of this FS Report includes a risk evaluation of groundwater to evaluate effects on aquatic life in the bay. It should be noted that the risk assessments (listed above) from the Revised RI Report were not updated to reflect the post-removal conditions at IR-02 Northwest and IR-02 Southeast because the revised data set would not substantially affect the risk assessment results (to an extent that either identified or eliminated areas that require evaluation in the FS). The revised post-removal-action data set was used to develop the remedial alternatives in this FS Report.

It should also be noted that the risk assessments from the Revised RI Report were not updated to reflect the soil and groundwater data collected from the small, 0.98-acre area that was moved from Parcel E-2 to Parcel E. The revised data set would not substantially affect the risk assessment results (to an extent that either identified or eliminated areas that require evaluation in the FS) as demonstrated by the following observations from the evaluation described in Section 2.3.1:

- No new COCs in soil were identified in the small, 0.98-acre area. Each chemical identified in soil at concentrations exceeding residential screening criteria (Table 2-7) was identified elsewhere in the redevelopment block.
- The exposure point concentrations used in the HHRA and BERA would not change substantially because (1) the number of data points within the 0.98-acre area is much lower than the rest of the redevelopment block, and (2) the range of reported soil concentrations in the small, 0.98-acre area were generally comparable to the concentrations reported elsewhere in the redevelopment block.
- A-aquifer groundwater concentrations in the 0.98-acre area did not indicate the presence of a contaminant plume that could pose a risk to humans. VOCs were the only chemical group reported in the small, 0.98-acre area at concentrations exceeding vapor intrusion criteria (Table 2-8), but the reported VOC concentrations were not persistent (Table 2-9) and do not indicate that the existing VOC plumes extend into this area.

The risk evaluation of groundwater (Appendix A) previously included the monitoring wells that have since been moved from Parcel E-2 to Parcel E. The risk evaluation determined that chemical concentrations at these wells (IR04MW35A and IR04MW36A) did not pose a potential risk to aquatic life in the bay. Appendix A was updated to clarify that wells IR04MW35A and IR04MW36A are located in Parcel E.

2.5.1. Human Health Risk

Human health risks at Parcel E are discussed briefly in the sections below, and are further detailed in the Revised RI Report (Barajas & Associates, Inc., 2008b). The HHRA used the original (1997) redevelopment plan as the reasonably anticipated reuse for Parcel E; however, the HHRA also included an exposure scenario evaluating residential exposures throughout Parcel E. The residential exposure scenario provides an adequate baseline assessment of human health risks at Parcel E irrespective of the recent changes to the planned reuse based on the amended redevelopment plan (SFRA, 2010c).

Section 3.1 identifies RAOs that align current site conditions with the planned reuse identified in the amended redevelopment plan (SFRA, 2010c).

2.5.1.1. Soil Risk Summary

Both total and incremental risks were evaluated for exposure to soil at Parcel E. For the total risk evaluation, all detected chemicals with the exception of calcium, magnesium, potassium, and sodium (essential nutrients) were included as chemicals of potential concern (COPCs) regardless of concentration. The total risk evaluation provides an estimate of the risks posed by all chemicals at Parcel E, including those present at concentrations at or below ambient levels. For the incremental risk evaluation, the essential nutrients and metals with maximum detected concentrations below Hunters Point ambient levels (HPALs) were excluded as COPCs. The incremental risk evaluation provides an estimate of risks posed by all chemicals at Parcel E, except those that do not exceed ambient levels.

No toxicity criteria are currently available for evaluating health risks from exposure to lead. Therefore, specific cancer risk or noncancer hazard results for lead were assessed by comparing exposure point concentrations (EPCs) for lead with (1) a HPS-specific risk-based concentration (RBC) for lead (155 mg/kg) for residential and recreational receptors and (2) the EPA Region 9 industrial preliminary remediation goal for lead (800 mg/kg) for industrial and construction worker receptors.

For the total risk evaluation, risks from residential and industrial exposure to COPCs in soil were assessed for both surface soil (0 to 2 feet bgs) and subsurface soil (0 to 10 feet bgs). The evaluation of recreational and construction worker exposures to COPCs in soil were limited to surface and subsurface soil, respectively. For the HHRA, each redevelopment block at Parcel E was divided into smaller exposure areas based on a grid system (i.e., 2,500-square-foot grids for residential exposure areas, and 0.5-acre grids for industrial exposure areas). These grid-based exposure areas were used in the HHRA to assess risks from exposure to soil.

Results of the total risk evaluation showed that 134 out of 141 grids in the industrial reuse areas, 99 out of 103 grids in the residential reuse areas, and 44 out of 46 grids in the open space reuse areas exceeded the cancer risk threshold of 1E-06 or the noncancer threshold hazard index (HI) of 1.0. For the construction worker exposure scenario, 207 out of 227 grids exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1.0. The total risk evaluation results are presented on Figure 5-2 (surface soil, based upon planned reuse); Figure 5-3 (subsurface soil, based upon planned reuse); and Figure 5-4 (subsurface soil, construction worker receptor) of the Revised RI Report (Barajas & Associates, Inc., 2008b).

Results of the incremental risk evaluation showed that 71 out of 141 grids in the industrial reuse areas, 53 out of 103 grids in the residential reuse areas, and 37 out of 46 grids in the open space reuse areas exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1.0. For the construction worker exposure scenario, 108 out of 227 grids exceeded the cancer risk threshold of 1E-06 or the

noncancer threshold HI of 1.0. The incremental risk evaluation results are presented on Figure 5-5 (surface soil, based upon planned reuse); Figure 5-6 (subsurface soil, based upon planned reuse); and Figure 5-7 (subsurface soil, construction worker receptor) of the Revised RI Report (Barajas & Associates, Inc., 2008b).

The following chemicals were identified as COCs in at least one grid based on the original (1997) redevelopment plan and results of the total and incremental risk evaluations for soil.

Exposure Scenario	COCs in Surface Soil (0 to 2 feet bgs)		COCs in Subsurface Soil (0 to 10 feet bgs)	
Industrial[a]	Aroclor-1254 Aroclor-1260 Arsenic Benzo(a)anthracene Benzo(a)pyrene	Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Lead Naphthalene	1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Aldrin Aroclor-1248 Aroclor-1254 Aroclor-1260 Arsenic Benzene	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene[c] Lead Naphthalene
Recreational[a]	1,2,3,4,6,7,8-HPCDD 1,2,3,7,8-PECDD 2,3,4,7,8-PECDF Aroclor-1254 Aroclor-1260 Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene	Chrysene Dibenzo(a,h)anthracene Dieldrin Indeno(1,2,3-cd)pyrene Lead PCB-105 PCB-118 PCB-187 PCB-206	Not applicable	
Residential[a]	Antimony Aroclor-1260 Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene	Dieldrin Indeno(1,2,3-cd)pyrene Iron Lead Manganese Mercury Nickel[c]	Antimony Aroclor-1254 Aroclor-1260 Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene[c]	Dieldrin Indeno(1,2,3-cd)pyrene Iron Lead Manganese Mercury Nickel[c]
	Bis(2-ethylhexyl)phthalate Dibenzo(a,h)anthracene Cadmium Copper	Pentachlorophenol Thallium Vanadium Zinc	Benzo(k)fluoranthene Bis(2-ethylhexyl)phthalate Cadmium Copper Dibenzo(a,h)anthracene	Pentachlorophenol Silver Thallium Vanadium Zinc

Exposure Scenario	COCs in Surface Soil (0 to 2 feet bgs)	COCs in Subsurface Soil (0 to 10 feet bgs)	
Construction Worker[b]	Not applicable	1,2,3,7,8-PECDD 2,3,4,7,8-PECDD 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene 2,3,4,6,7,8-HXCDF Aldrin Antimony Aroclor-1248 Aroclor-1254 Aroclor-1260 Arsenic Benzene Benzo(a)anthracene	Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Copper Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Iron Lead Manganese Mercury Naphthalene Nickel n-Nitroso-di-n-propylamine Vanadium

Notes:

a COCs identified for this exposure scenario are based on the 1997 redevelopment plan for Parcel E. The exposure scenarios evaluated in the Revised RI Report (Barajas & Associates, Inc., 2008b) were based on methodology developed by the Navy in 2003 and 2004, in consultation with EPA, DTSC, and Water Board. The Revised RI Report includes an evaluation of residential exposure throughout Parcel E that provides an adequate baseline assessment of human health risk irrespective of the recent changes to the planned reuse.

b The construction worker exposure scenario is not associated with a specific planned reuse for Parcel E. Based on agreement with the BCT, evaluation of construction worker exposure to soil was based on subsurface soil from 0 to 10 feet bgs; this depth range includes surface soil (0 to 2 feet bgs) exposure.

c COC under total risk evaluation only.

BCT Base Realignment and Closure Cleanup Team
bgs below ground surface
COCs chemicals of concern
HPCDD heptachlorodibenzo-p-dioxin
HXCDF hexachlorodibenzofuran
PECDD pentachlorodibenzo-p-dioxin

For industrial exposure (industrial and maritime-industrial reuse areas), arsenic and PAHs (primarily benzo[a]pyrene) were the most frequently occurring COCs. Arsenic was a COC in 93 percent of the grids evaluated, and benzo(a)pyrene was a COC in 33 percent the grids evaluated in both the total and incremental risk evaluations.

For residential exposure (mixed-use and research and development reuse areas), metals (arsenic, iron, manganese, nickel, and vanadium) were identified as COCs in most of the grids evaluated. For the total risk evaluation, arsenic was identified as a COC in 73 percent of the grids evaluated, iron in 93 percent, manganese in 63 percent, nickel in 86 percent, and vanadium in 58 percent. For the incremental risk evaluation, arsenic was identified as a COC in 15 percent of the grids evaluated and manganese was a COC in 29 percent of the grids evaluated.

For recreational exposure (open space reuse areas), arsenic, benzo(a)pyrene, lead, and Aroclor-1260 were COCs in over 40 percent of the grids evaluated in the total risk evaluation and 30 percent of the grids in the incremental risk evaluation.

For construction worker exposure (evaluated parcel-wide), arsenic was identified as a COC in 93 percent of the grids evaluated in the total risk evaluation and 40 percent of the grids in the incremental risk evaluation. Lead, PAHs, and PCBs were also identified as COCs in approximately 10 to 15 percent of the grids evaluated in both the total and incremental risk evaluations.

2.5.1.2. Groundwater Risk Summary

The following chemicals were identified as COCs in groundwater in the A- and B-aquifers based on planned reuse.

Exposure Scenario	COCs in A-Aquifer Groundwater		COCs in B-Aquifer Groundwater	
Industrial[a]	1,1-DCA 1,2-DCE (total) 1,4-DCB Benzene Bromodichloromethane Carbon tetrachloride Chloroform	Isopropylbenzene Naphthalene PCE TCE Vinyl chloride Xylene (total)	Not applicable	
Recreational[a]	Not applicable		Not applicable	
Residential[a]	1,1-DCA 1,4-DCB Benzene Chloroform	Isopropylbenzene Naphthalene PCE TCE	1,4-DCB Arsenic Manganese Thallium	PCE TCE Vinyl Chloride
Construction Worker [b]	1,2-DCE (total) 1,4-DCB Arsenic Benzene[c] Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene	Chloroform [c] Chrysene Indeno(1,2,3-cd)pyrene Naphthalene Pentachlorophenol TCE Vinyl chloride	Not applicable	

Notes:

a COCs identified for this exposure scenario are based on the original (1997) redevelopment plan for Parcel E. The exposure scenarios evaluated in the Revised RI Report (Barajas & Associates, Inc., 2008b) were based on methodology developed by the Navy in 2003 and 2004, in consultation with EPA, DTSC, and Water Board. The Revised RI Report includes an evaluation of residential exposure throughout Parcel E that provides an adequate baseline assessment of human health risk irrespective of the recent changes to the planned reuse based on the amended redevelopment plan (SFRA, 2010c).

b The construction worker exposure scenario is not associated with a specific planned reuse for Parcel E.

c Benzene and chloroform are COCs for the construction worker exposure scenario at only the IR-39 plume. The IR-39 plume is associated with petroleum releases from former underground storage tanks that are being addressed under the TPH corrective action program for Parcel E (Shaw, 2009b) and are not evaluated in this FS Report.

COCs chemicals of concern
DCA dichloroethane
DCB dichlorobenzene
DCE dichloroethene
PCE tetrachloroethene
TCE trichloroethene

2.5.1.3. Shoreline Sediment Risk Summary

Human health risks associated with direct contact to shoreline sediment are relatively low. For the reasonable maximum exposure (RME) scenario, PCBs were the only chemical with a risk greater than 1E-06. For the central tendency exposure (CTE) scenario, a typical or average exposure to an individual, all risks were below the cancer risk threshold of 1E-06 and the noncancer threshold HI of 1. For the shellfish ingestion pathway, the primary risk drivers associated with Parcels E shoreline sediments were arsenic, chromium, total PCBs, and dioxins. Cancer risks for these chemicals exceeded 1E-06 for both RME and CTE scenarios. Risks for arsenic and dioxins were similar to those for site-specific reference areas, but risks for chromium and total PCBs associated with shoreline sediments were higher than those for reference areas. For noncancer risks, total PCBs were the primary contributor (Barajas & Associates, Inc., 2008b).

For this report, the identification of chromium as a COC was more closely examined. It appears as though the chromium concentration in fish tissue was assumed to be chromium (VI) and that toxicity values for chromium (VI) (i.e., cancer oral toxicity value of 0.19 per mg/kg-day and noncancer oral reference dose of 3E-03 mg/kg-day) were used in the HHRA. However, based on the current toxicological information listed below, ingestion of chromium in shellfish is not considered to be associated with cancer risk via the oral exposure route:

- According to the EPA, the oral carcinogenicity of chromium (VI) cannot be determined (EPA, 1998a).
- EPA Region 3 has developed risk-based screening levels for fish tissue for both chromium (III) and (VI), but only for the noncancer endpoints (EPA, 2008).
- The oral cancer toxicity value of 0.19 per mg/kg-day for chromium (VI) used in the HHRA was derived by California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA); however, this value was withdrawn on December 19, 2001. Currently, no oral cancer toxicity value for chromium (VI) is listed in OEHHA's toxicity criteria database[1].

Based on this evaluation, total PCBs is the primary COC for the evaluation of human health along the Parcel E shoreline.

2.5.2. Ecological Risk

Ecological risk assessments were performed for onshore soil, shoreline sediment, and groundwater at Parcel E. The ecological risks for these media are briefly discussed in the sections below. Ecological risks for onshore soil and shoreline sediment are discussed further in the Revised RI Report (Barajas & Associates, Inc., 2008b). Ecological risks for groundwater are discussed in Appendix A of this FS Report.

[1] http://oehha.ca.gov/risk/chemicaldb/index.asp

2.5.2.1. BERA for Soil

All chemicals detected in soil samples from open space areas (former Redevelopment Blocks EOS-1, EOS-2, and EOS-3) in Parcel E were screened in the BERA to identify chemicals of potential ecological concern (COPECs). Inorganic and organic chemicals were screened against toxicity benchmarks for selected ecological receptors. Due to poor habitat quality, plants and terrestrial invertebrates were eliminated as receptors of concern during previous phases of the investigation (PRC Environmental Management, Inc. [PRC] 1994, 1996d, 1996e; TtEMI, LFR, and U&A 1997; TtEMI and LFR 2000a, 2000b). The BERA in the Revised RI Report focused on terrestrial birds and mammals as ecological receptors of concern.

Based on the risk screening in the BERA, the following chemicals were retained as COPECs for birds and mammals:

- Antimony
- Arsenic
- Barium
- Chromium
- Copper
- Lead
- Molybdenum
- Nickel
- Zinc

Organic chemicals were largely eliminated as COPECs during the 1997 ERA and Parcel E Validation Study (TtEMI, LFR, and U&A 1997; TtEMI and LFR 2000a, 2000b). In the 2008 BERA, organic chemicals were considered COPECs if EPCs exceeded the EPCs reported in the original 1997 RI Report by at least 10 percent. Concentrations of chemicals for which the 2008 EPCs were within 10 percent of the previously evaluated EPCs were considered unchanged since the 1997 RI, so no update was required. As a result, the following organic COPECs were reevaluated in the 2008 BERA:

- Toluene
- TCE
- Xylene
- PCBs (as total Aroclors)
- Total dichlorodiphenyltrichloroethane (DDT)

The open space of Parcel E is slated for future use as a recreational area. The land immediately adjacent to the open space is designated industrial, maritime-industrial, or mixed use. The most likely use of the adjacent area is as a business park. The physical disturbances that typically occur in such an urban park setting are expected to limit the attractiveness of the open space to all but the most tolerant wildlife species, such as the house mouse (*Mus musculus*) and American kestrel (*Falco sparverius*).

Results of the risk valuation indicated carnivorous birds (such as the American kestrel) and small omnivorous mammals (such as the house mouse) may be at risk from ingested doses of copper, lead, and

PCBs at Parcel E. Lead occurs at concentrations well above the HPALs, and is known to cause adverse effects to vertebrates when ingested. However, the magnitude of the hazard quotient (HQ) (all less than 2.7) and the low quality of the habitat at Parcel E suggests that risk is not immediate or severe. Any HQ greater than 1.0 is generally interpreted as indicating some risk in a SLERA. In a BERA, however, a more realistic assessment is appropriate. Because the low toxicity reference values (TRVs), which represent a lowest observable adverse effect level, were used to derive the protective soil concentrations (PSCs), an HQ greater than 1.0 does not indicate immediate unacceptable risk.

In summary, no significant unacceptable risk to ecological receptors was indicated at Parcel E. The maximum HQs based on PSCs derived using the low TRV were 2.16 (for kestrels exposed to PCBs in soil) and 2.67 (for the house mouse exposed to lead in soil). Because the house mouse does not warrant protection as a species, and no other small mammals have been observed during trapping at the site, this level of risk is acceptable. The low HQ for the kestrel does not indicate population-level risk of a magnitude that warrants remediation.

2.5.2.2. SLERA for Shoreline Sediment

The Navy conducted a SLERA to determine if chemicals detected along the shoreline pose an ecological risk to those receptors exposed to the narrow intertidal zone of Parcels E and E-2 (see Appendix G of the Revised RI Report [Barajas & Associates, Inc., 2008b]). For the purposes of the SLERA, the habitat along the entire shoreline was considered as one exposure unit. In addition, the shoreline was not divided into Parcels E and E-2 because it would reduce sample sizes below what is practicable for assessing risk.

Shoreline sediment samples were analyzed for metals, VOCs, SVOCs, pesticides, PCBs, TPH, dioxins and furans, and organotins. All chemicals detected in shoreline sediment samples were screened to identify COPECs. A toxicity-based approach was used to identify site-related chemicals that may pose risks to sensitive ecological receptors, including benthic invertebrates, birds, and mammals.

Concentrations of chemicals in shoreline sediment were compared with effects ranges to assess potential risk to benthic invertebrates. Food-chain models were used to assess the exposure of birds and mammals to ingested chemicals. Ingested doses were estimated for three birds (willet, surf scoter, and red tailed-hawk) and one mammal (house mouse). The following COECs were identified in shoreline sediment:

- Benthic invertebrates: copper, lead, mercury, zinc, PCBs, and DDTs;
- Birds (willet, surf scoter, and red tailed-hawk): PCBs
- Mammals (house mouse): cadmium, copper, molybdenum, zinc, and PCBs

2.5.2.3. Risk Evaluation of Groundwater

A risk evaluation of aquatic wildlife exposed to potentially contaminated groundwater at Parcel E is provided in Appendix A. The assessment consists of the following general steps:

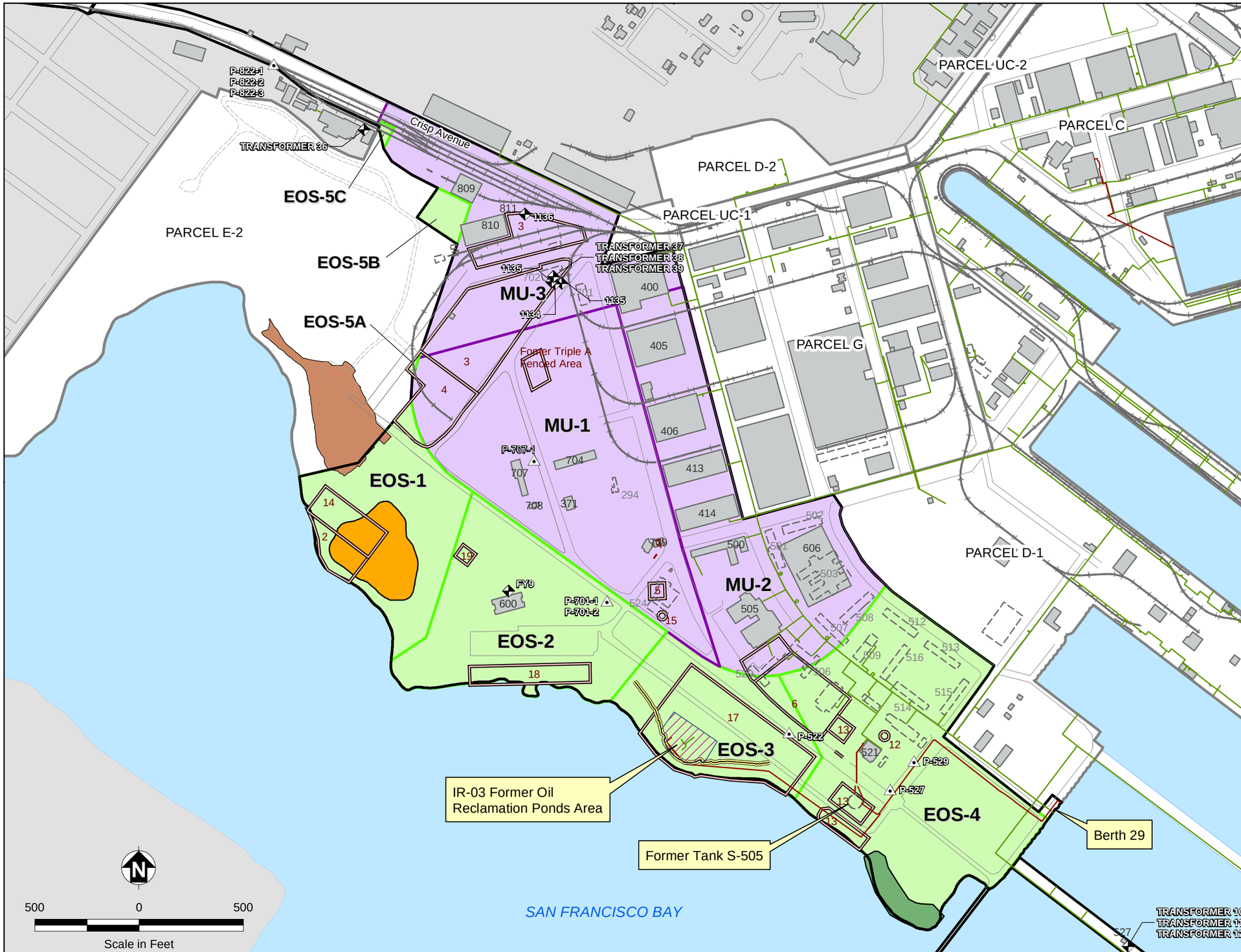
- Aquatic evaluation criteria were selected based on surface water quality criteria (Basin Plan Table 3-3; California Toxics Rule; National Recommended Water Quality Criteria; and National Ambient Water Quality Criteria). All of these standards apply to surface water; none of them applies to groundwater. Therefore, these potential ARARs for surface water would be applied to the surface water at the interface of the A-aquifer groundwater, but would not be used to set cleanup standards for in-situ A-aquifer groundwater at Parcel E.
- The Navy developed trigger levels for various inland locations to ensure surface water quality criteria are not exceeded if groundwater at Parcel E discharges to the bay. The trigger levels are intended to serve as conservative comparison values for groundwater to indicate when additional evaluation may be necessary. The development of the trigger levels was initially performed in the Parcel D FS, and has also been applied at HPS Parcels B and C. The development of the trigger levels is discussed in Attachment A1 to Appendix A.
- Chemical concentrations in groundwater were screened against the assigned aquatic evaluation criteria, mainly comprising saltwater aquatic criteria, to identify COPECs for surface water quality.
- Site-specific data for select COPECs were then evaluated against trigger levels, where appropriate, to confirm if the COPECs posed a potential risk to aquatic receptors requiring remedial option analysis.

Based on concentrations exceeding trigger levels (as adjusted based on HGALs), the following chemicals (or groups of chemicals) pose a potential threat to aquatic wildlife through exposure to surface water impacted by contaminated groundwater at Parcel E:

- Metals: arsenic, copper, lead, nickel, and zinc;
- PCBs and pesticides: Aroclor-1254, Aroclor-1260, 4,4'-dichlorodiphenyldichloroethene (DDE), and alpha-chlordane; and
- Total TPH: sum of detected concentrations of all TPH ranges (gasoline-range, diesel-range, and motor-oil range).

Figure 2-9 shows the locations where groundwater concentrations exceeded their respective trigger levels. As discussed in Appendix A, chemical concentrations at the IR-05 metals plume and the IR-12 nickel plume do not exceed their respective trigger levels; as a result, these plumes do not require further evaluation in this FS Report. As discussed in Section 2.3.3.1, chemical concentrations at the IR-02 Southeast metals plume have attenuated following the Metal Debris Reef removal action; as a result, this plume also does not require further evaluation in the FS Report. Table 2-14 summarizes the specific COPECs at the locations identified on Figure 2-9.

Figures



LEGEND

- Transformer, Pad Mounted
- Transformer, Pole Mounted
- Sheetpile Wall
- Fuel Lines (IR-47)
- Steam Lines (IR-45)
- Triple A Site
- Road
- Gravel Road
- Rail Line
- Demolished Building
- Existing Building
- Parcel E Boundary
- Other HPS Parcels
- Geosynthetic Liner
- PCB Hotspot Removal Action Area*
- Metal Debris Reef Removal Action Area
- IR-02 Northwest and Central Removal Action Area
- Non-Navy Property
- San Francisco Bay

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:
IR = installation restoration
HPS = Hunters Point Shipyard
PCB = polychlorinated biphenyl

* PCB Hotspot Removal Action Area is based on the 2007 excavation limit. The Navy initiated a follow-on removal action at the PCB Hotspot in 2010 (Navy, 2010). Excavation limits for the follow-on removal action are located entirely within the Parcel E-2 boundary.

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U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2-1

SITE FEATURES MAP

Feasibility Study Report for Parcel E

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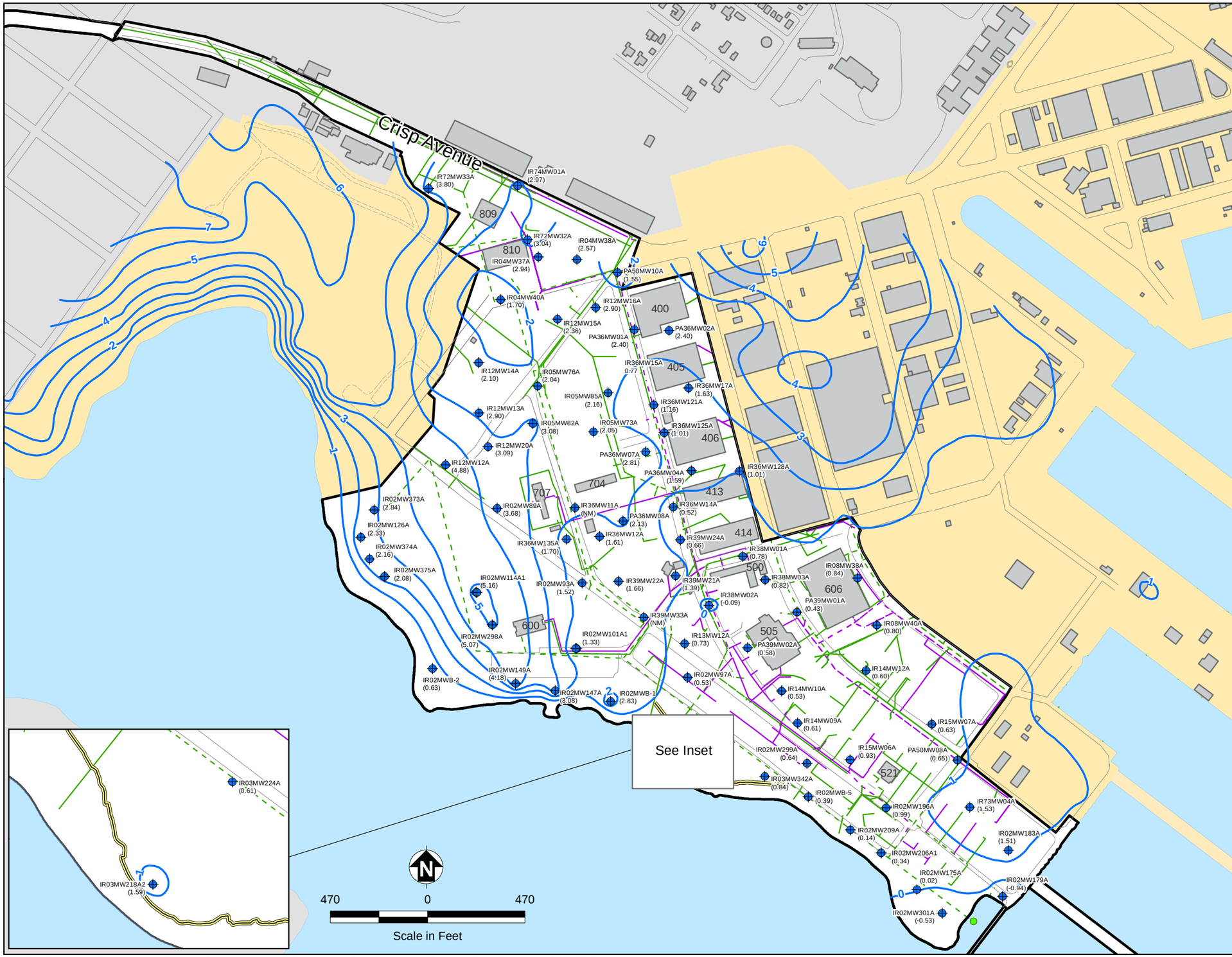

LEGEND

- A-Aquifer Monitoring Well, Identification, and Groundwater Elevation
- A-Aquifer Groundwater Elevation Contour Line
- Sheet Pile Wall
- Non-Navy Property
- Building
- Road
- Gravel Road
- Parcel E Boundary
- Other HPS Parcels

IR Site 50

- Approximate Location of Storm Line Outfall
- Storm Line (Above Groundwater)
- Storm Line (Below Groundwater)
- Sanitary Sewer Line (Above Groundwater)
- Sanitary Sewer Line (Below Groundwater)

Notes:
Elevation contours were generated from basewide water level data collected in March 2009; water level data for adjacent parcels are ommitted for brevity.
Water Level shown is A-Aquifer.
Elevations are in feet above mean sea level.

References:
CE2-Kleinfelder Joint Venture. 2009b. Semi-Annual Groundwater Monitoring Report (October 2008 to March 2009). Hunters Point Shipyard, California. July.

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FIGURE 2-2

A-AQUIFER GROUNDWATER ELEVATIONS 1st QUARTER 2009

Feasibility Study Report for Parcel E

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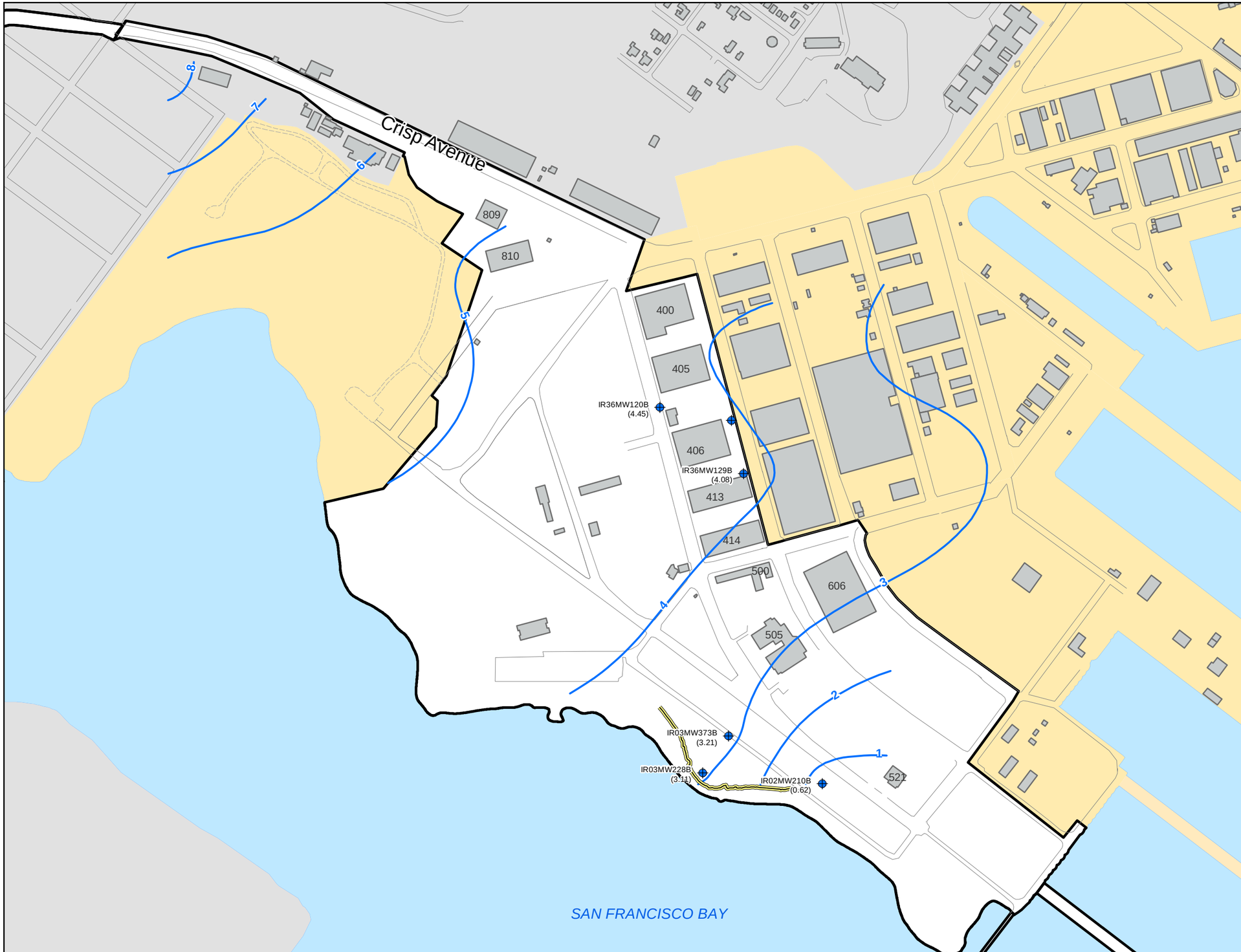

LEGEND

- B-Aquifer Monitoring Well, Identification, and Groundwater Elevation
- B-Aquifer Groundwater Elevation Contour Line
- Sheet Pile Wall
- Non-Navy Property
- Building
- Road
- Gravel Road
- Parcel E Boundary
- Other HPS Parcels

Notes:
Elevation contours were generated from basewide water level data collected in March 2009; water level data for adjacent parcels are ommitted for brevity.
Water Level shown is B-Aquifer.
Elevations are in feet above mean sea level.

References:
CE2-Kleinfelder Joint Venture. 2009b. Semi-Annual Groundwater Monitoring Report (October 2008 to March 2009). Hunters Point Shipyard, California. July.

N

470 0 470

Scale in Feet

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FIGURE 2-3

B-AQUIFER GROUNDWATER ELEVATIONS 1st QUARTER 2009

Feasibility Study Report for Parcel E

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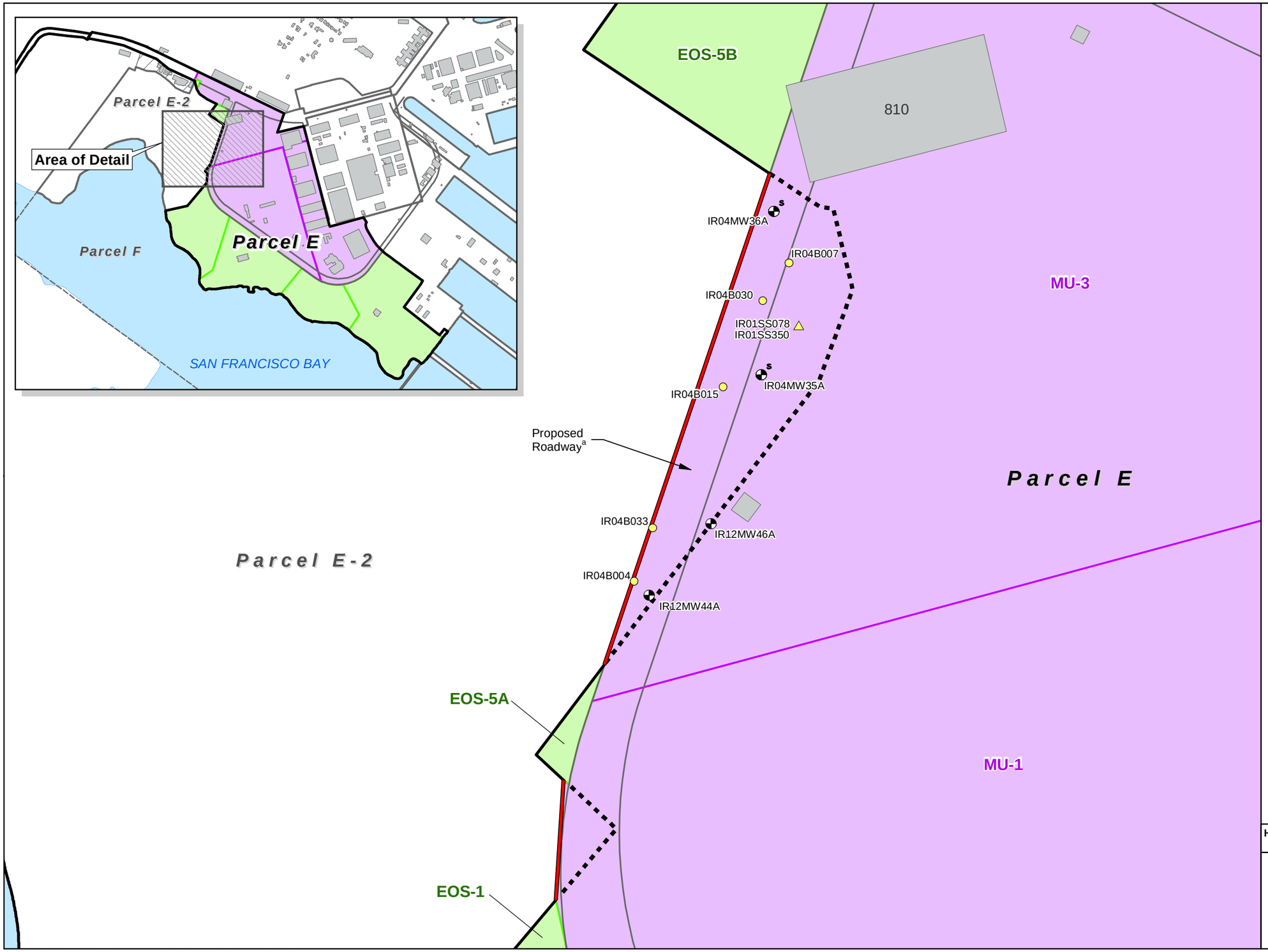

Legend

- A-Aquifer Monitoring Well
- A-Aquifer Monitoring Well (with soil sample)
- Soil Boring
- Surface Soil Sample
- New Section of Parcel E/E-2 Boundary
- Unadjusted Section of Original Parcel E/E-2 Boundary
- Adjusted Section of Original Parcel E/E-2 Boundary
- Proposed Roadway
- 815 Building

Reuse Category

- Shipyard South Multi-Use District
- Shoreline Open Space

Notes:

Redevelopment blocks EOS-1, EOS-5A, EOS-5B, MU-1, and MU-3 were established in Parcel E Feasibility Study Report.

[a] Proposed roadway is not associated with planned reuse district but was evaluated as part of Shipyard South Multi-Use District.

N

100 0 100

Scale in Feet

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Naval Shipyard, San Francisco, California

Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2-4

SAMPLING LOCATIONS IN 0.98-ACRE AREA MOVED TO PARCEL E

Feasibility Study Report for Parcel E

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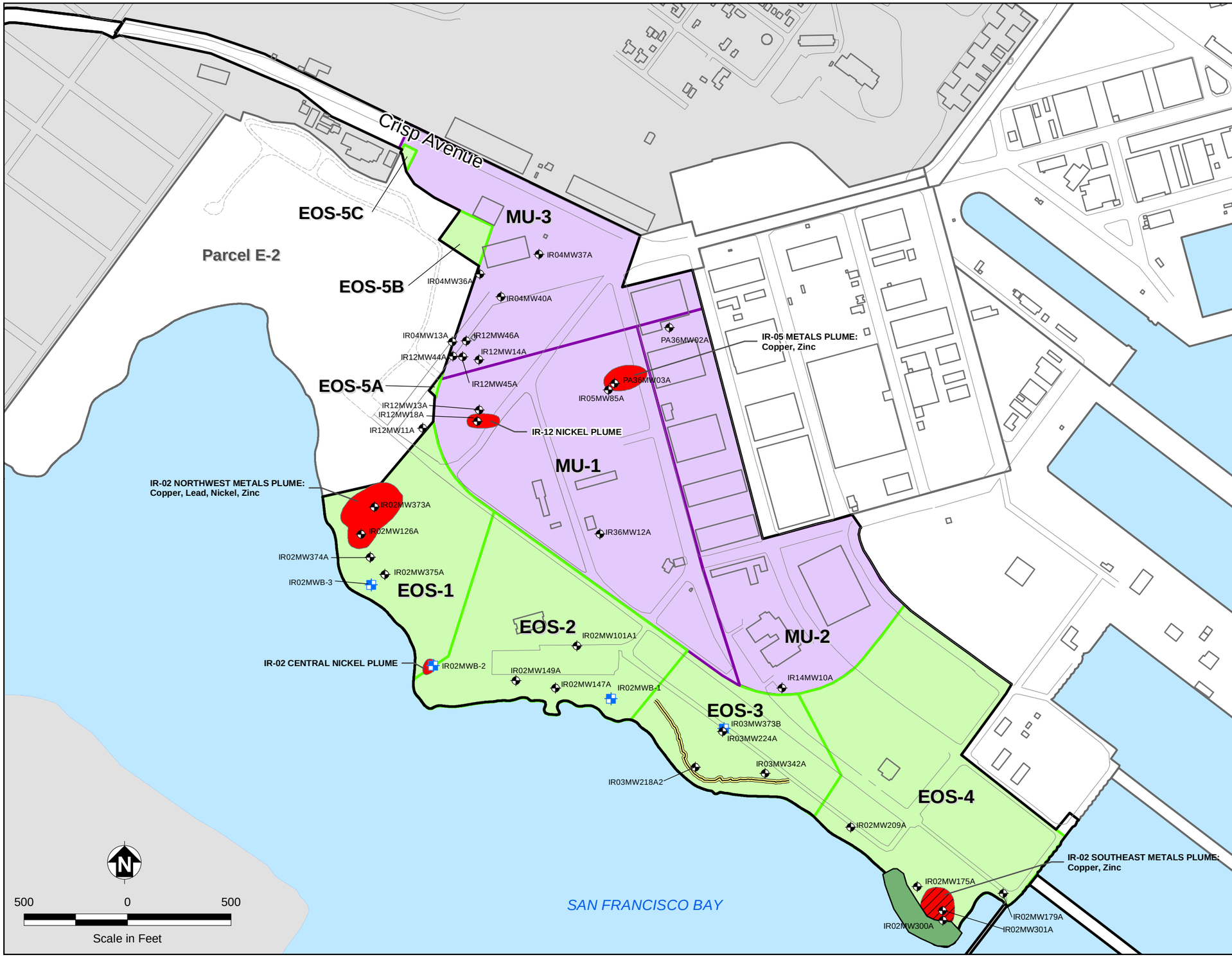

LEGEND

- A-Aquifer Monitoring Wells
- B-Aquifer Monitoring Wells
- 2004 Metals Plume
- Plume no longer exists based on evaluation of updated data (March 2005 to October 2009).
- Metal Debris Reef Removal Action Area
- Sheet Pile Wall
- Road
- Gravel Road
- Building
- Non-Navy Property
- Parcel E Boundary
- Other HPS Parcels

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

RI plume delineations were re-evaluated using all available groundwater data collected between March 2005 and October 2009. None of the metals plumes presented in the RI required updating except for the IR-02 Southeast Metals Plume. Concentrations of copper and zinc in groundwater have been attenuated since the RI, and the plume no longer exists.

All plume extents shown are limited to the A-aquifer.

The railroad right-of-way is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E. No groundwater plumes are present in the railroad right-of-way.

HHRA Human Health Risk Assessment
IR Installation Restoration
RI Remedial Investigation

Reference:

Barajas & Associates, Inc., 2008. Final Revised Remedial Investigation Report for Parcel E. Hunters Point Shipyard, California. May 2.

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Hunters Point Shipyard, San Francisco, California

U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2-5

UPDATED RI PLUME DELINEATIONS FOR METALS

Feasibility Study Report for Parcel E

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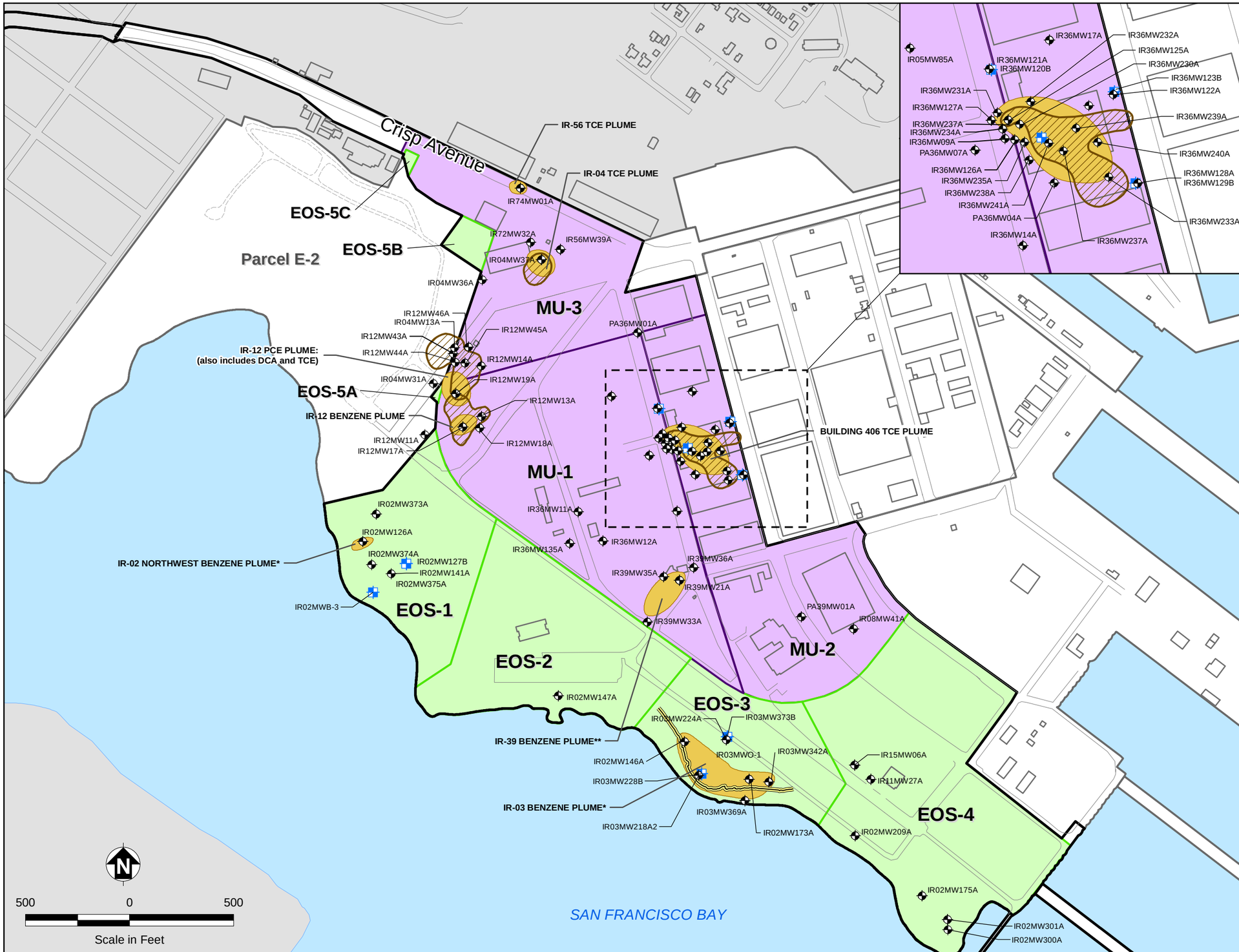

LEGEND

- A-Aquifer Monitoring Wells
- B-Aquifer Monitoring Wells
- 2004 VOC Plume
- Updated VOC Plume (see note)
- Sheetpile Wall
- Road
- Gravel Road
- Building
- Non-Navy Property
- Parcel E Boundary
- Other HPS Parcels

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

RI plume delineations were re-evaluated using all available groundwater data collected between March 2005 and November 2009. Four of the VOC plumes presented in the RI required updating.

All plume extents shown are limited to the A-aquifer.

*Benzene plumes in the open space areas will not be evaluated in this FS because, consistent with the Revised RI Report, the vapor intrusion pathway is incomplete. These plumes will not require evaluation in the groundwater remedial alternatives, other than the application of institutional controls and incidental treatment of other collocated chemical plumes.

**Benzene plume IR-39 will be addressed in the Petroleum Hydrocarbon Corrective Action Program.

The railroad right-of-way is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E. No groundwater plumes are present in the railroad right-of-way.

DCA	1,1-Dichloroethane
FS	Feasibility Study
HHRA	Human Health Risk Assessment
IR	Installation Restoration
PCE	Tetrachloroethene
RI	Remedial Investigatoin
TCE	Trichloroethene
VOC	Volatile organic chemical

References:

Barajas & Associates, Inc., 2008. Final Revised Remedial Investigation Report for Parcel E. Hunters Point Shipyard, California. May 2.

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U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2-6

UPDATED RI PLUME DELINEATIONS FOR VOCs

Feasibility Study Report for Parcel E

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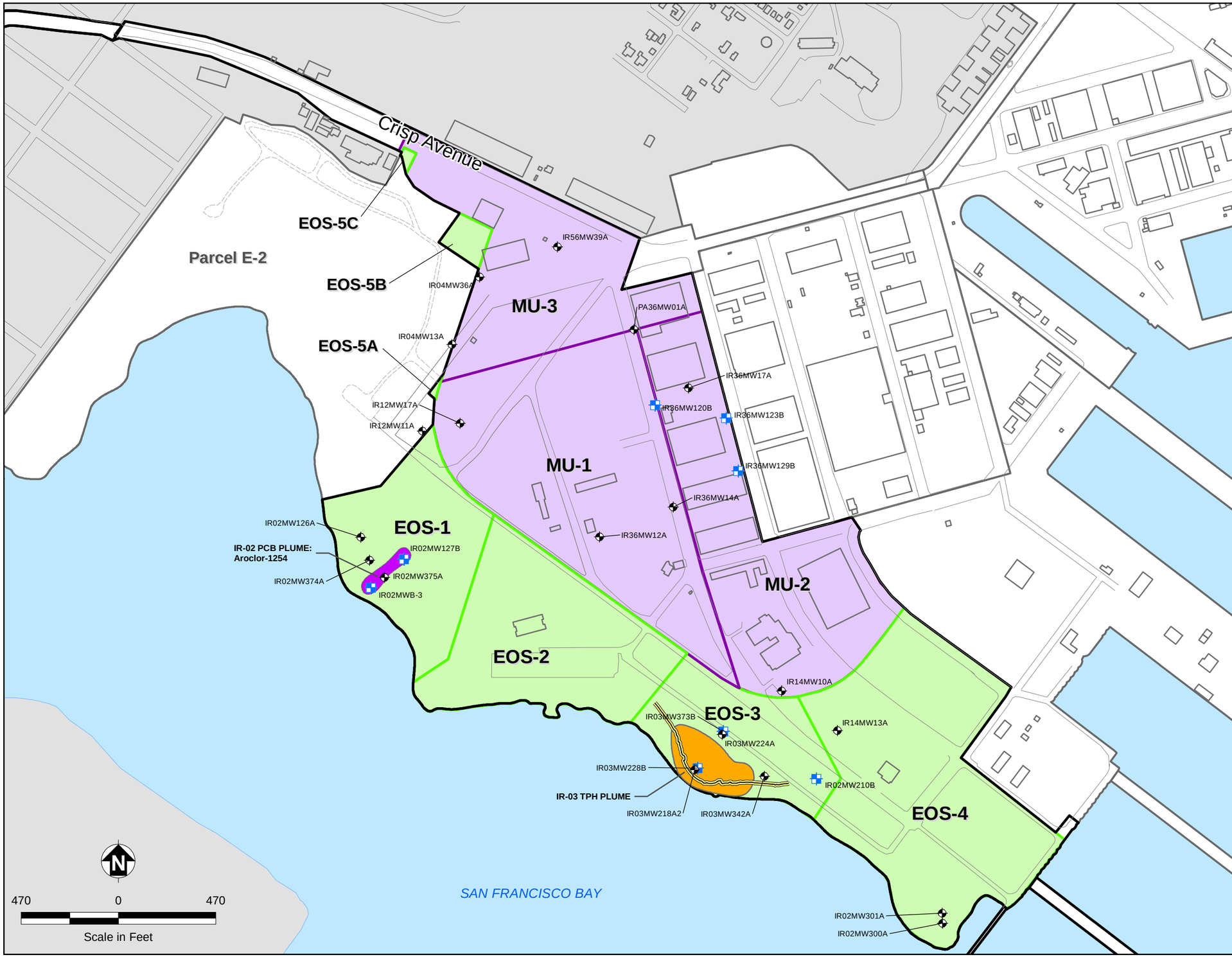

LEGEND

- A-Aquifer Monitoring Wells
- B-Aquifer Monitoring Wells
- 2004 PCB Plume
- 2004 TPH Plume
- Sheet Pile Wall
- Road
- Gravel Road
- Building
- Non-Navy Property
- Parcel E Boundary
- Other HPS Parcels

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

RI plume delineations were re-evaluated using all available groundwater data collected between March 2005 and October 2009. The PCB and Total TPH plumes presented in the RI did not require updating.

All plume extents shown are limited to the A-aquifer.

The railroad right-of-way is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E. No groundwater plumes are present in the railroad right-of-way.

FS	Feasibility Study
HHRA	Human Health Risk Assessment
IR	Installation Restoration
TPH	Total petroleum hydrocarbons
PCB	Polychlorinated biphenyl
RI	Remedial Investigation

References:

Barajas & Associates, Inc., 2008. Final Revised Remedial Investigation Report for Parcel E. Hunters Point Shipyard, California. May 2.

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U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2-7

UPDATED RI PLUME DELINEATIONS FOR TOTAL TPH AND PCBS

Feasibility Study Report for Parcel E

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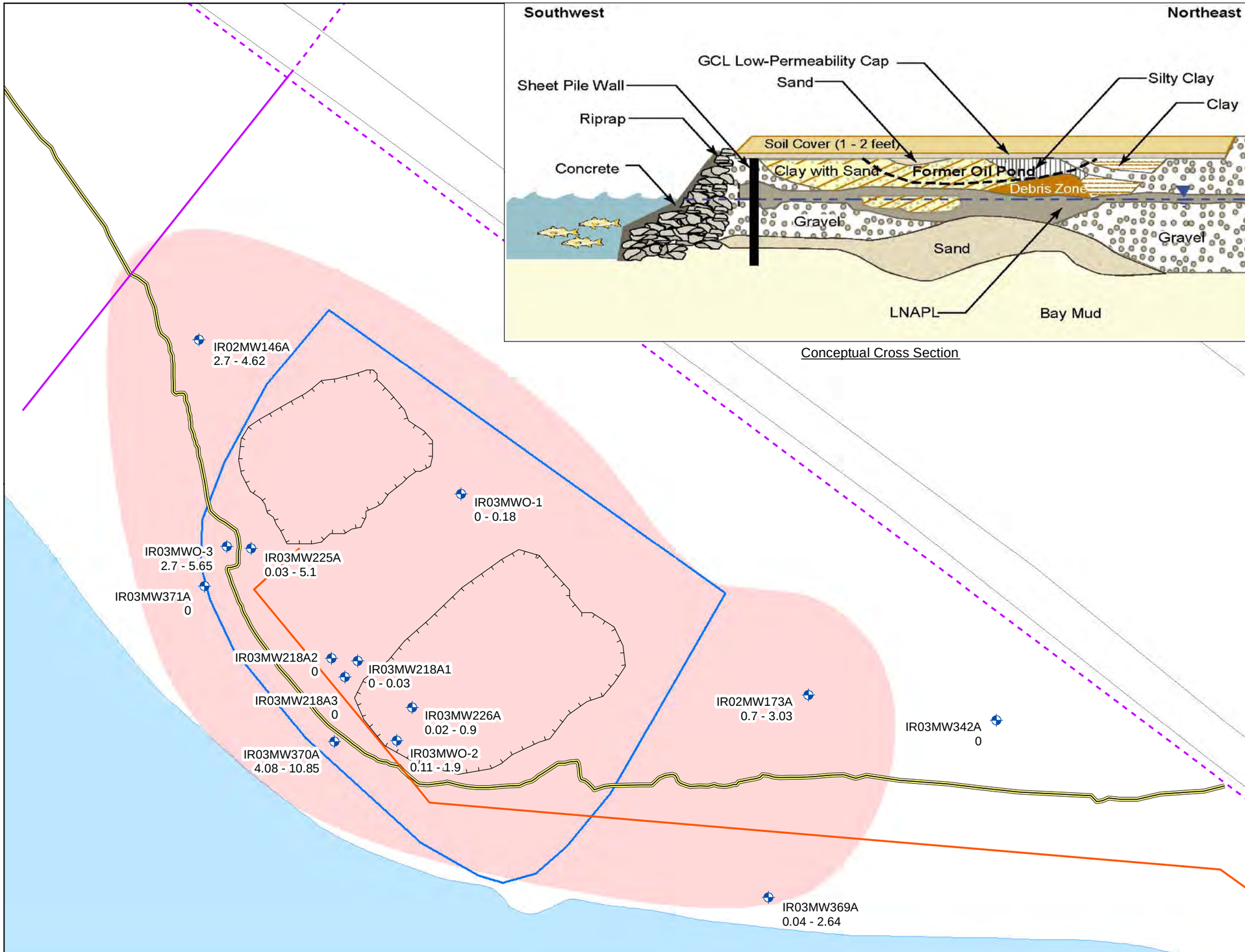

LEGEND

- Existing A-Aquifer Monitoring Well with range of LNAPL thickness (in feet, based on measurements in 2002 and 2006-2009)
- Storm Line (Above Groundwater)
- Storm Line (Below Groundwater)
- Former Fuel Lines
- TPH Groundwater Plume
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photos
- IR Site Boundary
- San Francisco Bay
- Road
- Sheet Pile Wall (existing)

Notes:
IR = installation restoration
LNAPL = light non-aqueous phase liquid
TPH = total petroleum hydrocarbons

N

50 0 50

Scale in Feet

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Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2-8

NON-AQUEOUS PHASE LIQUID DISTRIBUTION AT IR SITE 03

Feasibility Study Report for Parcel E

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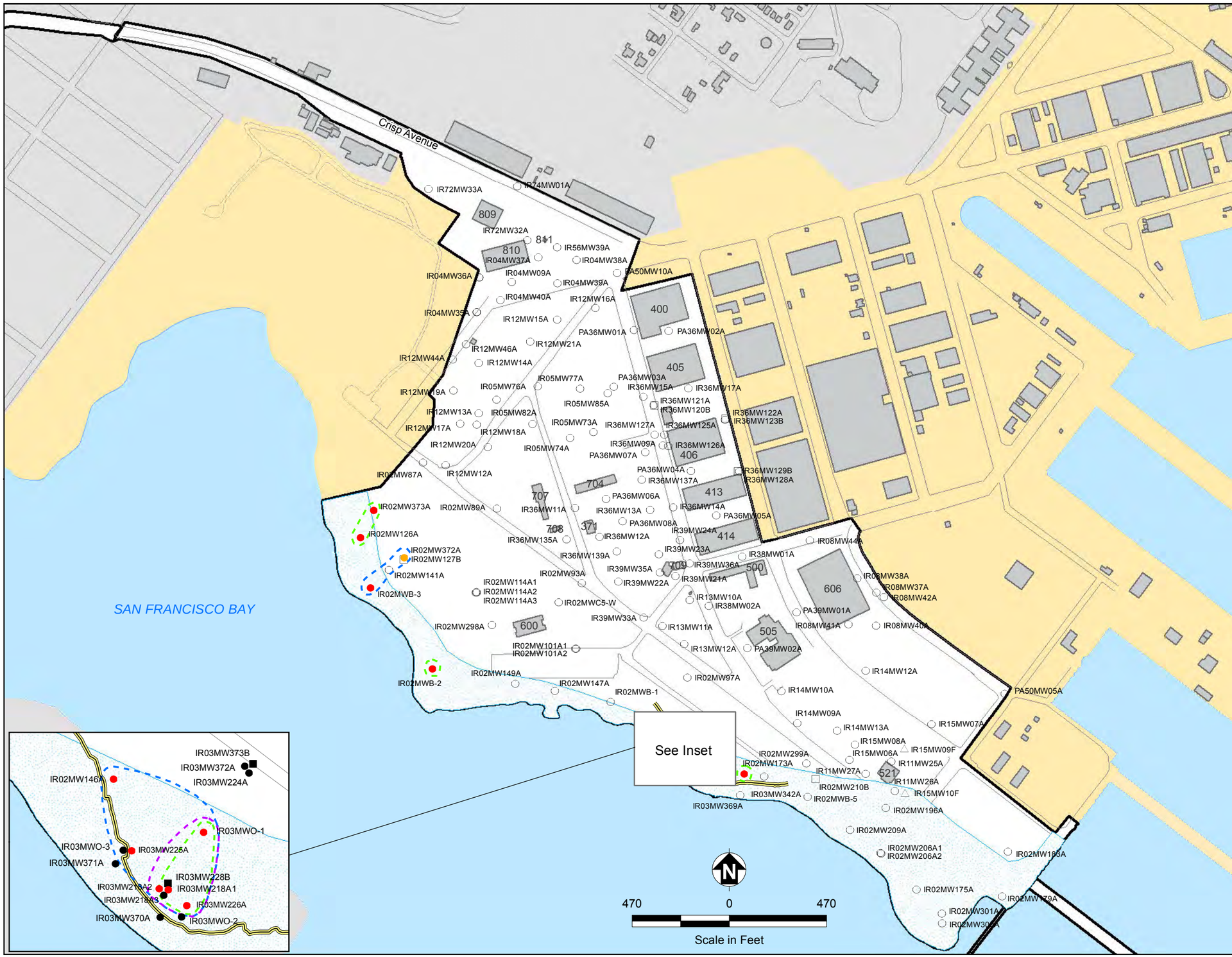

LEGEND

- A - aquifer nearshore well recommended for further monitoring and evaluation
- B - aquifer nearshore well recommended for further monitoring and evaluation
- A - aquifer inland well recommended for further monitoring and evaluation
- A-aquifer Well
- B-aquifer Well
- Bedrock WBZ Well
- Tidally Influenced Zone (Maximum Tidal Fluctuation ≥ 0.10 foot)
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- Building
- Road
- Gravel Road

Estimated areas where COECs may be migrating to the bay at concentrations exceeding aquatic evaluation criteria:

- Metals
- PCBs and Pesticides
- Total TPH

Notes:

The tidal influence study was conducted from May 20 to June 3, 2002. (Tetra Tech EM Inc., 2004a.)
COECs = chemicals of ecological concern
HPS = Hunters Point Shipyard
PCBs = polychlorinated biphenyls
TPH = total petroleum hydrocarbon
VOCs = volatile organic compounds
WBZ = Water Bearing Zone

Reference:

Tetra Tech EM Inc. 2004a. "Revised Final Parcel E Groundwater Summary Report, Phase III Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." October 17.

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Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2-9
SCREENING- AND TRIGGER-LEVEL GROUNDWATER EVALUATION FOR AQUATIC LIFE AT PARCEL E

Feasibility Study Report for Parcel E

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Tables

Table 2-1. IR Sites and Redevelopment Blocks
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

IR Site	IR Site Significant Features	Corresponding Redevelopment Block(s)	Past Activities and Potential Sources
IR-02 Northwest	Bay Fill Area; Triple A Sites 2 and 14[(a)]	EOS-1	Radium dial disposal area; disposal of construction debris, industrial debris, and liquid wastes (Triple A sites)
IR-02 Central	Bay Fill Area; Triple A Sites 17, 18, and 19[(a)]	EOS-2 and EOS-3	Former and current firing ranges; disposal of construction and industrial debris; dumping of industrial debris and liquid and sandblast waste (Triple A Sites 17 and 18); dumping and burning waste liquids (Triple A Site 19)
IR-02 Southeast	Bay Fill Area; Metal Debris Reef; AST S-505; Triple A Site 13[(a)]	EOS-4	Removed AST S-505 used to store PCB-containing liquid waste that was dumped along shoreline (Triple A Site 13); former burn disposal area (metal debris reef)
IR-03	Former oil reclamation ponds area; Triple A Site 17[(a)]	EOS-3	Former oil reclamation ponds; dumping of liquid and sandblast waste (Triple A Site 17)
IR-04	Former Building 807 (scrap yard shed); Triple A Site 3[(a)]	MU-3	Scrap yard used to store scrap metal, drums, pipe lagging, liquid waste, and batteries (Triple A Site 3)
IR-05	Old transformer storage site	MU-1	Fenced area of unknown use (Triple A Site); former transformer storage
IR-08	Former Building 503; PCB Spill Area (1988)	MU-2	Spill of PCB-containing oil in 1988; removed AST at Building 503
IR-11/14/15	Building 521; Triple A Sites 6, 7, 12, and 13[(a)]; former NRDL Buildings 506, 509, 510, 510A, 517, and 529	EOS-3, EOS-4, and MU-2	Oily liquid waste disposal (Triple A Sites 6 and 7); incineration of unknown industrial materials (Triple A Site 12); waste pond area (Triple A Site 13); steam generating power plant in Building 521; formerly contained buildings used by NRDL as Chemistry Laboratory (Building 506), Animal Irradiation Laboratory (Building 509), Physics Laboratories (Buildings 510 and 510A), Biomedical Facility (Building 517), and Radioisotope Storage and Cockroft-Walton Accelerator (Building 529).

Table 2-1. IR Sites and Redevelopment Blocks *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

IR Site	IR Site Significant Features	Corresponding Redevelopment Block(s)	Past Activities and Potential Sources
IR-12	Triple A Sites 3 and 4[(a)]	EOS-1, EOS-5A, MU-1, and MU-3	Scrap yard used to store scrap metal, drums, pipe lagging, liquid waste, and batteries (Triple A Site 3); disposal trench for waste liquids and concrete pad where waste liquid drums were crushed (Triple A Site 4)
IR-13	Triple A Sites 5 and 15[(a)]	MU-1	Oily soil pile and drums containing waste liquids (Triple A Site 5); sandblast waste storage (Triple A Site 15)
IR-36 North	Buildings 400 and 405	MU-1, MU-2, and MU-3	Disposal of construction debris; storage of solvents in Buildings 400 and 405, decommissioned ship parts and equipment
IR-36 South	Buildings 406, 413, and 414	MU-1 and MU-2	Degreasing operations, including solvent releases from floor drains (Building 406); waste oil drums stored in Building 413; stained oily area between Buildings 413 and 414 where drums of waste oil were stored
IR-36 West	Buildings 371, 704, and 709	MU-1	Automotive repair shop stored oils, solvents, acids, and battery solutions (Building 704); area around Buildings 371 and 704 used to store vehicles, equipment, and two ASTs for oils and solvents; former Navy Exchange gas station (Building 709) with 7 former USTs
IR-38	Former Buildings 507 and 508	EOS-4 and MU-2	Formerly contained buildings used by NRDL as a biological laboratory (Building 507) and health physics office (Building 508)
IR-39	Buildings 707, and 708	MU-1 and MU-2	Pole-mounted transformer (Building 707); buildings used by NRDL for animal research (Building 707) and as a Biomedical Facility (Building 708)
IR-40	Building 527	EOS-4	Pier 2 and electrical substation (Building 527)

Table 2-1. IR Sites and Redevelopment Blocks *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

IR Site	IR Site Significant Features	Corresponding Redevelopment Block(s)	Past Activities and Potential Sources
IR-45[b]	Steam line system	EOS-1, EOS-2, EOS-3, EOS-4, MU-1, MU-2, and MU-3	Triple A is suspected of having used the steam line system to transport waste oil from Berth 29 in Parcel D and Dry Dock 4 in Parcel C to Building 521 and former AST S-505 (SFDA, 1986; DHS, 1988).
IR-47[b]	Fuel distribution lines	EOS-3 and EOS-4	Fuel was transported from Berth 29 in Parcel D to Building 521 and former AST S-505. Triple A is suspected of having used the fuel lines to transport waste oil from Berth 29 in Parcel D to Building 521, former AST S-505, and the former oil reclamation ponds (IR-03) (SFDA, 1986).
IR-50[b]	Storm drain and sanitary sewer systems	All	Potential radioactive contamination at systems associated with former NRDL sites (NAVSEA, 2004).
IR-51[b]	Former electrical transformer locations	--	Transformers located throughout HPS were removed from their original locations in 1988 (HLA, 1990b). All remaining transformers were inspected, inventoried, and sampled (TtEMI, 1998b). IR-51 soil data were evaluated as part of the physical IR site in which the samples were collected.
IR-52	Railroad right-of-way	--	Railroad yard area and Railroad right-of-way
IR-54	Building 511A	EOS-4	Former woodworking hobby shop, demolished
IR-56	Building 809	EOS-5B, EOS-5C, and MU-3	Lumber storehouse (Building 809); railroad yard area used to clean metal parts; open storage yard for scrap metal, motors, and batteries
IR-72	Buildings 810 and 811; USTs S-801 and S-802; Triple A Site 3[a]	EOS-5B and MU-3	Scrap yard used to store scrap metal, drums, pipe lagging, liquid waste, and batteries (Triple A Site 3); storage of paint, oil, and liquid waste (Building 810); diesel station for fueling train engines (Building 811); two closed-in-place USTs (S-801 and S-802)
IR-73	Removed ASTs	EOS-4	Former asphalt manufacturing plant; removed ASTs; storage of drums containing oily liquids

Table 2-1. IR Sites and Redevelopment Blocks *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes: Information provided in table from Table 1-2 in the Final Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b).

(a) During its occupancy of HPS, Triple A allegedly generated hazardous substances and wastes at the shipyard and allegedly engaged in the improper disposal of hazardous substances and wastes at various locations throughout Parcel E; further information is provided in the Revised Remedial Investigation Report for Parcel E (Barajas & Associates, 2008)

(b) Facility-wide IR site that was established for the former utility network at HPS

-- = not applicable

AST = aboveground storage tank

DHS = Department of Health Services

HLA = Harding and Lawson Associates

HPS = Hunters Point Shipyard

IR = Installation Restoration

NAVSEA = Naval Sea Systems Command

NRDL = Naval Radiological Defense Laboratory

SFDA = San Francisco District Attorney

TtEMI = Tetra Tech EM Inc.

UST = underground storage tank

Sources:

Barajas & Associates, Inc., 2008b. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

DHS, 1988. "Remedial Action Order, Docket No. HSA87/88-034RA." January 7.

HLA, 1990b. "Draft Preliminary Assessment, Other Areas/Utilities, Naval Station Treasure Island, Hunters Point Annex, San Francisco." October 19.

NAVSEA, 2004. "Historical Radiological Assessment, Volume II, Use of General Radioactive Materials, 1939-2003, Hunters Point Shipyard, San Francisco, California." Prepared by Radiological Affairs Support Office. August 31.

SFDA, 1986. "People of California -v- Triple A Machine Shop Inc., et al., Exhibit to People's Memorandum of Points and Authorities in Support of Temporary Restraining Order Construction Trust, and Appointment of Receiver filed by Arlo Smith, District Attorney, et al., in the Superior Court of the State of California, in and of the City of San Francisco."

TtEMI, 1998b. "Final Basewide Environmental Baseline Survey, Revision 01, Hunters Point Shipyard, San Francisco, California." September 4.

Table 2-2. Parcel E Historical and Current Use of Buildings by Redevelopment Block
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	IR Site	Building No.[1]	Area (ft^2)	Former Shipyard Use (1940 to 1974)	Current Use	Current Tenant
MU-3	IR-36 North	404A	45,907	Ships operational activity parts receiving storehouse	Vacant	Vacant
MU-2	IR-36 North	405	Unknown	Supply storehouse (covered parking area)	Vacant	Vacant
MU-2	IR-36 North	406	42,183	Supply storehouse	Vacant	Vacant
MU-2	IR-36 South	413	42,183	Storehouse packing and preservation	Vacant	Vacant
MU-2	IR-36 South	414	30,596	Supply storehouse	Vacant	Vacant
MU-3	IR-36 South	400	33,468	Public works furniture storehouse	Vacant	Vacant
EOS-3 and MU-2	IR-11/14/15	520	6,800*	Dental clinic	Demolished	Vacant area (former building demolished)
MU-2	IR-11/14/15	529	400*	NRDL radioisotope storage and Cockroft-Walton accelerator	Demolished	Vacant area (former building demolished)
MU-2	IR-38	500	22,572	Chief Petty Officer Barracks	Vacant	Vacant
MU-2	IR-39	505	30,704	Navy Exchange	Vacant	Vacant
MU-2	IR-08 and IR-38	606 (location of former Building 503)	89,600	Building 606 built in 1989 for Shore Intermediate Maintenance Activity; also used as military post office Building 503 was former base laundry facility	Offices	San Francisco Police Department

Table 2-2. Parcel E Historical and Current Use of Buildings by Redevelopment Block *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	IR Site	Building No.[1]	Area (ft^2)	Former Shipyard Use (1940 to 1974)	Current Use	Current Tenant
EOS-4 and MU-2	IR-11/14/15	506	8,900*	NRDL Chemistry Laboratory	Demolished	Vacant Area (former building demolished)
EOS-4 and MU-2	IR-38	507	6,700*	NRDL Biological Laboratory	Demolished	Vacant Area (former building demolished)
MU-2	IR-38	508	6,900*	NRDL Health Physics Office	Demolished	Vacant Area (former building demolished)
MU-1	IR-13	524	4,100*	Commissary storehouse	Demolished	Vacant Area (former building demolished)
MU-1	IR-13	803	9,600*	Commissary	Demolished	Vacant Area (former building demolished)
MU-1	IR-36 West	371	2,460	Equipment storage	Vacant	Vacant
MU-1	IR-36 West	704	8,013	Transportation shop car shelter	Vacant	Vacant
MU-1	IR-36 West	709	1,263	Navy Exchange Gas Station	Vacant	Vacant
MU-1	IR-36 West	294	1,418	Unknown	Demolished	Vacant Area (former building demolished)
EOS-2	IR-02 Central	600	104,537	Bachelors Enlisted Quarters	Vacant	Vacant
MU-1	IR-39	707	5,136	NRDL Animal Colony	Vacant	Vacant
MU-1	IR-39	708	1,859	NRDL Biomedical Facility	Vacant	Vacant

Table 2-2. Parcel E Historical and Current Use of Buildings by Redevelopment Block *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	IR Site	Building No.[1]	Area (ft^2)	Former Shipyard Use (1940 to 1974)	Current Use	Current Tenant
MU-3	IR-04	807	1,482	Scrap yard shed	Demolished	Vacant Area (former building demolished; blackened remnants of buried structure)
MU-3	IR-12	702	6,000*	Storehouse	Demolished	Vacant Area (former building demolished)
MU-3	IR-56	809	11,159	Lumber storehouse	Vacant	Vacant
EOS-5B and MU-3	IR-72	810	20,350	Paint and oil storehouse	Vacant	Vacant
MU-3	IR-72	811	171	Service station – diesel oil platform	Vacant	Vacant
MU-3	None	701	4,500*	Unknown	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	509	4,200*	NRDL Animal Irradiation Laboratory	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	510	2,300*	NRDL Physics Laboratory	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	510A	500*	NRDL Physics Laboratory	Demolished	Vacant Area (former building demolished)

Table 2-2. Parcel E Historical and Current Use of Buildings by Redevelopment Block *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	IR Site	Building No.[1]	Area (ft^2)	Former Shipyard Use (1940 to 1974)	Current Use	Current Tenant
EOS-4	IR-11/14/15	511	7,700*	Offices	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	514	6,200*	Barracks	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	515	6,100*	Military services	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	516	6,700*	Barracks	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	517	2,200*	NRDL Biomedical Facility	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	518	11,000*	Movie theater	Demolished	Vacant Area (former building demolished)
EOS-4	IR-11/14/15	521	6,393	Power plant	Vacant	Vacant
EOS-4	IR-38	512	6,900*	Elementary school	Demolished	Vacant Area (former building demolished)
EOS-4	IR-54	511A	1,200*	Woodworking hobby shop	Demolished	Vacant Area (former building demolished)

Table 2-2. Parcel E Historical and Current Use of Buildings by Redevelopment Block *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	IR Site	Building No.[1]	Area (ft^2)	Former Shipyard Use (1940 to 1974)	Current Use	Current Tenant
EOS-4	None	513	6,100*	Barracks	Demolished	Vacant Area (former building demolished)
EOS-4	IR-40	527	408	Electrical substation	Vacant	Vacant

Notes: Information provided in table from Table 3-1 in the Final Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b); minor unnumbered structures are not in included in the table above.

* Building areas are estimated.

ft^2 = square feet

IR = Installation Restoration

NRDL = Naval Radiological Defense Laboratory

Sources:

Barajas & Associates, Inc., 2008b. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations			
1984	Initial Assessment Survey /NEESA, 1984	The IAS assessed the extent of releases of contamination, potential migration pathways, and potential receptors (humans or wildlife) where releases of contamination had occurred. The IAS was based on reviews of records and interviews of previous workers at the site. Eight sites within Parcel E were included in the IAS: IR-03 (Oil Reclamation Ponds), IR-02 Southeast (Burn Disposal Area and AST S-505), IR-04 (Scrap Yard Shed Building 807), IR-05 (Old Transformer Storage Yard), IR-11/14/15 (Power Plant Building 521), IR-02 Northwest and IR-02 Central (Old Bay Fill Area), and Bay Sediment (includes all sediments immediately surrounding the shoreline, specifically in IR-02 and IR-03).	Based on the findings of the IAS, five of the eight sites (IR-03, IR-04, IR-05, and IR-02 Northwest and IR-02 Central) were recommended for further evaluation in a confirmation study. Two of the Parcel E sites, IR-02 Southeast and Bay Sediment, were recommended for no further investigation.
1986	Triple A Investigation/SFDA, 1986	The Navy conducted an investigation of Triple A's hazardous waste disposal practices at HPS.	SFDA charged Triple A with illegally disposing of hazardous wastes at 20 locations throughout HPS. Fourteen of the sites (fenced area, 2, 3, 4, 5, 6, 7, 12, 13, 14, 15, 17, 18, and 19) are within the boundaries of Parcel E.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1987	Confirmation Study and Verification Step/EMCON, 1987a	Conducted to verify the presence of hazardous waste contamination. Activities included a geophysical survey; subsurface exploration using exploratory borings; and soil, groundwater, and air sampling. The study included Parcel E sites IR-02, IR-03, IR-04, IR-05, and IR-11.	The Confirmation Study made the following conclusions and recommendations for Parcel E sites: ▪ IR-02: Copper, VOCs, and SVOCs were detected in soil samples at concentrations exceeding screening criteria. The study recommended further characterization of the vertical and horizontal extent of these chemicals and a risk assessment. ▪ IR-03: The oil reclamation ponds did not pose an immediate risk to humans or wildlife from direct exposure. However, a risk assessment and periodic groundwater monitoring was recommended. ▪ IR-04: Chemical concentrations in surface soil did not present an immediate risk of exposure at the site. The study recommended collection of an additional soil sample from the scrap yard for analysis using the WET and the leachate generated from the WET analyzed for lead. ▪ IR-05: PCBs were detected in only 2 of 19 soil samples collected at concentrations below screening criteria. This site was not recommended for further investigation. ▪ IR-11: Analytical results for air samples collected at Building 521 indicated that the building had not contributed to an increase in airborne asbestos; however, the study recommended that asbestos-containing materials found at the site be removed and disposed of properly.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1987	Area Study/EMCON, 1987b	Evaluate whether ACM is present in areas of HPS where potential future construction would occur or potential hazardous materials were located. The study consisted of surface sampling for ACM, shallow subsurface exploration using exploratory borings, soil sampling, and laboratory analyses. The following Parcel E IR sites were included in the study: IR-02 Northwest, IR-04, IR-05, IR-11/14/15, IR-12, IR-13, IR-36 North, IR-36 South, IR-36 West, IR-38, and IR-39.	ACM was detected in subsurface soils at IR-11/14/15, IR-12, IR-36 North, and IR-36 South. The study concluded that soils within Study Area A, including Parcel E, contained naturally occurring asbestos derived from the serpentine bedrock.
1988	Remedial Action Order/DHS, 1988	DHS issued a Remedial Action Order documenting the releases and requiring the Navy and Triple A to implement a remedial action under CERCLA to abate risks to human health.	The Remedial Action Order listed eight of the nine sites identified during the confirmation study (Bay Sediments were not included) and the 14 Triple A sites identified during the civil proceedings against Triple A. The Remedial Action Order also listed an additional site, the PCB Spill Area, identified during construction activities near Building 503 in 1986. The order required the Navy and Triple A to prepare a scoping document; submit an RI/FS work plan, a RAP, and a remedial design; implement the remedial design and final RAP; oversee O&M activities; address any modifications to the final RAP, notify DHS of any proposed removal actions.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1988	Scoping Document Summary/HLA, 1988	The scoping document summarized (1) previous activities and investigations, (2) ongoing or planned investigations and how they relate to the RI/FS process, (3) the Navy's approach to investigating and remediating sites under the RI/FS and the field investigations to be conducted as part of the RI, and (4) proposed investigation activities for sites identified during the IAS, confirmation study, and Triple A investigation. Sites were grouped into operable units.	The scoping document recommended RI/FSs be conducted at IR-02, IR-03, IR-04, IR-05, IR-08, IR-11 and PA/SIs be conducted at PA Sites 12 through 15. The scoping document further recommended that PA Sites 12 through 15 be included in the RI/FS process and renumbered as IR sites if PA/SI results indicate releases of hazardous substances pose a threat to human health and the environment. However, if results of the PA/SI indicate a threat is not present, supporting documentation will be provided to the regulatory agencies, and if agreed, these sites will be removed from further investigation.
1988	Fence-to-Fence Survey/ERM-West, 1988	Conducted to inventory suspected and known hazardous wastes and materials. Over 50 buildings, 39 residences, and 36 separate areas (including open fields, lots, dry docks, piers, and electrical substations) were surveyed. The inventory included any type of material that could be classified as hazardous waste (over 2,500 items included). No samples were collected or analyses performed during the survey.	The survey report concluded tenants generally managed hazardous wastes and materials in ways that did not pose an immediate environmental threat to HPS. Information from the survey was also used in later investigations (such as the PA and SI).

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1988 to 1989	Solid Waste Air Quality Assessment Test/HLA, 1989a	Evaluated meteorological conditions, ambient air quality, landfill gas compositions, surface gas emissions, and subsurface gas migration. The SWAQAT focused on the Parcel E-2 Landfill, but also included Parcel E sites IR-02, IR-03, IR-12, and IR-14.	SWAQAT results indicated possible off-site migration of landfill gas from the northern portion of the Parcel E-2 Landfill and surface and subsurface methane and carbon dioxide at the landfill and IR-02. Landfill gas control is currently being addressed as part of the Parcel E-2 activities.
1988	Remedial Investigation Phase 1 Reconnaissance/HLA, 1990a	Evaluated hydrogeologic conditions and identified waste boundaries using GPR, electromagnetic survey, and test pits to delineate the extent of waste depositions in fill material. Surface scintillation counts also were measured to evaluate whether surface radiation exceeded HPS background levels.	Results were used to identify data needs for later RI activities at Parcel E.
1989 – 1990	Preliminary Assessment/HLA, 1989b and 1990b	Reviewed existing documents to (1) identify buildings or areas where chemicals were used, stored, or disposed of; (2) evaluate potential environmental effects of underground utilities (e.g., steam lines, storm and sanitary sewer lines, fuel lines, etc.); (3) identify potential receptors and threats to human health and the environment; (4) evaluate the need for immediate removal actions; (5) assess priorities for subsequent SI activities; and (6) identify which IR sites required no further action or investigation.	Areas with chemical data indicating contamination in soil or groundwater were included in the RI. Areas where leaks or spills of chemicals were suspected or identified were recommended for further action during the SI. The following Parcel E sites were evaluated as part of the PA and recommended for further action: IR-12 through IR-15, IR-36 North, IR-36 South, IR-36 West, IR-38, IR-39, IR-40, IR-52, IR-54, IR-56, and portions of facility-wide utility systems. IR-12 and IR-15 were carried forward directly to the RI phase (IR-14/IR-15 were combined with IR-11), and the remaining sites were carried forward to the SI phase.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1991-1992	Intertidal Sediment Study and Environmental Sampling and Analysis Plan/ATT, 1991	Sediment samples were collected in the intertidal zone of the HPS perimeter. Most samples were collected along the bay edge of Parcel E (South Basin) to evaluate if chemicals had migrated from Parcel E to San Francisco Bay. The ESAP study measured concentrations of chemicals in sediments, stormwater, and bay water near stormwater outfalls and other potential sources areas within HPS. Mussel tissue was also collected and analyzed.	Intertidal and ESAP data were used to identify COPCs in the Phase 1A ERA. Based on the findings of the ESAP, it was determined that quantitative data collected in the future should focus on offshore sediments as the main cause of toxicity to humans and wildlife present at the site.
1992 – 1996	Remedial Investigation/TtEMI, LFR, and U&A, 1997	Evaluated the nature and extent of contamination in soil and groundwater at Parcel E. More than 4,700 soil and 1,200 groundwater samples were collected and analyzed for various hazardous substances, including metals, organic chemicals, and TPH. All data were compared with screening criteria for the protection of humans and wildlife. Additionally, an HHRA for soil and groundwater and ERA for soil were conducted.	Based on the soil results, the RI Report recommended that all Parcel E sites be carried forward to an FS to develop risk management strategies and evaluate possible remedial actions for the site. Additionally, the report noted that additional soil sampling was needed to better define the nature and extent of contamination at the parcel. Based on the HHRA results for groundwater, the RI Report concluded groundwater contamination did not pose an unacceptable risk to human health. However, the report noted many sites contained chemicals in groundwater at concentration exceeding screening criteria, thus further groundwater sampling was required to define the nature and extent of groundwater contamination.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1992, 1994, and 1996	Facility-wide Ambient Air Monitoring (Phases I, II, and III)/Appendix D in TtEMI, LFR, and U&A, 1997	Ambient air sampling was conducted at select locations, including Parcel E, in three phases at HPS. Phase I focused on testing air upwind and downwind of approximately 25 percent of the contaminated sites. Phase II tested upwind and downwind conditions of the remaining 75 percent of potential contaminated sites; specifically, samples were collected at nine locations (1, 2, 3, 4, 11, 13, 14, 15, and 20) in Parcel E and analyzed for metals, VOCs, SVOCs, asbestos, and formaldehyde. Phase III sampling was conducted to address uncertainties associated with Phase II sampling; samples were collected from locations 1, 2, 13, and 14 in Parcel E.	Phase II results indicated concentrations of chemicals in air at Parcel E were similar to bay area regional air quality monitoring results, with only minor differences observed for most chemicals. During Phase II a sandblast waste pile was removed from Parcel E. Sampling results for the sandblast waste pile indicated that sites near the pile had elevated levels of asbestos, metals, and PCBs, which were related to the removal action. Additionally, VOC concentrations measured at location 1 were likely influenced by a light industrial park upwind of the sampling location. As a result, additional sampling was recommended to verify that elevated concentrations were from non-HPS sources. Phase III results indicated that concentrations of asbestos, metals, and VOCs at the selected locations were not present or present at very low concentrations that were similar to regional background concentrations. As a result, no further actions or studies for ambient air at HPS were recommended.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1993 to 1994	Site Inspection/HLA, 1994c and 1994d	Soil and groundwater samples were collected and analyzed for metals, VOCs, SVOCs, pesticides, PCBs, and TPH to further evaluate whether contamination was present and if a release to the environment had occurred. Additionally, results were used to characterize site-specific hydrogeologic conditions and evaluate if a site should be included in the RI for further investigation. Utility lines (steam, storm drain, and sanitary sewer) were mapped, surveyed, visually inspected, and sampled. Geophysical surveys were conducted to map fuel lines and locate suspected USTs.	The SI Report recommended further evaluation for IR-36 North, IR-36 South, IR-36 West, IR-38, IR-39, IR-40, IR-52, IR-54, and IR-56 as part of the RI phase. The SI Report also recommended that the utility sites (IR-45, IR-47, and IR-50) be investigated further in the RI phase.
1993 to 1994	Site Assessment/HLA, 1994b	The SA evaluated 75 sites, including 110 buildings and areas. Specifically, the SA evaluated areas that had not been previously investigation under the IR Program because of lack of access or documentation and areas that might have been conducted by recent (a decade prior to the SA) activities. The SA consisted of a records review, personnel interviews, and a field inspection to identify potential areas of contamination.	The SA recommended further investigation in a combined SI and RI for four SA sites (SA-142, SA-146, SA-149, SA-150) in Parcel E.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
1994 to 1996	Phase 1A and 1B Ecological Risk Assessment/PRC, 1994, 1996d, and 1996e	The Phase 1A ERA was a qualitative analysis that developed a preliminary characterization of HPS based on existing data, biotic surveys, and contaminant migration pathways and exposure routes. Both terrestrial and aquatic environments were considered in the Phase 1A ERA. The quantitative Phase 1B ERA was performed to delineate potential gradients of contamination from onshore sources to offshore sediments and to characterize the risk to aquatic wildlife.	Sediment data from the offshore investigations to be reassessed as part of the Parcel F FS Report. These data were not included in the 1997 Parcel E RI Report. Terrestrial COPECs (metals, PAHs, PCBs, and DDT) identified during the Phase 1A ERA were adopted and refined in the 1997 Parcel E RI Report.
1997-1998	Parcel E Feasibility Study Report/TtEMI, 1998	The FS identified, screened, and evaluated remedial alternatives for clean up of soil and groundwater at Parcel E.	Following submittal of the Draft Parcel E FS Report in 1998, the Navy and regulatory agencies identified additional tasks to support the remedial design for Parcel E. These tasks were performed as part of data gaps investigations from 2000 through 2003, and results of these investigations were to be used in revised RI and FS reports for Parcel E.
1999 to 2000	Parcel E Validation Study and Protective Soil Concentrations Technical Memorandum/TtEMI and LFR, 2000a and 2000b	The validation study addressed some of the uncertainties associated with dose calculations (from the baseline ERA) Additionally, ecological tissue from plants, invertebrates, lizards, and small mammals was collected and tissue data were used to develop site-specific soil concentrations that would be protective of terrestrial wildlife (referred to as PSCs).	Results of the Validation Study concluded cadmium, copper, lead, nickel, selenium, and zinc posed a potential unacceptable risk to wildlife at Parcel E. PSCs were subsequently derived for these chemicals and used to evaluate risk to wildlife in the Revised Parcel E RI Report.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
2000 to 2002	Groundwater Data Gaps Investigation/TtEMI, 2001a and 2004b	The GDGI was conducted in three phases between 2000 and 2002 to update previous assessments of groundwater conditions at HPS, supplement information gathered during the Parcel E RI, and better define the extent of groundwater contamination at HPS.	Water level measurements and a tidal study were used to refine the Parcel E hydrogeological conceptual model, and three rounds of groundwater monitoring was used to develop a basewide groundwater monitoring program and to refine the nature and extent evaluation presented in the Revised RI Report. Additionally, the GDGI Report recommended groundwater monitoring be continued at HPS.
2001 to 2002	Wetland Delineation and Wetland Functions Assessment/TtEMI, 2003	To support the remedial design for Parcel E, the Navy conducted a wetland delineation and wetland functions and values assessment. Two wetland areas were identified at Parcel E: (1) about 3.2 acres of tidal wetlands along the shoreline and (2) about 1.3 acres of inland seasonal freshwater wetland that partially overlaps with Parcel E-2.	The functions and values assessment found that the value of these wetlands is low, and the most significant function of these wetlands to be seasonal wildlife use for wintering and migrating birds.
2002	Standard Data Gaps Investigation/TtEMI 2005a	The SDGI was conducted to collect data to supplement the 1997 RI data and further characterize soil at Parcel E. Samples were collected from two areas in Parcel E: (1) shoreline soils and sediments in the area between the riprap and the mean tide line and (2) onshore soils within Parcel E.	SDGI data were used in the Revised Parcel E RI Report to identify potential sources areas of contamination, evaluate the nature and extent of soil contamination in each redevelopment block, and evaluate risk to human health and the environment. The data from the SDGI were also used to delineate the PCB Hot Spot Area.
June 2004 to Present	Basewide Groundwater Monitoring Program/TtEMI, 2004c	Monitor groundwater on a quarterly basis at HPS.	Most locations included in the program exhibited chemical concentrations that pose potential risk to humans and wildlife. Results for three rounds of sampling (June 2004 through December 2004) were included in the data set for the Revised RI Report.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
CERCLA Investigations *(continued)*			
2007	Parcels E and E-2 Shoreline Characterization Technical Memorandum/SulTech, 2007a	Evaluate if contamination in the Parcels E and E-2 shoreline has migrated or has the potential to migrate to sediments in adjacent Parcel F, and identify areas within the shoreline that pose an unacceptable risk to wildlife. Sediment samples were collected along the shoreline areas of Parcels E and E-2 for analysis of chemicals.	Potential risk is posed to benthic invertebrates, birds, and mammals from exposure to metals and total PCBs in surface and subsurface sediments along the shoreline. Based on these results, source control measures were recommended for the Parcel E shoreline, particularly in IR-02 Northwest.
2008	Revised Remedial Investigation, including HHRA and ERA/Barajas & Associates, Inc., 2008b	Collect additional data to better characterize Parcel E to support remedy evaluation at the site. To address data gaps, additional field investigations were performed to gather supplementary information needed to support the remedy evaluation.	The data and characterization results presented in the Revised RI Report are sufficient to reach risk management decisions and develop remedial alternatives in the FS Report. The HHRA results indicated potential risk to humans from exposure to chemicals in soil, groundwater, and sediment. Additionally, metals, PCBs, and TPH in groundwater have the potential to affect the bay and aquatic organisms. Based on the RI results, the FS should address areas where little or no data are available and uncertainty remains in the potential risk associated with exposure to soil, groundwater, and sediment by including these areas in the FS. Areas evaluated in the FS for these areas will seek to limit or eliminate pathways of exposure to soil, groundwater, and sediment to ensure protectiveness of human health and the environment.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
Radiological Investigations			
1991-1992	Phase I Radiological Investigation/PRC, 1992	The Phase I investigation was initiated to determine and confirm the nature and surficial extent of radium-bearing devices in several disposal areas at HPS, including Parcel E. A surface confirmation radiation survey was also conducted that consisted of a walkover gamma survey, soil sampling and analysis, radon flux testing, and groundwater sampling and analysis.	The walkover survey detected elevated gamma activity in a centralized area of IR-02 Northwest that extended across the IR-02 Central boundary; these results indicated the presence of radium-containing devices. The Phase I report recommended (1) investigation of the subsurface distribution of radium-containing devices in soil at IR-02 Northwest, (2) further evaluation of radiological contamination in groundwater, and (3) removal of a combination safe from IR-11/14/15.
1993	Phase II Radiological Investigation/PRC, 1996a and 1996b	The Phase II investigation delineated the subsurface distribution of radium-containing devices in the disposal area at IR-02 Northwest and IR-02 Central. Activities consisted of excavating 3 trenches and 34 test pits, performing gamma radiation surveys along the walls of each excavation, and collection of soil samples from locations where radium-containing devices were found.	Based on the results of the investigation, it was concluded that the disposal area at IR-02 Northwest and IR-02 Central was the primary disposal area for all radium-containing devices generated at HPS as a result of ship repair and maintenance activities. A removal action was recommended to address radiological contamination in this area.
1993	EPA Study of Parcel E Soil/NAVSEA, 2004	EPA's National Air and Radiation Environmental Laboratory collected and analyzed 13 soil samples from IR-02 to determine particle size, radionuclide distribution, and radionuclide content.	Three samples contained elevated levels of radium-226, and the remaining 10 samples contained radium-226 at concentrations comparable with background. EPA concluded that a significant volume of Parcel E soil may contain background concentrations of radium-226, and that the elevated soil radioactivity indicated that sources had released radium into immediately adjacent soil. As a result, the report recommended removal of radium sources.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
Radiological Investigations *(continued)*			
1996-1997	Phase III Radiological Investigation/Appendix E of TtEMI, LFR, and U&A 1997	The Phase III investigation addressed concerns about the use, storage, and disposal of radioactive materials during past NRDL operations at HPS. The investigation included (1) locations of former Buildings 506 through 510, 510A, 517, and 529 at IR-11/14/15; (2) locations of former Buildings 507 and 508 at IR-38; and (3) the concrete pad area outside Building 707 at IR-39. The Phase III investigation consisted of surface gamma walkover surveys and collection of soil and swipe samples.	Based on the investigation results, the report recommended the following actions: ▪ Release of former Buildings 507, 508, 510, and 510A for unrestricted public use ▪ Further investigation and potential excavation at former Buildings 509 and 517, where anomalous gamma count rates were measured ▪ Excavation of a potential buried point source behind Building 529 ▪ Further investigation of Building 707 and its concrete pad to determine the extent of elevated levels of radium-226, thorium-228, and thorium-232 No recommendations were made for Building 506.
1996-1997	Interim Parcel E Radiation Risk Assessment/Appendix P of TtEMI, LFR, and U&A, 1997	Evaluated potential risks associated with exposure of humans to radionuclides detected at Parcel E. The risk assessment evaluated exposure and risks to humans under future residential and industrial land uses at four sites within Parcel E: IR-02 Northwest, IR-02 Central, IR-02 Southeast, and IR-11/14/15.	Radium-226 and its radioactive daughters (lead-210 and radon-222) were identified as radionuclides of potential concern. The sources of these radionuclides are radium-containing devices from ship repair and maintenance activities that were disposed of in IR-02 Northwest and IR-02 Central. Most of the contaminated areas are along the shoreline and are slated for open space in San Francisco's reuse plan. The most likely receptor along the shoreline would be a recreational visitor rather than a resident or industrial worker. Further investigation (Phase V) and excavation at Parcel E have changed the residual risk in this parcel, since this risk assessment was performed.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
Radiological Investigations *(continued)*			
1998-1999	Phase IV Radiological Investigation/TtEMI, 2000	Further characterize areas of anomalous gamma count rates at Building 707 that were detected during the Phase III investigation, and collect information necessary to support free release of the building and its environs for industrial use. In total, 38 concrete and 38 soil samples were collected from the Building 707 concrete pad area.	Based on sampling results, cesium-137 was the only radionuclide that exceeded site-specific background criteria. Based on this finding, the Phase IV investigation report recommended a CERCLA removal action for the Building 707 concrete pad.
2001	Interim Investigation of Parcel E Shoreline/NAVSEA, 2004	Characterize gamma radiation levels along the Parcel E shoreline. Gamma radiation scans were conducted in shoreline areas within approximately 50 feet of the mean tide line.	Several areas contained gamma radiation at levels exceeding background, most notably in the Metal Reef Area in IR-02 Southeast. A removal action was recommended to address radioactive materials in this area.
2002-2003	Phase V Radiological Investigation/NAVSEA, 2004	At Parcel E, 21 buildings or former building locations were evaluated as part of Phase V. Investigation activities consisted of conducting surveys and collecting samples, and performing remedial activities. All surveys (Class I, Class 2, and Class 3) were performed in accordance with MARSSIM, and each site was assessed for potential radionuclides of concern.	A Class 3 survey was conducted at most sites, and no elevated levels of radioactivity were detected. However, historical evidence indicated additional Class 1 surveys were needed for adjacent areas. Class 3 survey results at three sites (Building 406, former Building 507, and Shack 80 in IR-11/14/15) indicated soil was contaminated with radioactive materials. These sites were cleaned up and follow-up Class 1 surveys were performed. Several areas with elevated levels of radioactivity were reported. Future investigation and clean up were recommended for several sites, including Building 406; the area around former Buildings 506, 520, and 529; the Building 707 concrete pad and drains; the Shack 80 site; and IR-04.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Objective/Activities	Conclusions/Recommendations
Radiological Investigations *(continued)*			
2003-2004	Historical Radiological Assessment/NAVSEA, 2004	HRA evaluated all previous uses of radioactive materials at HPS and assessed their potential effects on a site. Areas were designated as "impacted" or "non-impacted" by radioactive materials.	The HRA identified 33 areas in Parcel E as impacted. These sites include small areas such as former building foundation footprints and fill areas that may contain dials, gauges, deck markers, or sandblast waste. The HRA also identified basewide utility systems as impacted sites, including the underground storm drain and sanitary sewer lines. The HRA reported that no radiological contamination was suspected in groundwater at Parcel E, except at IR-02 and areas where storm drains are present; these areas have a low potential for groundwater contamination. The HRA concluded that further evaluation of the impacted sites was required. Impacted areas in Parcel E and areas where groundwater contamination is suspected are being addressed under the basewide radiological program.
Other Investigations			
2004	TPH Corrective Action Program/TtEMI 2002b, 2004a, Shaw 2007	TPH is not included in the definition of hazardous substances under CERCLA. However, this exclusion only applies to TPH contamination that is separate and distinguishable from other hazardous wastes. Therefore all sites where TPH is commingled with CERCLA-regulated substances have been addressed under the Navy's IR Program process; such areas will be included in the final remedy selected for Parcel E.	The corrective action program developed TPH remediation criteria in collaborative process including the Navy, the SFRWQCB, and CCSF. Following development of the criteria, Parcel E was evaluated to identify TPH-affected sites and determine whether corrective action was needed. Six TPH-impacted areas were excavated in 2004, and confirmation results indicated additional excavation was necessary to remove residual contamination. TPH data throughout Parcel E is being evaluated under the TPH corrective action program (Shaw 2009b).

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes:

ACM = asbestos-containing material
ATT = Aqua Terra Technologies, Inc.
BERA = Baseline Ecological Risk Assessment
CAA = corrective action area
CCSF = City and County of San Francisco
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
COPC = chemical of potential concern
COPEC = chemical of potential ecological concern
DDT = dichlorodiphenyltrichloroethane
DHS = California Department of Health Services
EMCON = EMCON Associates, Inc.
EPA = U.S. Environmental Protection Agency
ERA = Ecological Risk Assessment
ERM-West = Environmental Resources Management West, Inc.
ESAP = Environmental Sampling and Analysis Plan
FS = Feasibility Study
GDGI = Groundwater Data Gaps Investigation
GPR = ground-penetrating radar
HHRA = Human Health Risk Assessment
HLA = Harding Lawson Associates, Inc.
HPS = Hunters Point Shipyard
HRA = Historical Radiological Assessment
IAS = Initial Assessment Study
IR = Installation Restoration
LFR = Levine-Fricke-Recon
MARSSIM = Multi-Agency Radiation Survey and Site Investigation Manual
NAVSEA = Naval Sea Systems Command
Navy = Department of the Navy
NEESA = Naval Energy and Environmental Support Activity
NRDL = Naval Radiological Defense Laboratory
O&M = operation and maintenance
PA = Preliminary Assessment
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
PRC = PRC Environmental Management, Inc.
PSC = protective soil concentration
RAO = remedial action objective
RAP = Remedial Action Plan
RI = Remedial Investigation
SA = Site Assessment
SDGI = Standard Data Gaps Investigation
SFDA = San Francisco District Attorney
SFRWQCB = San Francisco Regional Water Quality Control Board
Shaw = Shaw Environmental, Inc.
SI = Site Inspection
SVOC = semivolatile organic compound
SWAQAT = Solid Waste Air Quality Assessment Test
TCE = trichloroethene
TPH = total petroleum hydrocarbons
Triple A = Triple A Machine Shop
TtEMI = Tetra Tech EM Inc.
U&A = Uribe and Associates, Inc.
UST = underground storage tank
VOC = volatile organic compound
WET = waste extraction test

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sources:

Aqua Terra Technologies (ATT), 1991. "Environmental Sampling and Analyses Plan for Hunters Point Annex, San Francisco, California." Volumes I and II. July 31.

Barajas & Associates, Inc., 2008b. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Battelle Laboratories, 1996. "Field Demonstration Report on Recycling Spent Sandblasting Grit into Asphaltic Concrete, Volume I: Field Demonstration Test Methods, Results, and Conclusions." January 11.

DHS, 1988. "Remedial Action Order, Docket No. HSA87/88-034RA." January 7.

EMCON, 1987a. "Confirmation Study, Verification Step, Hunters Point Naval Shipyard (Disestablished), San Francisco, California." Volumes 1 through 4. March 19.

EMCON, 1987b. "Area Study for Asbestos-Containing Material and Organic and Inorganic Soil Contamination, Hunters Point Naval Shipyard (Disestablished), San Francisco, California." July 2.

ERM-West, 1988. "Fence-to-Fence Hazardous Waste Material Survey, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." July 2.

HLA, 1988. "Scoping Document, Remedial Investigation/Feasibility Study, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." August 4.

HLA, 1989a. "Final Draft Solid Waste Air Quality Assessment Test, Hunters Point Annex, San Francisco, California." August 4.

HLA, 1989b. "Preliminary Assessment Sites PA-12 through PA-18, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November 16.

HLA, 1990a. "Reconnaissance Activities Report, Remedial Investigation/Feasibility Studies, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." Volumes I, II, and III. August 9.

HLA, 1990b. "Preliminary Assessment Other Areas/Utilities, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." Volumes 1 and 2. October 19.

HLA, 1994b. "Final Site Assessment Report, Potentially Contaminated Sites, Parcels B, C, D, and E, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." March 25.

HLA, 1994c. "Draft Final Parcel D Site Inspection Report, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." May 30.

HLA, 1994d. "Draft Final Parcel E Site Inspection Report, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." July 22.

NAVSEA, 2004. "Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939 – 2003, Hunters Point Shipyard." Radiological Affairs Support Office. August 31.

NEESA, 1984. "Initial Assessment Study of Hunters Point Naval Shipyard (Disestablished), San Francisco, California." NEESA 13-059. October.

PRC, 1992. "Surface Confirmation Radiation Survey, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November 3.

PRC, 1994. Phase 1A Ecological Risk Assessment, Volume 3: Tasks 4, 5, and 6, Summary Report, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." July.

PRC, 1996a. "Draft Technical Memorandum, Radiation Investigation of Tidal Area Surrounding the Bay Area Landfill (IR-02), Hunters Point Annex, San Francisco, California." June 13.

PRC, 1996b. "Results of Subsurface Radiation Investigation in Parcels B and E, Draft Final Report, Volume I, Main Report, Appendices A, C, and D." July 12.

PRC, 1996d. "Phase 1B Ecological Risk Assessment, Part I, Nature and Extent of Contamination, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." September.

PRC, 1996e. "Phase 1B Ecological Risk Assessment, Part II, Risk Characterization, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November.

SFDA, 1986. *People of California -v- Triple A Machine Shop Inc., et al., Exhibit to People's Memorandum of Points and Authorities in Support of Temporary Restraining Order Construction Trust, and Appointment of Receiver filed by Arlo Smith, District Attorney, et al., in the Superior Court of the State of California, in and of the City of San Francisco.*

Shaw, 2007. "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California." December 21.

SulTech, 2007a. "Parcels E and E-2 Shoreline Characterization Technical Memorandum, Hunters Point Shipyard, San Francisco, California." June 29.

Table 2-3. Summary of Previous Environmental Investigations at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sources *(continued)*:

TtEMI, 2000. "Draft Phase IV Radiation Investigation Report, Hunters Point Shipyard, San Francisco, California." May 15.

TtEMI, 2001. "Parcel E Information Package Phase II Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." August 10.

TtEMI, 2002. "Revised Draft Petroleum Hydrocarbons Corrective Action Plan, Parcels C, D, and E, Hunters Point Shipyard, San Francisco, California." November 22.

TtEMI, 2003. "Final Parcel E Nonstandard Data Gaps Investigation, Wetlands Delineation and Functions and Values Assessment, Parcels B and E, Hunters Point Shipyard, San Francisco, California." August 14.

TtEMI, 2004a. "Addendum to the Final Petroleum Hydrocarbon Corrective Action Plan, Parcel B, Hunters Point Shipyard, San Francisco, California." April 15.

TtEMI, 2004b. "Revised Final Parcel E Groundwater Summary Report, Phase III, Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." May 11.

TtEMI, 2004c. "Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater Monitoring Program, Hunters Point Shipyard, San Francisco." August 20.

TtEMI, 2005a. "Parcel E Standard Data Gaps Investigation, Data Summary Report, Hunters Point Shipyard, San Francisco, California." March.

TtEMI and LFR, 1998. "Parcel E Feasibility Study, Draft Report, Hunters Point Shipyard, San Francisco, California." January 15.

TtEMI and LFR, 2000a. "Draft Final Ecological Risk Assessment Validation Study Report, Parcel E, Hunters Point Shipyard, San Francisco, California." March 14.

TtEMI and LFR, 2000b. "Draft Final Technical Memorandum, Protective Soil Concentrations, Parcel E, Hunters Point Shipyard, San Francisco, California." March.

TtEMI, LFR, and U&A, 1997. "Parcel E Remedial Investigation, Draft Final Report, Hunters Point Shipyard, San Francisco, California." October 27.

Table 2-4. Summary of Removal Actions at Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Summary of Activities and Recommendations
1988	Basewide Removal of PCB-Containing Electrical Transformers/HLA, 1990b	Forty-eight transformers were removed from Parcel E and disposed of off site.
1988	Removal of Soil at IR-08 PCB Spill Area/ERM-West, 1989	About 1,255 cubic yards of soil with PCBs at concentrations exceeding 25 mg/kg was excavated from a PCB spill area, which underlies the southeast portion of Building 606 at IR-08. Excavation was conducted to depths ranging from 3 to 10 feet bgs from an area measuring 50 by 150 feet.
1991	Removal of Floating Product at IR-03/HLA, 1991	About 25 gallons of floating petroleum product on the water table and 70 gallons of subsurface waste oil were recovered at IR-03 to reduce the volume of chemicals that could migrate to San Francisco Bay.
1991 to 1994	Removal and Closure of ASTs and USTs/HLA, 1994	Ten USTs were located in Parcel E: two were closed in place, and eight were removed. Parcel E also contained 32 ASTs, including Tank S-505, a 630,000-gallon tank at IR-02 Southeast used by the Navy to store diesel and allegedly used by Triple A to store PCB-containing waste oil. In total, 12 of 32 ASTs (including Tank S-505) were removed.
1991 to 1995	Sandblast Waste Fixation/Battelle, 1996	More than 4,900 tons of sandblast waste was collected from locations around HPS, temporarily stockpiled at Parcel E, and sent to an asphalt plant for recycling.
1996 to 1998	Sheet-pile wall and low-permeability cap installation at the former oil reclamation ponds in IR-03/IT Corporation, 1999	A 900-foot-long sheet-pile wall was installed to a maximum depth of 27 feet bgs at IR-03 to reduce the potential for NAPL to migrate from the waste oil reclamation ponds to San Francisco Bay (IT Corporation, 1999). The sheet-pile wall does not have a cathodic protection system; therefore, the wall has likely corroded to a point that limits its current effectiveness. A geosynthetic clay liner with a 1-foot topsoil layer was placed over the area to minimize rainfall infiltration.
1996 to 1997	Removal of Sediment from the Storm Drain System/IT Corp., 1997b	More than 1,200 tons of sediment and debris was removed from storm drain lines across HPS, including from storm drain lines in Parcel E, to reduce the potential for chemicals to be transported to San Francisco Bay.
1996	Removal of Soil from IR-11/14/15/IT Corp., 1997a	About 36 cubic yards of arsenic- and mercury-contaminated soil was excavated from an area east of Building 521 at IR-11/14/15. Excavation was conducted to a depth of 3 feet bgs from an area measuring 10 by 25 feet.

Table 2-4. Summary of Removal Actions at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Summary of Activities and Recommendations
2001	TCRA for Soil with non-VOCs at IR-08/ TtEMI and IT Corp., 2001	About 1,550 cubic yards of PCB- and PAH-contaminated soil was excavated from four remediation areas (RA-1 through RA-4) at IR-08.
2002 to 2004	Waste Consolidation and Removal/TtFW, 2004	Industrial process equipment was decontaminated and waste was consolidated throughout Parcel E, including removal of waste material stored in or near buildings and removal or encapsulation of asbestos-containing material. Eight ASTs located at Building 521 were also removed.
2003 to 2004	Parcel E Shoreline Debris Removal/TtFW, 2004	Bricks and other industrial debris along the Parcel E shoreline were collected for disposal. About 468 cubic yards of non-RCRA hazardous waste debris (poles with creosote), about 400 cubic yards of nonregulated nonhazardous debris, and about 81 tons of recyclable metals were removed.
2003 to 2004	Removal of Soil Stockpiles from IR-02 Southeast and IR-73/ITSI and TtEMI, 2004; TtEMI, 2005b	A field inventory of soil stockpiles at HPS identified more than 80 stockpiles at Parcel E; five of these were located at IR-02 Southeast and IR-73 and were designated as having a high priority for removal. The stockpiles were removed and disposed of off site. In total, about 3,000 cubic yards of soil, 150 cubic yards of gravel, and 22 cubic yards of other material were removed.
2004	Removal of TPH-Contaminated Soil from IR-05, IR-36 West, IR-39, and IR-73/TPA-CKY Joint Venture, 2005	Six areas at IR-05, IR-36 West, IR-39, and IR-73 were excavated to remove soil containing TPH at concentrations exceeding the screening criterion of 3,500 mg/kg. More than 13,000 cubic yards of soil was removed from these areas and disposed of off site. Residual TPH contamination in these areas, and others in Parcel E, will be evaluated under the TPH corrective action program.

Table 2-4. Summary of Removal Actions at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Summary of Activities and Recommendations
2005 to 2007	Metal Debris Reef Removal Action/TtECI, 2007a	The TCRA at the Metal Debris Reef (in IR-02 Southeast) was performed in conjunction with the removal of the Metal Slag Area located in Parcel E-2. The TCRA was designed to remove metal slag and debris containing low-level radiological material, as well as non-radiological chemical contamination incidental to the removal of both areas; collect post-excavation samples; and backfill and restore the shoreline. Approximately 11,200 cubic yards of soil, metal slag, and debris was removed from the Metal Debris Reef. Low-level radioactive waste removed from the site included 131 devices and button sources, and 31 cubic yards of metal debris. Results indicated the RAOs for radiological materials were achieved and any remaining radiological materials at the excavation site are now under a cap of radiologically screened soil, thereby eliminating some pathways of exposure to hazardous substances for surrounding populations and ecosystems. Nonradiological contamination encountered during removal activities was removed.
2005 to 2007	PCB Hotspot Removal Action/TtECI, 2007b	The TCRA was designed to remove soils containing PCBs at concentrations exceeding 1 mg/kg (from the surface to 3 feet bgs) and 100 mg/kg (deeper than 3 feet bgs), TPH at concentrations exceeding 3,500 mg/kg, and radiological materials above the radiological removal action goals were removed. The removal action goals also included removal of, to a practical extent, free-phase petroleum hydrocarbons. Approximately 44,500 cubic yards of material was excavated from a 3.4-acre excavation area, and was transported off site for disposal. Low-level radioactive waste removed from the site included 533 cubic yards of soil and firebrick, 78 cubic yards of metal debris, 40 devices and button sources, and 19 pieces of debris, as well as two low-level mixed waste drums. Post-excavation results indicated PCB and TPH contamination was still present at the PCB Hotspot Area. As a result, it is recommended that a follow-on removal action or remedial action be conducted to address contamination not removed as part of this TCRA. The RAOs for radiological materials were achieved for all grids evaluation, leaving no know residual radiological contaminants on the bottom or sidewalls of the excavation. However, additional radiological materials may be found during future excavations and would need to be addressed during any work that extends beyond the final excavation boundary.

Table 2-4. Summary of Removal Actions at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date(s)	Investigation/Source	Summary of Activities and Recommendations
2005 to 2007	Removal of Soil at IR-02 Northwest and IR-02 Central Area/TtECI, 2007c	The TCRA was designed to remove soil containing radiological contamination to prevent migration of contaminated soil within or off site. Approximately 49,500 cubic yards of soil was excavated. Low-level radioactive waste removed from the site included 11,840 tons of soil, 2,342 devices and button sources, 420 tons of firebrick, 1,940 tons of metal debris, and 58 tons of miscellaneous debris (concrete, plastic, hoses, and rocks). Results indicated the RAOs for radiological materials were achieved within the boundaries of the IR-02 Northwest and Central excavation. Any remaining radiological materials at the excavation site are now under a cap of radiologically screened soil, thereby eliminating some pathways of exposure to hazardous substances for surrounding populations and ecosystems, at the limit of the excavation. Limited non-radiological chemical contamination encountered during the TCRA was removed, with most excavated and screened material used as backfill.

Notes: Most information in this table is compiled from Table 2-2 in the Final Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008)

AST = aboveground storage tank
bgs = below ground surface
HLA = Harding Lawson Associates, Inc.
HPS = Hunters Point Shipyard
IR = Installation Restoration
IT Corp. = International Technology Corporation
ITSI = Innovative Technical Solutions, Inc.
mg/kg = milligrams per kilogram
PAHs = polycyclic aromatic hydrocarbons
PCBs = polychlorinated biphenyls
PRC = PRC Environmental Management, Inc.
RAOs = removal action objectives
RCRA = Resource Conservation and Recovery Act
TCRA = time-critical removal action
TPH = total petroleum hydrocarbons
TtECI = Tetra Tech EC, Inc.
TtEMI = Tetra Tech EM Inc.
TtFW = Tetra Tech Foster-Wheeler, Inc.
UST = underground storage tank
VOCs = volatile organic compounds

Sources:

Battelle Laboratories, 1996. "Field Demonstration Report on Recycling Spent Sandblasting Grit into Asphaltic Concrete, Volume I: Field Demonstration Test Methods, Results, and Conclusions." January 11.

ERM-West, 1989. "Summary Report, Interim Cleanup of PCB-Contaminated Soils near Former Building 503, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November 15.

HLA, 1990b. "Preliminary Assessment Other Areas/Utilities, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California, Volumes 1 and 2." October 19.

HLA, 1991. "Product Recovery Site Characterization Investigation, Former Oil Reclamation Ponds, Site IR-03, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." May 15.

HLA, 1994. "Draft Construction Summary Report, Tank S-505 Removal Action, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." January 5.

Table 2-4. Summary of Removal Actions at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sources *(continued)*:

ITSI and TtEMI, 2004. "Draft Stockpile Evaluation Report, Hunters Point Shipyard, San Francisco, California." February 9.

IT Corp., 1997a. "Construction Summary Report, Exploratory Excavation Removal Action, EFA West, Hunters Point Shipyard, San Francisco, California." April.

IT Corp., 1997b. "Draft Field Summary Report, Storm Drain Sediment Removal Action, Hunters Point Shipyard, San Francisco, California." December.

IT Corp., 1999. "Final Post-Construction Report, Site IR-03 Waste Oil Reclamation Ponds Removal Action, Sheet Pile Containment Barrier, Cap and Soil Cover, Hunters Point Naval Shipyard, San Francisco, California." July.

PRC Environmental Management, Inc. (PRC), 1994. "Draft Summary Report of Phase I and II UST Removals and Closures in Place." July 12.

TPA-CKY Joint Venture, 2005. "Draft Final Site Closeout Report, Total Petroleum Hydrocarbon Program Corrective Action Implementation, Soil Removal for Parcels B, C, D, and E, Hunters Point Shipyard, San Francisco, California." June.

TtECI, 2007a. "Draft Removal Action Completion Report, Metal Debris Reef and Metal Slag Area Excavation Sites, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." August 17.

TtECI, 2007b. "Final Removal Action Completion Report, PCB Hot Spot Soil Excavation Site, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." October 31.

TtECI, 2007c. "Final Removal Action Completion Report, Installation Restoration Site 02 – Northwest and Central, Parcel E, Hunters Point Shipyard, San Francisco, California." December 12.

TtEMI, 2005. "Closeout Report, Time-Critical Removal Action for Parcel D Excavation Sites, Hunters Point Shipyard, San Francisco, California." May 13.

TtEMI and IT Corp., 2001. "Parcel D Time-Critical Removal Action Closeout Report, Hunters Point Shipyard, San Francisco, California." December 6.

TtFW, 2004. "Final Post-Construction Report, Decontaminate Process Equipment, Conduct Waste Consolidation, and Provide Asbestos Services in Parcels B, C, D, and E, Hunters Point Shipyard, San Francisco, California." November 2.

Table 2-5. Nature and Extent of Chemicals in Soil (0 to 10 feet bgs)
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

1997 Redevelopment Block	2010 Redevelopment Block	IR Site(s)	Triple A Site(s)	Nature and Extent Summary (with RI Report Reference Citation)
31A	MU-3	IR-36 North (partial)	None	The screening process identified no contiguous areas that exceeded Parcel E screening criteria for soil. (Section 4.3.1.3.1)
31B/36	MU-2	IR-36 North (partial) and IR-36 South (partial)	None	Three areas of elevated chemical concentrations were identified (Section 4.3.2.3.1): ▪ North of Building 413: metals, SVOCs, and TPH (Figures 4.3.2-2, 4.3.2-3, and 4.3.2-4) ▪ South of Building 413: metals, SVOCs, and TPH (Figures 4.3.2-2, 4.3.2-3, and 4.3.2-4) ▪ West and Northwest of Building 406: SVOCs and VOCs (Figure 4.3.2-3)
40	MU-2, EOS-3, and EOS-4	IR-11/14/15 and IR-38 (partial), IR-39 (partial)	6, 7	The screening process identified no contiguous areas that exceeded Parcel E industrial screening criteria for soil. (Section 4.3.3.3.1)
41	MU-2 and EOS-4	IR-08 and IR-38 (partial)	None	The screening process identified no contiguous areas that exceeded Parcel E screening criteria for soil. (Section 4.3.4.3.1)
43	MU-1	IR-05, IR-13, IR-36 North (partial), IR-36 South (partial), IR-36 West, IR-39 (partial)	5, 15, and unnumbered fenced area	Eight areas of elevated chemical concentrations were identified (Section 4.3.5.3.1): ▪ Western IR-05: PCBs (Figure 4.3.5-5) ▪ Southeast of IR-05: PCBs (Figure 4.3.5-5) ▪ IR-36 North, west of Building 405: metals and SVOCs (Figures 4.3.5-2 and 4.3.5-4) ▪ East of Building 704: metals (Figure 4.3.5-2) ▪ Between Buildings 371 and 709: metals, SVOCs and TPH (Figures 4.3.5-2, 4.3.5-4, and 4.3.5-5) ▪ Northwest of Building 709: metals and PCBs (Figures 4.3.5-2 and 4.3.5-5) ▪ South of Building 709: metals, VOCs, SVOCs, and PCBs (Figures 4.3.5-2, 4.3.5-3, 4.3.5-4,and 4.3.5-5) ▪ IR-13: metals and SVOCs (Figures 4.3.5-2 and 4.3.5-4)

Table 2-5. Nature and Extent of Chemicals in Soil (0 to 10 feet bgs) *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

1997 Redevelopment Block	2010 Redevelopment Block	IR Site(s)	Triple A Site(s)	Nature and Extent Summary (with RI Report Reference Citation)
44	MU-1, EOS-1, EOS-2, EOS-3, and EOS-5A	IR-02 Northwest (partial), IR-02 Central (partial), IR-12 (partial), IR-39 (partial)	3, 4, 17, 19	Three areas of elevated chemical concentrations were identified (Section 4.3.6.3.1): ▪ Northern portion of Redevelopment Block 44: metals, SVOCs, and PCBs (Figures 4.3.6-2, 4.3.6-4, and 4.3.6-5) ▪ Central portion of Redevelopment Block 44: metals, VOCs, and TPH (Figures 4.3.6-2, 4.3.6-3, and 4.3.6-5) ▪ Southern portion of Redevelopment Block 44:metals and SVOCs (Figures 4.3.6-2 and 4.3.6-4)
45	MU-3, EOS-5B, and EOS-5C	IR-04, IR-12 (partial), IR-56, IR-72	3	Five areas of elevated chemical concentrations were identified (Section 4.3.7.3.1): ▪ Area northwest of Building 809: metals and SVOCs (Figures 4.3.7-2 and 4.3.7-3) ▪ Area northwest of Building 810: metals, SVOCs and pesticides (Figures 4.3.7-2, 4.3.7-3 and 4.3.7-4) ▪ Area south of Building 810: metals and PCBs (Figures 4.3.7-2 and 4.3.7-4) ▪ Area northeast of Building 810: metals and SVOCs (Figures 4.3.7-2 and 4.3.7-3) ▪ Southern border of Redevelopment Block 45:TPH (Figure 4.3.7-4)
EMI-1	EOS-3 and EOS-4	IR-02 Central (partial), IR-02 Southeast (partial), IR-11/14/15, IR-38 (partial), IR-40, IR-54, IR-73	6, 7, 12, 13, 17	Eight areas of elevated chemical concentrations were identified (Section 4.3.8.3.1): ▪ Northwest of Building 521: metals and PCBs (Figures 4.3.8-2 and 4.3.8-4) ▪ Northeast of Building 521: SVOCs (Figure 4.3.8-3) ▪ West of Building 521: PCBs (Figure 4.3.8-4) ▪ Southeast of former Building 506: PCBs (Figure 4.3.8-4) ▪ East of former Building 510: metals (Figure 4.3.8-2) ▪ West of former Building 514: metals (Figure 4.3.8-2)

Table 2-5. Nature and Extent of Chemicals in Soil (0 to 10 feet bgs) *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

1997 Redevelopment Block	2010 Redevelopment Block	IR Site(s)	Triple A Site(s)	Nature and Extent Summary (with RI Report Reference Citation)
EMI-1 *(cont.)*	EOS-3 and EOS-4	IR-02 Central (partial), IR-02 Southeast (partial), IR-11/14/15, IR-38 (partial), IR-40, IR-54, IR-73	6, 7, 12, 13, 17	▪ Northern corner of IR-73: SVOCs and TPH (Figures 4.3.8-3 and 4.3.8-4) ▪ Southwest of former Building 518: TPH (Figure 4.3.8-4)
EOS-1	EOS-1 and EOS-2	IR-02 Northwest (partial) and IR-02 Central (partial)	2, 14, 17, 18	Four areas of elevated chemical concentrations were identified (Section 4.3.9.3.1): ▪ Northern portion of Block EOS-1: metals, SVOCs, PCBs, and TPH (Figures 4.3.9-2,4.3.9-3, and 4.3.9-4) ▪ Southwest of Building 600, former firing range and area south of firing range: metals, SVOCs, and PCBs (Figures 4.3.9-2, 4.3.9-3, and 4.3.9-4) ▪ South of Building 600: metals and SVOCs (Figures 4.3.9-2, 4.3.9-3) ▪ Southeast of Building 600 (southeastern portion of Block EOS-1): metals, SVOCs, and PCBs (Figures 4.3.9-2, 4.3.9-3, and 4.3.9-4)
EOS-2	EOS-3	IR-02 Central (partial), IR-03	17	The screening process identified concentrations of chemicals throughout Redevelopment Block EOS-2 that exceeded Parcel E screening criteria, including metals, SVOCs, PCBs, and TPH (Section 4.3.10.3.1; Figures 4.3.10-2, 4.3.10-4, and 4.3.10-5)
EOS-3	EOS-4	IR-02 Central (partial), IR-02 Southeast (partial)	13, 17	Two areas of elevated chemical concentrations were identified (Section 4.3.11.3.1): ▪ Central portion of Redevelopment Block EOS-3, in the area south of the bermed area: metals, SVOCs, and PCBs (see Figures 4.3.11-2, 4.3.11-3, and 4.3.11-5) ▪ Southern portion of Redevelopment Block EOS-3: metals, SVOCs, pesticides, PCBs, and dioxin/furans (see Figures 4.3.11-2, 4.3.11-3, 4.3.11-4, and 4.3.11-5)

Table 2-5. Nature and Extent of Chemicals in Soil (0 to 10 feet bgs) *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

1997 Redevelopment Block	2010 Redevelopment Block	IR Site(s)	Triple A Site(s)	Nature and Extent Summary (with RI Report Reference Citation)
EOS-4	N/A	IR-52 (partial), IR-56 (partial)	None	The screening process identified no areas that exceeded Parcel E screening criteria for soil. (Section 4.3.12)
EOS-5	Railroad Right-of-Way	IR-52 (partial)	None	The screening process identified no contiguous areas that exceeded Parcel E screening criteria for soil. However, at one isolated boring location (IR52B009) six SVOCs exceeded industrial screening criteria. (Section 4.3.13)

Notes: Information from Final Revised Remedial Investigation Report for Parcel E (Barajas & Associates, 2008b)

IR = Installation Restoration

PCBs = polychlorinated biphenyls

SVOCs = semivolatile organic compounds

TPH = total petroleum hydrocarbons

VOCs = volatile organic compounds

Table 2-6. Statistical Summary of Soil Data in 0.98-Acre Area Moved to Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Number of Analyses	Number of Detections	Detections/ Analyses (%)	HPAL (mg/kg)	Parcel E Residential Screening Criteria (mg/kg)	Maxiumum Detected Conc. (mg/kg)	Detects Greater than HPAL (%)	Detects Greater than Residential Screening Criteria (%)	Nondetects Greater than HPAL (%)	Nondetects Greater than Residential Screening Criteria (%)
Soil Data from 0 to 10 feet bgs											
METAL	Aluminum	13	13	100%	NA	73,000	22,000	NA	0%	NA	NA1
METAL	Antimony	13	6	46%	9.05	10	409	67%	67%	0%	0%
METAL	Arsenic	13	9	69%	11.1	0.038	12.63	11%	100%	0%	100%
METAL	Barium	13	13	100%	314.4	7,500	320	8%	0%	NA1	NA1
METAL	Beryllium	13	4	31%	0.71	140	0.49	0%	0%	22%	0%
METAL	Cadmium	13	4	31%	3.14	3.5	12	50%	50%	0%	0%
METAL	Calcium	13	13	100%	NA	NA	9,991	NA	NA	NA	NA
METAL	Chromium, Total	13	13	100%	81.0-1,589.3	90,000	759.70	31%	0%	NA1	NA1
METAL	Chromium VI	23	1	4%	NA	17	1,000	NA	100%	NA	100%
METAL	Cobalt	13	13	100%	16.3-152.9	900	112	0%	0%	NA1	NA1
METAL	Copper	13	12	92%	124.3	160	3,161	42%	33%	0%	0%
METAL	Cyanide	1	0	0%	NA	NA	NA	NA	NA	NA	NA
METAL	Iron	13	13	100%	NA	22,000	139,925	NA	85%	NA	NA1
METAL	Lead	13	11	85%	8.99	155	6,915	64%	55%	0%	0%
METAL	Magnesium	13	13	100%	NA	NA	212,000	NA	NA	NA	NA
METAL	Manganese	13	13	100%	1431.2	840	1,271	0%	54%	NA1	NA1
METAL	Mercury	13	6	46%	2.28	1.6	47	33%	33%	0%	0%
METAL	Molybdenum	13	4	31%	2.68	76	47	75%	0%	22%	0%
METAL	Nickel	13	13	100%	71.8-5,299.8	300	2,067	8%	77%	NA1	NA1
METAL	Potassium	13	9	69%	NA	NA	1,980	NA	NA	NA	NA
METAL	Selenium	13	0	0%	1.95	140	NA	NA	NA	NA	NA
METAL	Silver	13	4	31%	1.43	50	1.36	0%	0%	11%	0%
METAL	Sodium	13	7	54%	NA	NA	655	NA	NA	NA	NA
METAL	Thallium	13	0	0%	0.81	5	NA	NA	NA	NA	NA
METAL	Vanadium	13	13	100%	117.2	65	209	8%	31%	NA1	NA1
METAL	Zinc	13	13	100%	109.9	370	4,105	38%	38%	NA1	NA1
PEST	Aroclor-1260	13	7	54%	NA	2.1	0.18	NA	0%	NA	0%
SVOC	2-Methylnaphthalene	13	1	8%	NA	150	0.1	NA	0%	NA	0%
SVOC	3,3-Dichlorobenzidine	13	0	0%	NA	0.008	NA	NA	NA	NA	NA
SVOC	4-Nitrophenol	13	0	0%	NA	0.29	NA	NA	NA	NA	NA
SVOC	Acenaphthylene	13	1	8%	NA	3,700	0.1	NA	0%	NA	0%
SVOC	Anthracene	13	1	8%	NA	22,000	0.05	NA	0%	NA	0%
SVOC	Benzo[a]anthracene	13	3	23%	NA	0.37	0.2	NA	0%	NA	40%
SVOC	Benzo[a]pyrene	13	2	15%	NA	0.037	0.239	NA	100%	NA	100%
SVOC	Benzo[b]fluoranthene	13	3	23%	NA	0.34	0.7	NA	67%	NA	80%
SVOC	Benzo[g,h,i]perylene	13	2	15%	NA	1,600	0.376	NA	0%	NA	0%
SVOC	Benzo[k]fluoranthene	13	1	8%	NA	0.34	0.11	NA	0%	NA	83%
SVOC	Fluoranthene	13	3	23%	NA	2,000	0.5	NA	0%	NA	0%
SVOC	Indeno[1,2,3-cd]pyrene	13	2	15%	NA	0.35	0.321	NA	0%	NA	82%
SVOC	n-Nitrosodinpropylamine	13	0	0%	NA	0.0002	NA	NA	NA	NA	NA
SVOC	n-Nitrosodiphenylamine	13	0	0%	NA	0.68	NA	NA	NA	NA	NA
SVOC	Naphthalene	13	2	15%	NA	1.7	0.1	NA	0%	NA	9%
SVOC	Pentachlorophenol	13	0	0%	NA	2.6	NA	NA	NA	NA	NA

Table 2-6. Statistical Summary of Soil Data in 0.98-Acre Area Moved to Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Number of Analyses	Number of Detections	Detections/ Analyses (%)	HPAL (mg/kg)	Parcel E Residential Screening Criteria (mg/kg)	Maxiumum Detected Conc. (mg/kg)	Detects Greater than HPAL (%)	Detects Greater than Residential Screening Criteria (%)	Nondetects Greater than HPAL (%)	Nondetects Greater than Residential Screening Criteria (%)
Soil Data from 0 to 10 feet bgs *(continued)*											
SVOC	Phenanthrene	13	4	31%	NA	22,000	0.35	NA	0%	NA	0%
SVOC	Pyrene	13	3	23%	NA	2,300	0.6	NA	0%	NA	0%
Soil Data Greater than 10 feet bgs											
METAL	Chromium VI	14	0	0%	NA	17	NA	NA	NA	NA	NA
SVOC	1,2,4-Trichlorobenzene	14	1	7%	NA	68	0.044	NA	0%	NA	0%
SVOC	3,3-Dichlorobenzidine	14	0	0%	NA	0.008	NA	NA	NA	NA	NA
SVOC	4-Nitrophenol	14	0	0%	NA	0.29	NA	NA	NA	NA	NA
SVOC	Benzo[a]anthracene	14	0	0%	NA	0.37	NA	NA	NA	NA	NA
SVOC	Benzo[a]pyrene	14	0	0%	NA	0.037	NA	NA	NA	NA	NA
SVOC	Benzo[b]fluoranthene	14	0	0%	NA	0.34	NA	NA	NA	NA	NA
SVOC	Benzo[k]fluoranthene	14	0	0%	NA	0.34	NA	NA	NA	NA	NA
SVOC	Dibenz[a,h]anthracene	14	0	0%	NA	0.058	NA	NA	NA	NA	NA
SVOC	Dibenzofuran	14	1	7%	NA	150	0.207	NA	0%	NA	0%
SVOC	Fluorene	14	1	7%	NA	2,700	0.744	NA	0%	NA	0%
SVOC	Indeno[1,2,3-cd]pyrene	14	0	0%	NA	0.35	NA	NA	NA	NA	NA
SVOC	n-Nitrosodinpropylamine	14	0	0%	NA	0.0002	NA	NA	NA	NA	NA
SVOC	n-Nitrosodiphenylamine	14	0	0%	NA	0.68	NA	NA	NA	NA	NA
SVOC	Naphthalene	14	0	0%	NA	1.7	NA	NA	NA	NA	NA
SVOC	Pentachlorophenol	14	0	0%	NA	2.6	NA	NA	NA	NA	NA
SVOC	Phenanthrene	14	1	7%	NA	22,000	1.45	NA	0%	NA	0%

Notes:

µg/L = microgram per liter

BHC = benzene hexachloride

Conc. = concentration

DDT = dichlorodiphenyltrichlroethane

HPAL = Hunters Point ambient level

mg/kg = milligrams per kilogram

NA = not applicable

NA1 = not applicable; chemical detected in all samples

PEST = pesticide

TPH = total petroleum hydrocarbon

TRPH = total recoverable petroleum hydrocarbons

VOC = volatile organic compound

Table 2-7. Soil Concentrations Exceeding Residential Screening Criteria in 0.98-Acre Area Moved to Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Location ID	Sample Date	Depth (feet bgs)	Analyte	Concentration (mg/kg)	Residential Screening Criteria (mg/kg)	Exceedance Ratio
IR01SS350	6/30/1992	0.5	Antimony	14.3	10	1.4
IR01SS350	6/30/1992	0.5	Aroclor-1260	1.4 J	0.21	6.7
IR01SS350	6/30/1992	0.5	Benzo(b)fluoranthene	0.37	0.34	1.1
IR01SS350	6/30/1992	0.5	Copper	414	160	2.6
IR01SS350	6/30/1992	0.5	Lead	514	155	3.3
IR01SS350	6/30/1992	0.5	Vanadium	209	117.2	1.8
IR01SS350	6/30/1992	0.5	Zinc	839	370	2.3
IR04B004	10/22/1991	1.75	Lead	307 J3	155	2.0
IR04B004	10/22/1991	26.25	Copper	168	160	1.1
IR04B007	10/16/1991	1.75	Lead	441	155	2.8
IR04B007	10/16/1991	1.75	Zinc	560	370	1.5
IR04B007	10/16/1991	31.25	Antimony	10.2 J3	10	1.0
IR04B015	10/24/1991	1.25	Antimony	65.31 J3	10	6.5
IR04B015	10/24/1991	1.25	Aroclor-1260	14.3	0.21	68.1
IR04B015	10/24/1991	1.25	Benzo(b)fluoranthene	0.659	0.34	1.9
IR04B015	10/24/1991	1.25	Cadmium	11.82	3.5	3.4
IR04B015	10/24/1991	1.25	Copper	1,408	160	8.8
IR04B015	10/24/1991	1.25	Iron	60,051	58,000	1.0
IR04B015	10/24/1991	1.25	Lead	3,166	155	20.4
IR04B015	10/24/1991	1.25	Mercury	5.09 J3	2.28	2.2
IR04B015	10/24/1991	1.25	Zinc	2,570	370	6.9
IR04B030	6/16/1992	1.25	Antimony	409.4 J3	10	40.9
IR04B030	6/16/1992	1.25	Aroclor-1260	8.89	0.21	42.3
IR04B030	6/16/1992	1.25	Arsenic	12.63	11.1	1.1
IR04B030	6/16/1992	1.25	Cadmium	10.24	3.5	2.9
IR04B030	6/16/1992	1.25	Copper	1,398	160	8.7
IR04B030	6/16/1992	1.25	Iron	139,925	58,000	2.4
IR04B030	6/16/1992	1.25	Lead	6,915	155	44.6
IR04B030	6/16/1992	1.25	Mercury	46.67	2.28	20.5
IR04B030	6/16/1992	1.25	Zinc	4,105	370	11.1
IR04B030	6/16/1992	2.75	Antimony	56.98 J3	10	5.7
IR04B030	6/16/1992	2.75	Aroclor-1260	0.381	0.21	1.8
IR04B030	6/16/1992	2.75	Copper	3,161	160	19.8
IR04B030	6/16/1992	2.75	Lead	514.3	155	3.3
IR04B030	6/16/1992	2.75	Zinc	963.6	370	2.6

Notes:

Samples containing concentrations exceeding screening criterion by greater than 5 times are highlighted in gray

bgs = below ground surface

J3 = compound is estimated because accuracy was exceeded in matrix spike, blank spike, or surrogate spike

mg/kg = milligrams per kilogram

Table 2-8. Statistical Summary of Groundwater Data in 0.98-Acre Area Moved to Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Number of Analyses	Number of Detections	Detections/ Analyses (%)	HGAL (µg/L)	Vapor Intrusion Criteria (µg/L)	Surface Water Criteria (µg/L)	Maxiumum Detected Conc. (µg/L)	Detects Greater than HGAL (%)	Detects Greater than Vapor Intrusion Criteria (%)	Detects Greater than Surface Water Criteria (%)	Nondetects Greater than HGAL (%)	Nondetects Greater than Vapor Intrusion Criteria (%)	Nondetects Greater than Surface Water Criteria (%)
METAL	Aluminum	27	4	15%	NA	NA	NA	246	NA	NA	NA	NA	NA	NA
METAL	Antimony	27	6	22%	43.26	NA	NA	25	0%	NA	NA	0%	NA	NA
METAL	Arsenic	30	28	93%	27.34	NA	36	244	89%	NA	89%	0%	NA	0%
METAL	Barium	27	27	100%	504.2	NA	NA	1,320	7%	NA	NA	NA1	NA	NA
METAL	Beryllium	27	0	0%	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
METAL	Cadmium	27	2	7%	5.08	NA	8.8	4	0%	NA	0%	0%	NA	0%
METAL	Calcium	11	11	100%	NA	NA	NA	139,000	NA	NA	NA	NA	NA	NA
METAL	Chromium, Total	27	7	26%	15.7	NA	NA	6.08	0%	NA	NA	0%	NA	NA
METAL	Chromium VI	11	0	0%	NA	NA	50	NA	NA	NA	NA	NA	NA	NA
METAL	Cobalt	27	6	22%	20.8	NA	NA	36	17%	NA	NA	0%	NA	NA
METAL	Copper	27	4	15%	28	NA	3.1	6.59	0%	NA	25%	0%	NA	70%
METAL	Cyanide	19	0	0%	NA	NA	1	10	NA	NA	NA	NA	NA	NA
METAL	Iron	11	6	55%	2,380	NA	NA	353	0%	NA	NA	0%	NA	NA
METAL	Lead	27	3	11%	14.4	NA	8.1	6.96	0%	NA	0%	0%	NA	0%
METAL	Magnesium	11	11	100%	1,440,000	NA	NA	716,000	0%	NA	NA	NA1	NA	NA
METAL	Manganese	27	27	100%	8,140	NA	NA	3,870	0%	NA	NA	NA1	NA	NA
METAL	Mercury	27	1	4%	NA	NA	0.025	0.34	NA	NA	100%	NA	NA	0%
METAL	Molybdenum	8	2	25%	61.9	NA	NA	18	0%	NA	NA	0%	NA	NA
METAL	Nickel	30	11	37%	96.5	NA	8.2	147	9%	NA	82%	0%	NA	0%
METAL	Potassium	11	11	100%	448,000	NA	NA	29,500	0%	NA	NA	NA1	NA	NA
METAL	Selenium	27	4	15%	14.5	NA	71	11	0%	NA	0%	0%	NA	0%
METAL	Silver	27	1	4%	7.43	NA	0.38	2.25	0%	NA	100%	0%	NA	0%
METAL	Sodium	11	11	100%	9,242,000	NA	NA	1,820,000	0%	NA	NA	NA1	NA	NA
METAL	Thallium	27	0	0%	13	NA	426	NA	NA	NA	NA	NA	NA	NA
METAL	Vanadium	8	4	50%	26.6	NA	NA	7.1	0%	NA	NA	0%	NA	NA
METAL	Zinc	27	2	7%	75.7	NA	81	5.6	0%	NA	0%	0%	NA	0%
PEST	4,4-DDD	27	0	0%	NA	NA	0.001	NA	NA	NA	NA	NA	NA	NA
PEST	4,4-DDE	27	0	0%	NA	NA	0.001	NA	NA	NA	NA	NA	NA	NA
PEST	4,4-DDT	27	0	0%	NA	NA	0.001	NA	NA	NA	NA	NA	NA	NA
PEST	Aldrin	27	0	0%	NA	NA	0.26	NA	NA	NA	NA	NA	NA	NA
PEST	alpha-Chlordane	27	0	0%	NA	NA	0.004	NA	NA	NA	NA	NA	NA	NA
PEST	Aroclor-1016	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Aroclor-1221	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Aroclor-1232	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Aroclor-1242	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Aroclor-1248	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Aroclor-1254	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Aroclor-1260	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Dieldrin	27	0	0%	NA	NA	0.0019	NA	NA	NA	NA	NA	NA	NA
PEST	Endosulfan I	27	0	0%	NA	NA	0.0087	NA	NA	NA	NA	NA	NA	NA
PEST	Endosulfan II	27	0	0%	NA	NA	0.0087	NA	NA	NA	NA	NA	NA	NA
PEST	Endrin	27	0	0%	NA	NA	0.0023	NA	NA	NA	NA	NA	NA	NA

Table 2-8. Statistical Summary of Groundwater Data in 0.98-Acre Area Moved to Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Number of Analyses	Number of Detections	Detections/ Analyses (%)	HGAL (µg/L)	Vapor Intrusion Criteria (µg/L)	Surface Water Criteria (µg/L)	Maxiumum Detected Conc. (µg/L)	Detects Greater than HGAL (%)	Detects Greater than Vapor Intrusion Criteria (%)	Detects Greater than Surface Water Criteria (%)	Nondetects Greater than HGAL (%)	Nondetects Greater than Vapor Intrusion Criteria (%)	Nondetects Greater than Surface Water Criteria (%)
PEST	Lindane	27	0	0%	NA	NA	0.032	NA	NA	NA	NA	NA	NA	NA
PEST	Heptachlor	27	0	0%	NA	NA	0.0036	NA	NA	NA	NA	NA	NA	NA
PEST	Heptachlor Epoxide	27	0	0%	NA	NA	0.0036	NA	NA	NA	NA	NA	NA	NA
PEST	Methoxychlor	27	0	0%	NA	NA	0.03	NA	NA	NA	NA	NA	NA	NA
PEST	Toxaphene	27	0	0%	NA	NA	0.0002	NA	NA	NA	NA	NA	NA	NA
PEST	gamma-Chlordane	16	0	0%	NA	NA	0.004	NA	NA	NA	NA	NA	NA	NA
PEST	Diazinon	19	1	5%	NA	NA	NA	0.024	NA	NA	NA	NA	NA	NA
SVOC	1,2,4-Trichlorobenzene	27	0	0%	NA	66	129	NA	NA	NA	NA	NA	NA	NA
SVOC	1,2-Dichlorobenzene	27	0	0%	NA	2,600	129	NA	NA	NA	NA	NA	NA	NA
SVOC	1,3-Dichlorobenzene	27	0	0%	NA	1,300	129	NA	NA	NA	NA	NA	NA	NA
SVOC	1,4-Dichlorobenzene	27	0	0%	NA	2.1	129	NA	NA	NA	NA	NA	NA	NA
SVOC	2,4-Dinitrophenol	27	0	0%	NA	NA	970	NA	NA	NA	NA	NA	NA	NA
SVOC	2,4-Dinitrotoluene	27	0	0%	NA	NA	118	NA	NA	NA	NA	NA	NA	NA
SVOC	2,6-Dinitrotoluene	27	0	0%	NA	NA	118	NA	NA	NA	NA	NA	NA	NA
SVOC	2-Chloronaphthalene	27	0	0%	NA	NA	1.5	NA	NA	NA	NA	NA	NA	NA
SVOC	2-Methylnaphthalene	27	0	0%	NA	710	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	2-Nitrophenol	27	0	0%	NA	NA	970	NA	NA	NA	NA	NA	NA	NA
SVOC	4,6-Dinitro-2-methylphenol	27	0	0%	NA	NA	970	NA	NA	NA	NA	NA	NA	NA
SVOC	4-Nitrophenol	27	0	0%	NA	NA	970	NA	NA	NA	NA	NA	NA	NA
SVOC	Acenaphthene	27	0	0%	NA	33,000	710	NA	NA	NA	NA	NA	NA	NA
SVOC	Acenaphthylene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Anthracene	27	0	0%	NA	390,000	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Benzo[a]anthracene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Benzo[a]pyrene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Benzo[b]fluoranthene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Benzo[g,h,i]perylene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Benzo[k]fluoranthene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Butylbenzylphthalate	27	0	0%	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA
SVOC	Chrysene	16	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Dibenz[a,h]anthracene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Dibenzofuran	27	0	0%	NA	13,000	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	Diethylphthalate	27	0	0%	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA
SVOC	Dimethyl Phthalate	27	0	0%	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA
SVOC	Di-n-Butylphthalate	27	0	0%	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA
SVOC	Di-n-Octylphthalate	27	0	0%	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA
SVOC	Fluoranthene	27	0	0%	NA	NA	16	NA	NA	NA	NA	NA	NA	NA
SVOC	Fluorene	27	0	0%	NA	44,000	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Hexachlorobenzene	27	0	0%	NA	NA	129	NA	NA	NA	NA	NA	NA	NA
SVOC	Hexachlorobutadiene	27	0	0%	NA	NA	6.4	NA	NA	NA	NA	NA	NA	NA
SVOC	Hexachlorocyclopentadiene	27	0	0%	NA	NA	1.4	NA	NA	NA	NA	NA	NA	NA
SVOC	Hexachloroethane	27	0	0%	NA	NA	188	NA	NA	NA	NA	NA	NA	NA
SVOC	Indeno[1,2,3-cd]pyrene	27	0	0%	NA	NA	60	NA	NA	NA	NA	NA	NA	NA

Table 2-8. Statistical Summary of Groundwater Data in 0.98-Acre Area Moved to Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Number of Analyses	Number of Detections	Detections/ Analyses (%)	HGAL (µg/L)	Vapor Intrusion Criteria (µg/L)	Surface Water Criteria (µg/L)	Maxiumum Detected Conc. (µg/L)	Detects Greater than HGAL (%)	Detects Greater than Vapor Intrusion Criteria (%)	Detects Greater than Surface Water Criteria (%)	Nondetects Greater than HGAL (%)	Nondetects Greater than Vapor Intrusion Criteria (%)	Nondetects Greater than Surface Water Criteria (%)
SVOC	Isophorone	27	0	0%	NA	NA	2,580	NA	NA	NA	NA	NA	NA	NA
SVOC	Naphthalene	27	0	0%	NA	3.6	470	NA	NA	NA	NA	NA	NA	NA
SVOC	Nitrobenzene	27	0	0%	NA	NA	1,336	NA	NA	NA	NA	NA	NA	NA
SVOC	n-Nitrosodimethylamine	19	0	0%	NA	NA	660,000	NA	NA	NA	NA	NA	NA	NA
SVOC	n-Nitrosodinpropylamine	27	0	0%	NA	NA	660,000	NA	NA	NA	NA	NA	NA	NA
SVOC	n-Nitrosodiphenylamine	27	0	0%	NA	NA	660,000	NA	NA	NA	NA	NA	NA	NA
SVOC	Pentachlorophenol	27	0	0%	NA	NA	7.9	NA	NA	NA	NA	NA	NA	NA
SVOC	Phenanthrene	27	0	0%	NA	190,000	60	NA	NA	NA	NA	NA	NA	NA
SVOC	Phenol	27	0	0%	NA	NA	1,160	NA	NA	NA	NA	NA	NA	NA
SVOC	Pyrene	27	0	0%	NA	230,000	60	NA	NA	NA	NA	NA	NA	NA
TPH	TPH-purgeable unknown	27	4	15%	NA	NA	20,000	69	NA	NA	0%	NA	NA	0%
TPH	Diesel-range Organics	27	13	48%	NA	NA	20,000	1,200	NA	NA	0%	NA	NA	0%
TPH	TPH-extractable unknown	2	1	50%	NA	NA	20,000	2,100	NA	NA	0%	NA	NA	0%
TPH	Motor oil-range Organics	18	7	39%	NA	NA	20,000	480	NA	NA	0%	NA	NA	0%
TPH	TPH-oil and Grease	22	5	23%	NA	NA	20,000	12,000	NA	NA	0%	NA	NA	0%
TPH	Oil and Grease	2	0	0%	NA	NA	20,000	NA	NA	NA	NA	NA	NA	NA
VOC	1,1,1-Trichloroethane	34	0	0%	NA	3,100	6,240	NA	NA	NA	NA	NA	NA	NA
VOC	1,1,2,2-Tetrachloroethane	34	0	0%	NA	NA	1,804	NA	NA	NA	NA	NA	NA	NA
VOC	1,1,2-Trichloroethane	34	0	0%	NA	4	NA	NA	NA	NA	NA	NA	NA	NA
VOC	1,1-Dichloroethane	34	3	9%	NA	6.5	NA	2	NA	0%	NA	NA	0%	NA
VOC	1,1-Dichloroethene	34	0	0%	NA	190	44,800	NA	NA	NA	NA	NA	NA	NA
VOC	1,2,4-Trichlorobenzene	22	0	0%	NA	66	129	NA	NA	NA	NA	NA	NA	NA
VOC	1,2-Dichlorobenzene	26	0	0%	NA	2,600	129	NA	NA	NA	NA	NA	NA	NA
VOC	1,2-Dichloroethane	34	0	0%	NA	2.3	22,600	NA	NA	NA	NA	NA	NA	NA
VOC	1,2-Dichloroethene, Total	8	2	25%	NA	210	44,800	4.0	NA	0%	0%	NA	0%	0%
VOC	1,2-Dichloropropane	34	0	0%	NA	NA	3,040	NA	NA	NA	NA	NA	NA	NA
VOC	1,3-Dichlorobenzene	26	0	0%	NA	1,300	129	NA	NA	NA	NA	NA	NA	NA
VOC	1,4-Dichlorobenzene	26	1	4%	NA	2.1	129	0.2	NA	0%	0%	NA	0%	0%
VOC	2-Butanone	15	2	13%	NA	NA	NA	20	NA	NA	NA	NA	NA	NA
VOC	2-Hexanone	11	1	9%	NA	NA	NA	20.0	NA	NA	NA	NA	NA	NA
VOC	4-Bromofluorobenzene	4	4	100%	NA	NA	NA	25	NA	NA	NA	NA	NA	NA
VOC	4-Methyl-2-pentanone	15	2	13%	NA	520,000	NA	20.0	NA	0%	NA	NA	0%	NA
VOC	Acetone	15	2	13%	NA	NA	NA	20	NA	NA	NA	NA	NA	NA
VOC	Benzene	34	3	9%	NA	0.37	700	2.7	NA	33%	0%	NA	97%	0%
VOC	Bromochloromethane	3	0	0%	NA	NA	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Bromodichloromethane	34	0	0%	NA	NA	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Bromoform	34	0	0%	NA	NA	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Bromomethane	34	0	0%	NA	19	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Carbon Disulfide	15	1	7%	NA	560	NA	0.29	NA	0%	NA	NA	0%	NA
VOC	Carbon Tetrachloride	34	0	0%	NA	0.046	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Chlorobenzene	34	0	0%	NA	390	129	NA	NA	NA	NA	NA	NA	NA
VOC	Chloroform	34	1	3%	NA	0.7	6,400	0.19	NA	0%	0%	NA	27%	0%

Table 2-8. Statistical Summary of Groundwater Data in 0.98-Acre Area Moved to Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Number of Analyses	Number of Detections	Detections/ Analyses (%)	HGAL (µg/L)	Vapor Intrusion Criteria (µg/L)	Surface Water Criteria (µg/L)	Maxiumum Detected Conc. (µg/L)	Detects Greater than HGAL (%)	Detects Greater than Vapor Intrusion Criteria (%)	Detects Greater than Surface Water Criteria (%)	Nondetects Greater than HGAL (%)	Nondetects Greater than Vapor Intrusion Criteria (%)	Nondetects Greater than Surface Water Criteria (%)
VOC	Chloromethane	34	0	0%	NA	92	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	cis-1,2-Dichloroethene	26	2	8%	NA	210	44,800	0.58	NA	0%	0%	NA	0%	0%
VOC	Dibromochloromethane	34	0	0%	NA	NA	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Dibromofluoromethane	4	4	100%	NA	NA	NA	26.1	NA	NA	NA	NA	NA	NA
VOC	Dichlorodifluoromethane	21	0	0%	NA	NA	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Ethylbenzene	34	0	0%	NA	3,100	86	NA	NA	NA	NA	NA	NA	NA
VOC	Isopropylbenzene	6	0	0%	NA	8	NA	NA	NA	NA	NA	NA	NA	NA
VOC	Methyl Tert-Butyl Ether	26	0	0%	NA	NA	8,000	NA	NA	NA	NA	NA	NA	NA
VOC	Methylene Chloride	34	0	0%	NA	NA	6,400	NA	NA	NA	NA	NA	NA	NA
VOC	Naphthalene	5	0	0%	NA	3.6	470	NA	NA	NA	NA	NA	NA	NA
VOC	Styrene	15	0	0%	NA	9,000	NA	NA	NA	NA	NA	NA	NA	NA
VOC	Tetrachloroethene	34	3	9%	NA	0.54	450	5.43	NA	67%	0%	NA	23%	0%
VOC	Toluene	34	1	3%	NA	1400	5,000	0.3	NA	0%	0%	NA	0%	0%
VOC	trans-1,2-Dichloroethene	26	0	0%	NA	180	44,800	NA	NA	NA	NA	NA	NA	NA
VOC	Trichloroethene	34	3	9%	NA	3	400	0.17	NA	0%	0%	NA	23%	0%
VOC	Trichlorofluoromethane	25	0	0%	NA	180	NA	NA	NA	NA	NA	NA	NA	NA
VOC	Vinyl Chloride	34	0	0%	NA	0.028	NA	NA	NA	NA	NA	NA	NA	NA
VOC	Xylene, o-	6	0	0%	NA	340	NA	NA	NA	NA	NA	NA	NA	NA
VOC	Xylenes, Total	34	1	3%	NA	340	NA	1.5	NA	0%	NA	NA	0%	NA

Notes:

µg/L = microgram per liter

BHC = benzene hexachloride

Conc. = cor concentration

DDT = dichlorodiphenyltrichlroethane

HGAL = Hunters Point groundwater ambient level

NA = not applicable

NA1 = not applicable; chemical detected in all samples

PEST = pesticide

TPH = total petroleum hydrocarbon

TRPH = total recoverable petroleum hydrocarbons

VOC = volatile organic compound

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0511G050	IR02MW126A	03/17/2005	A	0.5	0.78	0.5	10	0.2 J	0.19 J
0526G049	IR02MW126A	06/29/2005	A	<0.5 U	2	<0.5 U	8.9 J	<0.5 U	<0.5 U
0538A043	IR02MW126A	09/23/2005	A	<0.5 U	1.7	<0.5 U	20	<0.5 U	<0.5 U
0602T033	IR02MW126A	01/10/2006	A	<0.5 U	1	<0.5 U	22	0.37 J	0.25 J
0611J035	IR02MW126A	03/17/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	0.25 J	0.2 J
0623D040	IR02MW126A	06/06/2006	A	<0.5 U	0.57	<0.5 U	<10 U	0.19 J	0.21 J
0649G043	IR02MW126A	12/06/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	0.23 J	0.29 J
0709W026	IR02MW126A	02/28/2007	A	<0.5 U	0.37 J	<0.5 U	<10 U	0.17 J	<0.5 U
0720J051	IR02MW126A	05/14/2007	A	<0.5 U	0.75	<0.5 U	<10 U	<0.5 U	<0.5 U
0732J005	IR02MW126A	08/10/2007	A	<0.5 U	0.75	<0.5 U	<10 U	<0.5 U	<0.5 U
0740W013	IR02MW126A	10/03/2007	A	<0.5 U	0.62	<0.5 U	<10 U	<0.5 U	<0.5 U
0808E010	IR02MW126A	02/21/2008	A	<0.5 U	0.54	<0.5 U	<10 U	<0.5 U	<0.5 U
0817H036	IR02MW126A	04/21/2008	A	<0.5 U	0.78	<0.5 U	<10 U	<0.5 U	0.16 J
0511G041	IR02MW141A	03/14/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G044	IR02MW147A	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G045	IR02MW147A	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526M052	IR02MW147A	06/29/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T028	IR02MW147A	09/22/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602T037	IR02MW147A	01/12/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612J041	IR02MW147A	03/21/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623D037	IR02MW147A	06/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636D042	IR02MW147A	09/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B030	IR02MW147A	12/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L015	IR02MW147A	02/28/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720B001	IR02MW147A	05/17/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0732J006	IR02MW147A	08/10/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G019	IR02MW147A	10/05/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810E051	IR02MW147A	03/04/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817G029	IR02MW147A	04/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511Z023	IR02MW175A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511Z024	IR02MW175A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0721J065	IR02MW175A	05/21/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0732W010	IR02MW175A	08/10/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W007	IR02MW175A	10/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0808D008	IR02MW175A	02/21/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817D033	IR02MW175A	04/21/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G049	IR02MW209A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G036	IR02MW209A	06/24/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G037	IR02MW209A	06/24/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T036	IR02MW209A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H051	IR02MW209A	01/12/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H036	IR02MW209A	03/17/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623P048	IR02MW209A	06/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636B016	IR02MW209A	09/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636B017	IR02MW209A	09/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G049	IR02MW209A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G050	IR02MW209A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708L006	IR02MW209A	02/22/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720J057	IR02MW209A	05/16/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0732W009	IR02MW209A	08/10/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W008	IR02MW209A	10/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0808H012	IR02MW209A	02/21/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E036	IR02MW209A	04/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511Z021	IR02MW300A	03/15/2005	A	NA	NA	NA	10	NA	NA
0720J061	IR02MW301A	05/18/2007	A	NA	NA	NA	<10 U	NA	NA
0732D009	IR02MW301A	08/10/2007	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0740D007	IR02MW301A	10/02/2007	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0808D007	IR02MW301A	02/21/2008	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0817G023	IR02MW301A	04/21/2008	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0511G047	IR02MWB-3	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	10	<0.5 U	<0.62 U
0830G033	IR02MW373A	7/23/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510G025	IR03MW218A2	03/10/2005	A	<0.5 U	7.4	<0.5 U	NA	<0.5 U	<0.5 U
0526G039	IR03MW218A2	06/27/2005	A	<0.5 U	7.4	<0.5 U	NA	<0.5 U	<0.5 U
0538A027	IR03MW218A2	09/21/2005	A	<0.5 U	7.6	<0.5 U	NA	<0.5 U	<0.5 U
0602H042	IR03MW218A2	01/10/2006	A	<0.5 U	9	<0.5 U	NA	<0.5 U	<0.5 U
0623T023	IR03MW218A2	06/08/2006	A	<0.5 U	8.2	<0.5 U	NA	<0.5 U	<0.5 U
0636D036	IR03MW218A2	09/06/2006	A	<0.5 U	14	<0.5 U	NA	<0.5 U	<0.5 U
0650B043	IR03MW218A2	12/12/2006	A	<0.5 U	7.3	0.81	NA	<0.5 U	<0.5 U
0709L012	IR03MW218A2	02/27/2007	A	<0.5 U	12 J	<0.5 U	NA	<0.5 U	<0.5 U
0719G001	IR03MW218A2	05/10/2007	A	<0.5 U	7.6	<0.5 U	NA	<0.5 U	<0.5 U
0734D035	IR03MW218A2	08/21/2007	A	<0.5 U	10 J	<0.5 U	NA	<0.5 U	<0.5 U
0741D035	IR03MW218A2	10/08/2007	A	<0.5 U	11	<0.5 U	NA	<0.5 U	<0.5 U
0810D051	IR03MW218A2	03/04/2008	A	<0.5 U	6.6 J	<0.5 U	NA	<0.5 U	<0.5 U
0823H060	IR03MW218A2	06/04/2008	A	<0.5 U	5.4	<0.5 U	NA	<0.5 U	<0.5 U
0511Z018	IR03MW224A	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	10	<0.5 U	<0.5 U
0526G044	IR03MW224A	06/28/2005	A	<0.5 U	<0.5 U	<0.5 U	10	<0.5 U	<0.5 U
0526G045	IR03MW224A	06/28/2005	A	<0.5 U	<0.5 U	<0.5 U	10	<0.5 U	<0.5 U
0538T029	IR03MW224A	09/22/2005	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0602V032	IR03MW224A	01/10/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0611S013	IR03MW224A	03/14/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0623P049	IR03MW224A	06/06/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0634G007	IR03MW224A	08/25/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0649B038	IR03MW224A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0709G047	IR03MW224A	02/28/2007	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0720W046	IR03MW224A	05/18/2007	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0734H057	IR03MW224A	08/20/2007	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0740D024	IR03MW224A	10/04/2007	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0809E022	IR03MW224A	02/27/2008	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0817E029	IR03MW224A	04/21/2008	A	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0510G026	IR03MW342A	03/10/2005	A	<0.5 U	0.17 J3	<0.5 U	10	0.43 J3	<0.5 U
0526G043	IR03MW342A	06/28/2005	A	<0.5 U	<01.5 U	<0.5 U	10	0.18 J	<0.5 U
0538A028	IR03MW342A	09/21/2005	A	<0.5 U	3	<0.5 U	<10 U	<0.5 U	<0.5 U
0602H043	IR03MW342A	01/10/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	0.66	<0.5 U
0602H044	IR03MW342A	01/10/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	0.6	<0.5 U
0611S012	IR03MW342A	03/14/2006	A	<0.5 U	<0.5 U	<0.5 U	<10 U	0.32 J	<0.5 U
0622S011	IR03MW342A	06/01/2006	A	<0.5 U	0.31 J	<0.5 U	<10 U	0.26 J	0.23 J
0636D037	IR03MW342A	09/06/2006	A	<0.5 U	2.6	<0.5 U	<10 U	<0.5 U	0.46 J
0636D038	IR03MW342A	09/06/2006	A	<0.5 U	2.3	<0.5 U	<10 U	<0.5 U	0.43 J
0650W041	IR03MW342A	12/11/2006	A	<0.5 U	0.17 J	<0.5 U	<10 U	0.98	0.42 J
0708L005	IR03MW342A	02/22/2007	A	<0.5 U	0.16 J	<0.5 U	<10 U	0.3 J	0.61
0720G016	IR03MW342A	05/15/2007	A	<0.5 U	1.7	<0.5 U	<10 U	<0.5 U	0.46 J
0735W059	IR03MW342A	08/27/2007	A	<0.5 U	2.4	<0.5 U	<10 U	<0.5 U	<0.5 U
0741G024	IR03MW342A	10/08/2007	A	<0.5 U	4	<0.5 U	<10 U	<0.5 U	0.18 J
0809D031	IR03MW342A	02/28/2008	A	<0.5 U	<0.5 U	<0.5 U	<10 U	0.62	0.64
0817E034	IR03MW342A	04/22/2008	A	<0.5 U	0.78	<0.5 U	<10 U	<0.5 U	0.43 J
0509G009	IR04MW13A	03/03/2005	A	30	<0.5 U	0.18 J	NA	47	47
0526T039	IR04MW13A	06/27/2005	A	24	<0.5 U	0.16 J	NA	36	40
0537T010	IR04MW13A	09/15/2005	A	41	<0.5 U	0.27 J	NA	67	54
0537T011	IR04MW13A	09/15/2005	A	46	<0.5 U	0.31 J	NA	81	68
0602D039	IR04MW13A	01/11/2006	A	29	<0.5 U	0.16 J	NA	42	48
0611J032	IR04MW13A	03/16/2006	A	22	<0.5 U	<0.5 U	NA	50	43
0611J033	IR04MW13A	03/16/2006	A	22	<0.5 U	<0.5 U	NA	47	43

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0622T013	IR04MW13A	05/31/2006	A	64	<0.5 U	<0.5 U	NA	37	46
0649D036	IR04MW13A	12/07/2006	A	42	<0.5 U	0.26 J	NA	63	62
0708G030	IR04MW13A	02/21/2007	A	35	<0.5 U	0.17 J	NA	52	52
0719W020	IR04MW13A	05/10/2007	A	26	<0.5 U	0.21 J	NA	49	43
0734D031	IR04MW13A	08/20/2007	A	42	<0.5 U	0.23 J	NA	56	57
0741D034	IR04MW13A	10/08/2007	A	61	<0.5 U	0.24 J	NA	71	65
0809H025	IR04MW13A	02/27/2008	A	21	<0.5 U	0.092 J	NA	28	44
0830H028	IR04MW13A	7/22/2008	A	33	<0.5 U	0.25 J	NA	57	57
0912N016	IR04MW13A	3/16/2009	A	22	<0.2 U	0.12 J	<1.2 U	40	44
0916P013	IR04MW13A	4/16/2009	A	23	0.73 J	<0.2 U	<0.5 U	33	44
20091111	IR04MW13A	11/11/2009	A	33	<0.5 U	0.19 J	<0.5 U	20	58
0836G019	IR04MW31A	9/4/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0841H014	IR04MW31A	10/8/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0913W055	IR04MW31A	3/24/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0916H004	IR04MW31A	4/14/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0928W014	IR04MW31A	7/7/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0941H020	IR04MW31A	10/5/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0509G004	IR04MW36A	03/02/2005	A	<0.5 U	0.36 J	<0.5 U	NA	<0.5 U	<0.5 U
0524T014	IR04MW36A	06/16/2005	A	<0.5 U	0.33 J	<0.5 U	NA	<0.5 U	<0.5 U
0536T003	IR04MW36A	09/08/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0601T023	IR04MW36A	01/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H046	IR04MW36A	03/22/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622T012	IR04MW36A	05/31/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648G018	IR04MW36A	11/28/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G038	IR04MW36A	02/22/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718J007	IR04MW36A	05/01/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734H071	IR04MW36A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0741N003	IR04MW36A	10/08/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D012	IR04MW36A	02/25/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0830H031	IR04MW36A	7/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0912W027	IR04MW36A	3/16/2009	A	<0.5 U	<0.2 U	<0.2 U	<0.3 U	<1.2 U	0.17 J
0511R053	IR04MW37A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<6.2 U
0526M049	IR04MW37A	06/28/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	3.2 J3
0539T040	IR04MW37A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	3.7
0601T025	IR04MW37A	01/05/2006	A	<0.5 U	<0.5 U	0.18 J	NA	<0.5 U	13
0611T032	IR04MW37A	03/17/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	7.5
0623M026	IR04MW37A	06/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	2.9
0649W034	IR04MW37A	12/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	4
0708L002	IR04MW37A	02/20/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	7.8
0718A004	IR04MW37A	05/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	3.5
0734J056	IR04MW37A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	5.3 J
0740W017	IR04MW37A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	4.4
0809P007	IR04MW37A	02/26/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	8.5
0823G046	IR04MW37A	06/03/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	5.5
0829G018	IR04MW37A	7/18/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	6
0841H016	IR04MW37A	10/8/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	3.3
0911B027	IR04MW37A	3/13/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	1.9
0916P002	IR04MW37A	4/14/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	8.4
0928W012	IR04MW37A	7/7/2009	A	<0.5 U	<0.2 U	0.067 J	NA	<0.3 U	5.4
0941H021	IR04MW37A	10/5/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	5.2
0511R050	IR05MW85A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G030	IR05MW85A	06/22/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G031	IR05MW85A	06/22/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T033	IR05MW85A	09/23/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D046	IR05MW85A	01/13/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D047	IR05MW85A	01/13/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0612J048	IR05MW85A	03/23/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M032	IR05MW85A	06/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.16 J
0636E006	IR05MW85A	09/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B026	IR05MW85A	12/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709N003	IR05MW85A	02/28/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718J013	IR05MW85A	05/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.2 J
0734H075	IR05MW85A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W015	IR05MW85A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H026	IR05MW85A	02/27/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816E025	IR05MW85A	04/16/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0830D039	IR08MW41A	7/25/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0911D015	IR08MW41A	3/11/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0511T037	IR11MW27A	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526D038	IR11MW27A	06/29/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602J042	IR11MW27A	01/09/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H033	IR11MW27A	03/17/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S022	IR11MW27A	06/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0635M020	IR11MW27A	08/28/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z030	IR11MW27A	03/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A058	IR11MW27A	05/18/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0839G034	IR12MW11A	9/23/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0912W037	IR12MW11A	3/17/2009	A	<0.5 U	<0.2 U	<0.2 U	<1.2 U	<0.3 U	<0.5 U
0916P014	IR12MW11A	4/16/2009	A	<0.5 U	<0.2 U	<0.2 U	<0.5 U	<0.3 U	0.79
0510R031	IR12MW13A	03/10/2005	A	<0.5 U	2.7	<0.5 U	NA	<0.5 U	2.5
0526R037	IR12MW13A	06/27/2005	A	<0.5 UJ	0.49 J	<0.5 UJ	NA	<0.5 UJ	<0.5 UJ
0538D045	IR12MW13A	09/23/2005	A	<0.5 U	0.26 J	<0.5 U	NA	<0.5 U	<0.5 U
0602H036	IR12MW13A	01/09/2006	A	<0.5 UJ	0.27 J	<0.5 UJ	NA	<0.5 UJ	<0.5 UJ
0612T037	IR12MW13A	03/21/2006	A	<0.5 U	0.49 J	<0.5 U	NA	<0.5 U	<0.5 U
0623M033	IR12MW13A	06/07/2006	A	<0.5 U	0.25 J	<0.5 U	NA	<0.5 U	<0.5 U
0634D016	IR12MW13A	08/25/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G040	IR12MW13A	12/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G041	IR12MW13A	12/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z018	IR12MW13A	02/26/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718D009	IR12MW13A	05/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734H073	IR12MW13A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734H074	IR12MW13A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740H031	IR12MW13A	10/04/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D021	IR12MW13A	02/26/2008	A	<0.5 U	0.96	<0.5 U	NA	<0.5 U	<0.5 U
0816G015	IR12MW13A	04/16/2008	A	<0.5 U	0.26 J	<0.5 U	NA	<0.5 U	<0.5 U
0916H005	IR12MW13A	4/14/2009	A	<0.5 U	0.52	<0.2 U	NA	<0.3 U	<0.5 U
0509R005	IR12MW17A	03/02/2005	A	<1 U	<2 U	<0.5 U	NA	<0.5 U	<0.5 U
0525T026	IR12MW17A	06/21/2005	A	0.32 J	<04.4 U	<0.5 U	NA	<0.5 U	<0.5 U
0510G022	IR12MW14A	03/09/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526R038	IR12MW14A	06/27/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539A049	IR12MW14A	09/27/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H037	IR12MW14A	01/09/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H038	IR12MW14A	01/09/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612S034	IR12MW14A	03/22/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623D041	IR12MW14A	06/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636C017	IR12MW14A	09/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636C018	IR12MW14A	09/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G042	IR12MW14A	12/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709W030	IR12MW14A	03/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A054	IR12MW14A	05/17/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0735W064	IR12MW14A	08/28/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0742D056	IR12MW14A	10/15/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0809E031	IR12MW14A	02/29/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0916H002	IR12MW14A	4/14/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0823H061	IR12MW14A	06/04/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0916H002	IR12MW14A	4/14/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0509R005	IR12MW17A	03/02/2005	A	<0.5 U	<2 U	<0.5 U	17	<0.5 U	<0.5 U
0525T026	IR12MW17A	06/21/2005	A	<0.5 U	<4.4 U	<0.5 U	10	<0.5 U	<0.5 U
0916H003	IR12MW18A	4/14/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0916H010	IR12MW19A	4/15/2009	A	0.94	<0.2 U	<0.2 U	NA	2.3	2.8
20091111	IR12MW43A	11/11/2009	A	0.83	<0.5 U	<0.5 U	<0.5 U	0.36 J	1.4
20091111	IR12MW44A	11/11/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
20091112	IR12MW45A	11/12/2009	A	2.2	<0.5 U	<0.5 U	<0.5 U	18	8.1
20091112	IR12MW46A	11/12/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0511G051	IR15MW06A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.26 J
0526T045	IR15MW06A	06/28/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539D047	IR15MW06A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V033	IR15MW06A	01/10/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H032	IR15MW06A	03/17/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622S010	IR15MW06A	06/01/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0634M016	IR15MW06A	08/25/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W037	IR15MW06A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708W007	IR15MW06A	02/19/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708W008	IR15MW06A	02/19/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A050	IR15MW06A	05/16/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W049	IR15MW06A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W050	IR15MW06A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G007	IR15MW06A	10/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H027	IR15MW06A	02/27/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H028	IR15MW06A	02/27/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816H024	IR15MW06A	04/17/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720H060	IR36MW09A	05/18/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D054	IR36MW09A	08/24/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W022	IR36MW09A	10/04/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E037	IR36MW09A	02/29/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0823G044	IR36MW09A	06/03/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0829H013	IR36MW09A	7/18/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0841C006	IR36MW09A	10/7/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0911D011	IR36MW09A	3/10/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0916H009	IR36MW09A	4/15/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0928P008	IR36MW09A	7/8/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0940P005	IR36MW09A	10/2/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0511G042	IR36MW11A	03/14/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G029	IR36MW11A	06/22/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539D049	IR36MW11A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V037	IR36MW11A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612M040	IR36MW11A	03/21/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S016	IR36MW11A	06/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B032	IR36MW11A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B033	IR36MW11A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709H036	IR36MW11A	02/26/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709H037	IR36MW11A	02/26/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G005	IR36MW11A	05/10/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734J066	IR36MW11A	08/24/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W023	IR36MW11A	10/04/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810H062	IR36MW11A	03/05/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816H019	IR36MW11A	04/16/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R040	IR36MW12A	03/14/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0526T040	IR36MW12A	06/27/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526T041	IR36MW12A	06/27/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539A046	IR36MW12A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539A047	IR36MW12A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V035	IR36MW12A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V036	IR36MW12A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S017	IR36MW12A	06/05/2006	A	<0.5 U	0.16 J	<0.5 U	NA	<0.5 U	<0.5 U
0623S018	IR36MW12A	06/05/2006	A	<0.5 U	0.17 J	<0.5 U	NA	<0.5 U	<0.5 U
0649H018	IR36MW12A	12/05/2006	A	<0.5 U	0.16 J	<0.5 U	NA	<0.5 U	<0.5 U
0709W023	IR36MW12A	02/27/2007	A	<0.5 U	0.25 J	<0.5 U	NA	<0.5 U	<0.5 U
0720B004	IR36MW12A	05/17/2007	A	<0.5 U	0.52	<0.5 U	NA	<0.5 U	<0.5 U
0734D045	IR36MW12A	08/23/2007	A	<0.5 U	0.28 J	<0.5 U	NA	<0.5 U	<0.5 U
0740H021	IR36MW12A	10/03/2007	A	<0.5 U	0.27 J	<0.5 U	NA	<0.5 U	<0.5 U
0809E034	IR36MW12A	02/29/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E041	IR36MW12A	04/22/2008	A	<0.5 U	0.28 J	<0.5 U	NA	<0.5 U	<0.5 U
0720H061	IR36MW14A	05/18/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734J064	IR36MW14A	08/24/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.2 J
0740G011	IR36MW14A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.19 J
0740G012	IR36MW14A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.23 J
0809E038	IR36MW14A	02/29/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E042	IR36MW14A	04/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510T028	IR36MW16A	03/11/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T020	IR36MW16A	06/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539D048	IR36MW16A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.21 J
0602J048	IR36MW16A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.18 J
0611S018	IR36MW16A	03/15/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623V028	IR36MW16A	06/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.2 J
0649D037	IR36MW16A	12/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709H039	IR36MW16A	02/26/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W025	IR36MW16A	05/11/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W026	IR36MW16A	05/11/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734J065	IR36MW16A	08/24/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W021	IR36MW16A	10/04/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	0.17 J	0.17 J
0809H038	IR36MW16A	02/28/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.2 J
0845H039	IR36MW16A	11/7/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.2 J
0719W023	IR36MW17A	05/11/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W024	IR36MW17A	05/11/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D050	IR36MW17A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W028	IR36MW17A	10/05/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E018	IR36MW17A	02/27/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E019	IR36MW17A	02/27/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510D004	IR36MW121A	03/11/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G019	IR36MW121A	06/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T035	IR36MW121A	09/23/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H046	IR36MW121A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612J044	IR36MW121A	03/22/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M034	IR36MW121A	06/07/2006	A	<0.5 U	0.48 J	<0.5 U	NA	<0.5 U	<0.5 U
0649G036	IR36MW121A	12/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708D018	IR36MW121A	02/19/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810E073	IR36MW121A	03/07/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	0.3 J	2.3
0511T034	IR36MW122A	03/14/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G020	IR36MW122A	06/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T038	IR36MW122A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T039	IR36MW122A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H047	IR36MW122A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H040	IR36MW122A	03/20/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0623M035	IR36MW122A	06/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W029	IR36MW122A	12/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W030	IR36MW122A	12/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L013	IR36MW122A	02/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L014	IR36MW122A	02/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719A038	IR36MW122A	05/11/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719A039	IR36MW122A	05/11/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D048	IR36MW122A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D049	IR36MW122A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D016	IR36MW122A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D017	IR36MW122A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D014	IR36MW122A	02/25/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D015	IR36MW122A	02/25/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817H043	IR36MW122A	04/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511T038	IR36MW125A	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<94 U
0526M046	IR36MW125A	06/27/2005	A	3.1 J3	<0.5 UJ3	<0.5 UJ3	NA	0.82 J3	7,600
0611M035	IR36MW125A	03/17/2006	A	0.32 J	<0.5 U	<0.5 U	NA	<0.5 U	500 J
0623P055	IR36MW125A	06/08/2006	A	3.7	<0.5 U	<0.5 U	NA	0.6	4,800
0837G026	IR36MW125A	9/11/2008	A	3.9	<0.5 U	0.09 J	NA	0.36 J	2,500/1,700 /R
0911B010	IR36MW125A	3/10/2009	A	1.2	<0.2 U	0.081 J	NA	<0.3 U	560/610 /R
0916H014	IR36MW125A	4/16/2009	A	2.9	<0.2 U	<0.2 U	NA	0.57	1,500/1,300 R/
20091117	IR36MW125A	11/17/2009	A	3.3	<2.5 U	<2.5 U	<2.5 U	<2.5 U	1,300
0511R048	IR36MW126A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R049	IR36MW126A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G018	IR36MW126A	06/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.19 J
0602D041	IR36MW126A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612M044	IR36MW126A	03/22/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623P050	IR36MW126A	06/06/2006	A	<0.5 U	<0.5 U	<0.88 U	NA	<0.5 U	<0.5 U
0637S025	IR36MW126A	09/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649H021	IR36MW126A	12/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z021	IR36MW126A	02/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
20091117	IR36MW126A	11/17/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.32 J
0511T041	IR36MW127A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G017	IR36MW127A	06/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0829H014	IR36MW127A	7/18/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538A039	IR36MW127A	09/22/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602J046	IR36MW127A	01/10/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612J049	IR36MW127A	03/23/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623V030	IR36MW127A	06/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648H014	IR36MW127A	12/01/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z022	IR36MW127A	02/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A042	IR36MW127A	05/14/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734J057	IR36MW127A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734J058	IR36MW127A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740H015	IR36MW127A	10/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809N004	IR36MW127A	02/25/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816N006	IR36MW127A	04/17/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0829H014	IR36MW127A	7/18/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0911D010	IR36MW127A	3/10/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0916H015	IR36MW127A	4/16/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0928W024	IR36MW127A	7/10/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0940P006	IR36MW127A	10/2/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
20091118	IR36MW127A	11/18/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0510S031	IR36MW128A	03/11/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<1.5 U
0510S032	IR36MW128A	03/11/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<1.5 U
0524T018	IR36MW128A	06/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0539V022	IR36MW128A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.21 J
0602D044	IR36MW128A	01/12/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.35 J
0602D045	IR36MW128A	01/12/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.36 J
0612M046	IR36MW128A	03/23/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.1
0623M023	IR36MW128A	06/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1
0649B031	IR36MW128A	12/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.72
0708G035	IR36MW128A	02/21/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.58
0720B003	IR36MW128A	05/17/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	2.3
0734J059	IR36MW128A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	2 J
0734J060	IR36MW128A	08/23/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	2 J
0740W011	IR36MW128A	10/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.8
0809N005	IR36MW128A	02/25/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.1
0817E038	IR36MW128A	04/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.44 J
0916P008	IR36MW128A	4/15/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	1
20091117	IR36MW128A	11/17/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.1
0823G056	IR36MW135A	06/06/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0830E046	IR36MW135A	7/25/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0913W051	IR36MW135A	3/23/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
20091109	IR36MW230A	11/9/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12
20091110	IR36MW231A	11/10/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	28
20091110	IR36MW232A	11/10/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	71
20091110	IR36MW233A	11/10/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	7.2
20091110	IR36MW234A	11/10/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.61
20091118	IR36MW235A	11/18/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2.2
20091112	IR36MW236B	11/12/2009	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
200091118	IR36MW237A	11/18/2009	A	<0.5 U	0.22 J	<0.5 U	<0.5 U	1.2	3,200
20091116	IR36MW238A	11/16/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17
20091116	IR36MW239A	11/16/2009	A	<0.5 U	<0.5 U	0.22 J	<0.5 U	<0.5 U	56
20091116	IR36MW240A	11/16/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	12
20091116	IR36MW241A	11/16/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	16
20091117	IR36MW242A	11/17/2009	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17
0836G021	IR39MW21A	9/4/2008	A	<0.5 U	23	<0.5 U	NA	<0.5 U	<0.5 U
0841B026	IR39MW21A	10/10/2008	A	NA	3.4	NA	NA	NA	NA
0913G003	IR39MW21A	3/25/2009	A	NA	<0.2 U	NA	NA	NA	NA
0916P005	IR39MW21A	4/14/2009	A	NA	<0.2 U	NA	NA	NA	NA
0928W025	IR39MW21A	7/10/2009	A	NA	6.6	NA	NA	NA	NA
0941H033	IR39MW21A	10/6/2009	A	NA	15	NA	NA	NA	NA
0830H038	IR39MW33A	7/23/2008	A	NA	<0.5 U	NA	NA	NA	NA
0841C016	IR39MW33A	10/9/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0941H032	IR39MW33A	10/6/2009	A	NA	<0.2 U	NA	NA	NA	NA
0511S042	IR39MW36A	03/15/2005	A	<0.5 U	<0.5 U	0.22 J	NA	<0.5 U	<0.5 U
0526M051	IR39MW36A	06/28/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539S052	IR39MW36A	09/27/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V031	IR39MW36A	01/09/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H049	IR39MW36A	03/23/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622P038	IR39MW36A	06/01/2006	A	<0.5 U	<0.5 UJ	<0.5 UJ	NA	<0.5 UJ	<0.5 UJ
0649B034	IR39MW36A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B035	IR39MW36A	12/08/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G039	IR39MW36A	02/22/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G040	IR39MW36A	02/22/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720W044	IR39MW36A	05/17/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W056	IR39MW36A	08/24/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G010	IR39MW36A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H036	IR39MW36A	02/28/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816H029	IR39MW36A	04/17/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.25 J
0511G046	IR56MW39A	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0526D036	IR56MW39A	06/28/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T037	IR56MW39A	09/26/2005	A	<0.5 U	0.18 J	<0.5 U	NA	<0.5 U	<0.5 U
0602T030	IR56MW39A	01/09/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H050	IR56MW39A	03/23/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H051	IR56MW39A	03/23/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S025	IR56MW39A	06/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S026	IR56MW39A	06/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W035	IR56MW39A	12/07/2006	A	<0.5 U	0.18 J	<0.5 U	NA	<0.5 U	<0.5 U
0708H027	IR56MW39A	02/20/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718A005	IR56MW39A	05/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0735H082	IR56MW39A	08/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W016	IR56MW39A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809P006	IR56MW39A	02/26/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817D043	IR56MW39A	04/23/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0916P003	IR56MW39A	4/14/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0916P010	IR72MW32A	4/15/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0602D038	IR74MW01A	01/10/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	3.4
0612H043	IR74MW01A	03/21/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.5 J
0623D044	IR74MW01A	06/07/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.5
0829H016	IR74MW01A	7/18/2008	A	<0.5 U	<0.5 U	0.26 J	NA	<0.5 U	2.5
0841H017	IR74MW01A	10/8/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	2.8
0911D025	IR74MW01A	3/13/2009	A	<0.5 U	<0.2 U	0.12 J	NA	<0.3 U	0.75
0916P004	IR74MW01A	4/14/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	2
0928H009	IR74MW01A	7/7/2009	A	<0.5 U	<0.2 U	0.61	NA	<0.3 U	2.7
0940H015	IR74MW01A	10/2/2009	A	<0.5 U	<0.2 U	0.49	NA	<0.3 U	4
0720J062	PA36MW04A	05/18/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.78
0735H083	PA36MW04A	08/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.4
0740W014	PA36MW04A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.63
0810H053	PA36MW04A	03/04/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.48 J
0817E040	PA36MW04A	04/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.63
0916P007	PA36MW04A	4/15/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	<0.5 U
0511S046	PA36MW07A	03/17/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526D035	PA36MW07A	06/28/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539S051	PA36MW07A	09/26/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D034	PA36MW07A	01/09/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612J042	PA36MW07A	03/21/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623V029	PA36MW07A	06/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B024	PA36MW07A	12/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B025	PA36MW07A	12/05/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709W024	PA36MW07A	02/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W027	PA36MW07A	05/11/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734J037	PA36MW07A	08/20/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740H016	PA36MW07A	10/02/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810H076	PA36MW07A	03/07/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816N007	PA36MW07A	04/17/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R044	PA36MW01A	03/15/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525T035	PA36MW01A	06/24/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525T036	PA36MW01A	06/24/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538S047	PA36MW01A	09/23/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538S048	PA36MW01A	09/23/2005	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D042	PA36MW01A	01/11/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H042	PA36MW01A	03/21/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M027	PA36MW01A	06/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M028	PA36MW01A	06/06/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648D027	PA36MW01A	12/01/2006	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708H030	PA36MW01A	02/21/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0708H031	PA36MW01A	02/21/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0811E082	PA36MW01A	03/11/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720J062	PA36MW04A	05/18/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.78
0735H083	PA36MW04A	08/27/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.4
0740W014	PA36MW04A	10/03/2007	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.63
0810H053	PA36MW04A	03/04/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.48 J
0817E040	PA36MW04A	04/22/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.63
0830D030	PA39MW01A	7/23/2008	A	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0912D048	PA39MW01A	3/19/2009	A	<0.5 U	<0.2 U	<0.2 U	NA	<0.3 U	0.22 J
0511G048	IR02MW127B	03/15/2005	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0511T036	IR03MW228B	03/15/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526M047	IR03MW228B	06/27/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T034	IR03MW228B	09/23/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H039	IR03MW228B	01/09/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H040	IR03MW228B	01/09/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611S027	IR03MW228B	03/17/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611S028	IR03MW228B	03/17/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622V021	IR03MW228B	06/01/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0634G005	IR03MW228B	08/25/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648D018	IR03MW228B	11/29/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0707W004	IR03MW228B	02/16/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G003	IR03MW228B	05/10/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G004	IR03MW228B	05/10/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D034	IR03MW228B	08/21/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0741W036	IR03MW228B	10/08/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810D050	IR03MW228B	03/04/2008	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E030	IR03MW228B	04/21/2008	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510R032	IR03MW373B	03/10/2005	B	<0.5 U	<0.5 U	<0.5 U	10	<0.5 U	<0.5 U
0526G046	IR03MW373B	06/28/2005	B	<0.5 U	<0.5 U	<0.5 U	10	<0.5 U	<0.5 U
0538A040	IR03MW373B	09/23/2005	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0602H041	IR03MW373B	01/09/2006	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0611S026	IR03MW373B	03/17/2006	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0623P056	IR03MW373B	06/08/2006	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	0.67
0634G006	IR03MW373B	08/25/2006	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0649G031	IR03MW373B	12/04/2006	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0709G048	IR03MW373B	02/28/2007	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0720A055	IR03MW373B	05/17/2007	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0735W060	IR03MW373B	08/27/2007	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0740D023	IR03MW373B	10/04/2007	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0809E020	IR03MW373B	02/27/2008	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0809E021	IR03MW373B	02/27/2008	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0817E028	IR03MW373B	04/21/2008	B	<0.5 U	<0.5 U	<0.5 U	<10 U	<0.5 U	<0.5 U
0511R041	IR36MW120B	03/14/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526G042	IR36MW120B	06/27/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539V020	IR36MW120B	09/26/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H045	IR36MW120B	01/10/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612M042	IR36MW120B	03/21/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623D043	IR36MW120B	06/06/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G035	IR36MW120B	12/05/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708D019	IR36MW120B	02/19/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810E074	IR36MW120B	03/07/2008	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510G028	IR36MW123B	03/10/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T019	IR36MW123B	06/17/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T031	IR36MW123B	09/22/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602J045	IR36MW123B	01/10/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H047	IR36MW123B	03/22/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table 2-9. Groundwater Analytical Results for VOCs, March 2005 to November 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	1,1-DCE (µg/L)	Benzene (µg/L)	Chloroform (µg/L)	Naphthalene (µg/L)	PCE (µg/L)	TCE (µg/L)
0623M036	IR36MW123B	06/08/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G037	IR36MW123B	12/05/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L010	IR36MW123B	02/26/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L011	IR36MW123B	02/26/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720B002	IR36MW123B	05/17/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D046	IR36MW123B	08/23/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D047	IR36MW123B	08/23/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D018	IR36MW123B	10/03/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D013	IR36MW123B	02/25/2008	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R043	IR36MW129B	03/15/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T017	IR36MW129B	06/17/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539V023	IR36MW129B	09/26/2005	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602J047	IR36MW129B	01/11/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612S035	IR36MW129B	03/22/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S023	IR36MW129B	06/07/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S024	IR36MW129B	06/07/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G047	IR36MW129B	12/07/2006	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G033	IR36MW129B	02/21/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G034	IR36MW129B	02/21/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G010	IR36MW129B	05/11/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G011	IR36MW129B	05/11/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734J061	IR36MW129B	08/23/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W009	IR36MW129B	10/02/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W010	IR36MW129B	10/02/2007	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809N006	IR36MW129B	02/25/2008	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E037	IR36MW129B	04/22/2008	B	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G037	IR15MW10F	03/14/2005	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G038	IR15MW10F	03/14/2005	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526T042	IR15MW10F	06/27/2005	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539S053	IR15MW10F	09/27/2005	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V034	IR15MW10F	01/10/2006	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H034	IR15MW10F	03/17/2006	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H035	IR15MW10F	03/17/2006	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622V022	IR15MW10F	06/01/2006	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0634M017	IR15MW10F	08/25/2006	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W036	IR15MW10F	12/08/2006	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708W009	IR15MW10F	02/19/2007	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A045	IR15MW10F	05/15/2007	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W051	IR15MW10F	08/23/2007	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G008	IR15MW10F	10/02/2007	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H029	IR15MW10F	02/27/2008	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816H026	IR15MW10F	04/17/2008	F	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Notes:

DCE = dichloroethene

J = estimated value

J3 = compound is estimated because accuracy was exceeded in matrix spike, blank spike, or surrogate spike

NA = not analyzed for

PCE = tetrachloroethene

R = rejected value

TCE = trichloroethene

U = nondetected (numeric value is reporting limit)

UJ = nondetected (numeric value is reporting limit), estimated value

µg/L = micrograms per liter

Table 2-10. Groundwater Analytical Results for Metals, March 2005 to October 2009

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)
0830G031	IR02MW101A1	7/23/2008	A	<5 U	<2.1 U	5.3	<50 U
0913B034	IR02MW101A1	3/23/2009	A	1.9 J	<5 U	<5 U	<50 U
0511G050	IR02MW126A	03/17/2005	A	269	<5 UJ3	7.9 J3	625 J3
0526G049	IR02MW126A	06/29/2005	A	<2.4 U1	<5 UJ3	<5 UJ3	174 J3
0538A043	IR02MW126A	09/23/2005	A	<1.7 U	<5 UJ	<5 U	<166 UJ
0602T033	IR02MW126A	01/10/2006	A	1,000	<5 U	12.2	1,620
0611J035	IR02MW126A	03/17/2006	A	732 J	<5 U	23.4	2,320 J
0623D040	IR02MW126A	06/06/2006	A	296	<5 U	10.1	1,050
0649G043	IR02MW126A	12/06/2006	A	508	<5 U	9.4	857
0709W026	IR02MW126A	02/28/2007	A	136	<5 U	4.2 J	514
0720J051	IR02MW126A	05/14/2007	A	68.2	<5 U	<5 U	241 J
0732J005	IR02MW126A	08/10/2007	A	31.9	<5 U	<5 U	206
0740W013	IR02MW126A	10/03/2007	A	21.6	<5 U	<5 U	216
0808E010	IR02MW126A	02/21/2008	A	24.4	<5 U	5.4	195
0817H036	IR02MW126A	04/21/2008	A	23.8	<5 U	4.4 J	178
0830D021	IR02MW126A	7/21/2008	A	5.3	<3.7 U	<5 U	120
0841H027	IR02MW126A	10/10/2008	A	<5 UJ	<5 UJ	<1.1 UJ	<77.5 UJ
0912W038	IR02MW126A	3/17/2009	A	1.8 J	<5 U	<5 U	30.8 J
0920B015	IR02MW126A	5/13/2009	A	<5 U	<5 U	<2.2 U	<50 U
0928B010	IR02MW126A	7/7/2009	A	<5 U	<5 UJ	1.1 J	44.3 J
0941W016	IR02MW126A	10/5/2009	A	<5 U	<5 U	<1.2 U	35.2 J
0511G044	IR02MW147A	03/15/2005	A	8.2	<5 U	<5 U	<50 U
0511G045	IR02MW147A	03/15/2005	A	8.2	<5 U	<5 U	<50 U
0526M052	IR02MW147A	06/29/2005	A	<22.6 U1	<5 UJ39	5.5 J3	<50 UJ3
0538T028	IR02MW147A	09/22/2005	A	<5 UJ	<5 UJ	5.9 J	<50 UJ
0602T037	IR02MW147A	01/12/2006	A	4.5 J	3 J	<5 U	<50 U
0612J041	IR02MW147A	03/21/2006	A	9.9	<5 U	5.4	<50 U
0623D037	IR02MW147A	06/05/2006	A	28.3	<5 UJ	<5 U	<50 U
0636D042	IR02MW147A	09/07/2006	A	<5 UJ	<5 U	13	<50 U
0649B030	IR02MW147A	12/07/2006	A	1.6 J	<5 U	<5 U	<50 U
0709L015	IR02MW147A	02/28/2007	A	<2.6 U	<5 U	<5 U	<50 U
0720B001	IR02MW147A	05/17/2007	A	<5 U	<5 U	7.1	<50 U
0732J006	IR02MW147A	08/10/2007	A	2.7 J	<5 U	4.4 J	<50 U
0740G019	IR02MW147A	10/05/2007	A	2.6 J	<5 UJ	<5 UJ	<50 UJ
0810E051	IR02MW147A	03/04/2008	A	<4.7 U	<5 U	<5 U	<50 U
0817G029	IR02MW147A	04/22/2008	A	3.1 J	1.9 J	5.7	4 J
0510G024	IR02MW149A	03/10/2005	A	2.7 J	<5 U	9.9	<50 U
0526G038	IR02MW149A	06/27/2005	A	<5 U	<5 U	10.3	<50 U
0538T024	IR02MW149A	09/21/2005	A	<5 U	<5 U	11.2	<50 U
0602T036	IR02MW149A	01/12/2006	A	5.9	<5 U	10.4	<50 U
0612J040	IR02MW149A	03/21/2006	A	<5.6 U	<5 U	16.7	<50 U
0622D020	IR02MW149A	05/30/2006	A	9.7	3.1 J	12.4 J	<50 U
0636D041	IR02MW149A	09/07/2006	A	80 J	<5 U	13.7	<50 U
0649W033	IR02MW149A	12/07/2006	A	14	<5 U	17.2	<50 U
0709L017	IR02MW149A	03/01/2007	A	10.2	<5 U	5.2	<50 U
0720N007	IR02MW149A	05/15/2007	A	<1.5 U	<5 U	17.4	<50 U
0732D004	IR02MW149A	08/08/2007	A	1.5 J	<5 UJ	16.6 J	<50 UJ
0740G006	IR02MW149A	10/02/2007	A	<5 U	4.2 J	16.2 J	<50 UJ
0810E052	IR02MW149A	03/04/2008	A	<3.7 U	<5 U	11.4	<50 U
0817D032	IR02MW149A	04/21/2008	A	3.2 J	<3.1 U	17.2	<50 U

Table 2-10. Groundwater Analytical Results for Metals, March 2005 to October 2009 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)
0511Z023	IR02MW175A	03/17/2005	A	5	<5 UJ3	<5 UJ3	<50 UJ3
0511Z024	IR02MW175A	03/17/2005	A	<5 u	<5 UJ3	<5 UJ3	<50 UJ3
0721J065	IR02MW175A	05/21/2007	A	<5 U	<5 U	<5 U	<50 U
0732W010	IR02MW175A	08/10/2007	A	<5 U	<5 U	<5 U	<50 U
0740W007	IR02MW175A	10/02/2007	A	1.8 J	4.6 J	<5 UJ	<50 UJ
0808D008	IR02MW175A	02/21/2008	A	<5 U	<2 U	<5 U	<50 U
0817D033	IR02MW175A	04/21/2008	A	3.5 J	<1.6 U	2.6 J	<50 U
0830H034	IR02MW175A	7/23/2008	A	<5 U	18.4	<5 U	<50 U
0912D036	IR02MW175A	3/17/2009	A	<5 U	<5 U	<5 U	<50 U
0511R051	IR02MW179A	03/17/2005	A	<5 U	<5 UJ3	<5 UJ3	<50 UJ3
0511R052	IR02MW179A	03/17/2005	A	2.1 J	<5 UJ3	<5 UJ3	<50 UJ3
0526G047	IR02MW179A	06/29/2005	A	<5 UJ9	3 J3	<5 UJ3	<50 UJ3
0538A041	IR02MW179A	09/23/2005	A	<5 U	<5 UJ	<5 U	<50 UJ
0538A042	IR02MW179A	09/23/2005	A	<5 U	<5 UJ	<5 U	<50 UJ
0602H049	IR02MW179A	01/12/2006	A	<5 U	<5 U	<5 U	<50 U
0611J036	IR02MW179A	03/17/2006	A	<4.1 UJ	<5 U	<5 U	<50 UJ
0611J037	IR02MW179A	03/17/2006	A	<4.9 UJ	<5 U	<5 U	<50 UJ
0623D042	IR02MW179A	06/06/2006	A	7.6	1.9 J	<5 U	<50 U
0649W038	IR02MW179A	12/08/2006	A	6	<5 UJ	<5 UJ	<50 UJ
0708L007	IR02MW179A	02/22/2007	A	<1.9 U	<5 U	<5 U	<50 U
0720J056	IR02MW179A	05/16/2007	A	<5 U	<5 U	<5 U	<50 U
0732D010	IR02MW179A	08/10/2007	A	1.7 J	<5 U	<5 U	<50 U
0740D008	IR02MW179A	10/02/2007	A	2 J	5.7 J	<5 UJ	<50 UJ
0809P002	IR02MW179A	02/25/2008	A	<1.4 U	<5 UJ	<5 UJ	<50 UJ
0817H037	IR02MW179A	04/21/2008	A	2.8 J	<3 U	3.4 J	<50 U
0830H037	IR02MW179A	7/23/2008	A	<5 U	14.7	<5 U	<50 U
0912D035	IR02MW179A	3/17/2009	A	1.1 J	<5 U	<5 U	<50 U
0511G049	IR02MW209A	03/17/2005	A	<5 U	<5 UJ3	<5 UJ3	<50 UJ3
0525G036	IR02MW209A	06/24/2005	A	<5 U	4.1 J	<5 U	<50 U
0525G037	IR02MW209A	06/24/2005	A	<5 U	4.6 J	<5 U	<50 U
0539T036	IR02MW209A	09/26/2005	A	<5 U	3.9 J	<5 UJ	<50 UJ
0602H051	IR02MW209A	01/12/2006	A	<5 U	<5 UJ	<5 U	<50 UJ
0611H036	IR02MW209A	03/17/2006	A	<5 UJ	<5 U	<5 U	<50 UJ
0623P048	IR02MW209A	06/05/2006	A	1.4 J	3.9 J	<5 U	<50 U
0636B016	IR02MW209A	09/06/2006	A	<5 U	<5 U	<5 U	<50 U
0636B017	IR02MW209A	09/06/2006	A	<5 U	<5 U	<5 U	<50 U
0649G049	IR02MW209A	12/08/2006	A	<5 U	<5 U	<5 U	<50 UJ
0649G050	IR02MW209A	12/08/2006	A	<5 U	<5 U	<5 U	<50 U
0708L006	IR02MW209A	02/22/2007	A	<5 U	<5 U	<5 U	<50 U
0720J057	IR02MW209A	05/16/2007	A	<5 U	<5 U	<5 U	<50 U
0732W009	IR02MW209A	08/10/2007	A	<5 U	<5 U	<5 U	<50 U
0740W008	IR02MW209A	10/02/2007	A	1.9 J	6.3 J	<5 UJ	<50 UJ
0808H012	IR02MW209A	02/21/2008	A	<5 U	<3.1 U	<5 U	<50 U
0817E036	IR02MW209A	04/22/2008	A	3 J	3 J	3.2 J	4.6 J
0830H033	IR02MW209A	7/23/2008	A	<5 U	17.1	<5 U	<50 U
0912H028	IR02MW209A	3/17/2009	A	0.77 J	<5 U	<5 U	<50 U
0511Z021	IR02MW300A	03/15/2005	A	36	<5 UJ3	6.2 J3	93.5 J3
0720J061	IR02MW301A	05/18/2007	A	<5 U	<5 UJ	<5 UJ	<50 UJ
0732D009	IR02MW301A	08/10/2007	A	<5 U	<5 U	<5 U	<50 U
0740D007	IR02MW301A	10/02/2007	A	1.7	6.2 J	<5 UJ	<50 UJ

Table 2-10. Groundwater Analytical Results for Metals, March 2005 to October 2009 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)
0808D007	IR02MW301A	02/21/2008	A	<5 U	<5 U	<5 U	<50 U
0817G023	IR02MW301A	04/21/2008	A	4.2 J	<2.4 U	3.3 J	<50 U
0830H035	IR02MW301A	7/23/2008	A	<5 U	18.3	<5 U	<50 U
0830H036	IR02MW301A	7/23/2008	A	<5 U	16.5	<5 U	<50 U
0841D013	IR02MW301A	10/8/2008	A	<5 U	NA	NA	<4.9 U
0912H026	IR02MW301A	3/17/2009	A	<5 U	<5 U	<5 U	<50 U
0912H027	IR02MW301A	3/17/2009	A	<5 U	<5 U	<5 U	<50 U
0920W014	IR02MW301A	5/13/2009	A	<5 U	NA	NA	<50 U
0928B013	IR02MW301A	7/7/2009	A	<5 U	NA	NA	<50 U
0941H022	IR02MW301A	10/5/2009	A	<1 U	NA	NA	18.8 J
0841B014	IR02MW373A	10/8/2008	A	10.5	1.9 J	281	1,530
0920B016	IR02MW373A	5/13/2009	A	957	23.6	941	7,540 R
0836G017	IR02MW374A	9/3/2008	A	<5 UJ	2.2 J	27.9 J	44.3 J
0842G005	IR02MW374A	10/13/2008	A	<5 UJ	<5 UJ	18.2 J	<29.6 UJ
0842G006	IR02MW374A	10/13/2008	A	<5 UJ	<5 UJ	17.6 J	<29 UJ
0912W041	IR02MW374A	3/19/2009	A	<5 U	<5 U	7.4	<50 U
0920W012	IR02MW374A	5/13/2009	A	<5 U	<5 U	10.6	<50 U
0928B011	IR02MW374A	7/7/2009	A	<5 U	<5 UJ	9.9 J	<2.4 U
0941W014	IR02MW374A	10/5/2009	A	<1.5 U	<5 U	11.4	16.3 J
0836G016	IR02MW375A	9/3/2008	A	<5 UJ	1.9 J	13.9 J	88.8 J
0842G004	IR02MW375A	10/13/2008	A	<5 UJ	<5 UJ	6.7 J	<17.1 UJ
0912W042	IR02MW375A	3/19/2009	A	4.6 J	<5 U	1.3 J	<50 U
0920W013	IR02MW375A	5/13/2009	A	<5 U	<5 U	<4.9 U	<50 U
0928B012	IR02MW375A	7/7/2009	A	<5 U	<5 UJ	1.2 J	<50 U
0941W015	IR02MW375A	10/5/2009	A	<5 U	<5 U	17.3	37.1 J
0510G027	IR02MWB-1	03/10/2005	A	5.7	<5 U	19	<50 U
0526T043	IR02MWB-1	06/28/2005	A	<5 U	4.2 J	32.2	50
0538T025	IR02MWB-1	09/21/2005	A	<5 U	6.1	39.3	<50 U
0602V039	IR02MWB-1	01/12/2006	A	<5 U	<5 U	17.3	<50 U
0611J034	IR02MWB-1	03/16/2006	A	16.5	<5 U	19.9	<50 U
0622D019	IR02MWB-1	05/30/2006	A	<5 U	1.9 J	17.8 J	<50 U
0636B015	IR02MWB-1	09/06/2006	A	<5 U	<5 U	10.1	<50 U
0649B029	IR02MWB-1	12/07/2006	A	2.3 J	<5 U	30.4	<50 U
0709W025	IR02MWB-1	02/28/2007	A	90.7	<5 U	11.8	<50 U
0720N009	IR02MWB-1	05/17/2007	A	1.4 J	<5 U	21.1	<50 U
0733J013	IR02MWB-1	08/13/2007	A	4.6 J	<5 UJ	29.2 J	<50 UJ
0741G029	IR02MWB-1	10/10/2007	A	<5 U	<5 U	13	40.3 J
0808E011	IR02MWB-1	02/21/2008	A	<2.8 U	<5 U	16.9	<50 U
0817E032	IR02MWB-1	04/21/2008	A	<5 U	<5 U	15	<50 U
0830H043	IR02MWB-1	7/24/2008	A	<5 U	<5 UJ	22.5 J	<50 UJ
0913W050	IR02MWB-1	3/23/2009	A	2.9 J	<5 U	1.6 J	<50 U
0839G035	IR02MWB-2	9/23/2008	A	<5 U	<5 U	170	6.8
0913B033	IR02MWB-2	3/23/2009	A	<5 U	<5 U	270 J	<50 U
0511G047	IR02MWB-3	03/15/2005	A	12.1	<5 UJ3	13.2 J3	<50 UJ3
0510G025	IR03MW218A2	03/10/2005	A	6.7	5	5	50
0526G039	IR03MW218A2	06/27/2005	A	<5 U	2.5 J	3.7 J	<50 U
0538A027	IR03MW218A2	09/21/2005	A	<5 U	<5 U	3.7 J	<50 U
0602H042	IR03MW218A2	01/10/2006	A	<5 U	<5 U	<5 U	<50 U
0623T023	IR03MW218A2	06/08/2006	A	<5 U	<5 U	<5 U	<50 U
0636D036	IR03MW218A2	09/06/2006	A	<5 U	<5 U	4.9 J	<50 U

Table 2-10. Groundwater Analytical Results for Metals, March 2005 to October 2009 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)
0650B043	IR03MW218A2	12/12/2006	A	<5 U	<5 UJ	<5 UJ	<6.9 UJ
0709L012	IR03MW218A2	02/27/2007	A	<5 U	<5 U	<5 U	7.9 J
0719G001	IR03MW218A2	05/10/2007	A	<3.1 U	<5 UJ	4.1 J	4.4 J
0734D035	IR03MW218A2	08/21/2007	A	1.7 J	<5 UJ	<5 UJ	<50 UJ
0741D035	IR03MW218A2	10/08/2007	A	2.3 J	<5 U	5.1	<50 U
0810D051	IR03MW218A2	03/04/2008	A	<5 U	<5 U	<5 U	<50 U
0823H060	IR03MW218A2	06/04/2008	A	<5 U	<5 U	2.1 J	<50 U
0511Z018	IR03MW224A	03/15/2005	A	<2.3 U2	<5 U	<5 U	<50 U
0526G044	IR03MW224A	06/28/2005	A	<5 U	<5 U	<5 U	<50 U
0526G045	IR03MW224A	06/28/2005	A	<1.2 U1	<5 U	<5 U	<50 U
0538T029	IR03MW224A	09/22/2005	A	<5 UJ	<5 UJ	<5 UJ	<50 UJ
0602V032	IR03MW224A	01/10/2006	A	<5 U	<5 U	<5 U	<50 U
0611S013	IR03MW224A	03/14/2006	A	3 J	<5 U	<5 U	<50 U
0623P049	IR03MW224A	06/06/2006	A	<5 U	<5 U	<5 U	<50 U
0634G007	IR03MW224A	08/25/2006	A	<5 U	<5 U	4.7 J	<50 U
0649B038	IR03MW224A	12/08/2006	A	<5 U	<5 UJ	<5 UJ	<50 UJ
0709G047	IR03MW224A	02/28/2007	A	<5 U	<5 U	<5 U	<50 U
0720W046	IR03MW224A	05/18/2007	A	<5 U	<5 UJ	4.4 J	<50 UJ
0734H057	IR03MW224A	08/20/2007	A	1.7 J	<5 U	<5 U	<50 UJ
0740D024	IR03MW224A	10/04/2007	A	<5 U	<5 UJ	<5 UJ	<50 UJ
0809E022	IR03MW224A	02/27/2008	A	<1.2 U	<5 U	<5 U	<50 U
0817E029	IR03MW224A	04/21/2008	A	1.4 J	<5 U	2.8 J	<50 U
0510G026	IR03MW342A	03/10/2005	A	4.3 J	<5 U	<5 U	<50 U
0526G043	IR03MW342A	06/28/2005	A	3.8 J	<5 U	7.7	<50 U
0538A028	IR03MW342A	09/21/2005	A	<5 U	<5 U	<5 U	<50 U
0602H043	IR03MW342A	01/10/2006	A	14.9	<5 U	<5 U	<50 U
0602H044	IR03MW342A	01/10/2006	A	15	<5 U	<5 U	<50 U
0611S012	IR03MW342A	03/14/2006	A	61.6	<5 U	<5 U	<50 U
0622S011	IR03MW342A	06/01/2006	A	<5 U	<5 U	<5 U	<50 U
0636D037	IR03MW342A	09/06/2006	A	<5 U	<5 U	<5 U	<50 U
0636D038	IR03MW342A	09/06/2006	A	<5 U	<5 U	<5 U	<50 U
0650W041	IR03MW342A	12/11/2006	A	4.6 J	<5 UJ	<5 UJ	<6.2 UJ
0708L005	IR03MW342A	02/22/2007	A	<1.4 U	<5 U	<5 U	<50 U
0720G016	IR03MW342A	05/15/2007	A	<5 U	<5 U	<5 U	5.8 J
0735W059	IR03MW342A	08/27/2007	A	<3.2 U	<5 U	<5 U	<50 U
0741G024	IR03MW342A	10/08/2007	A	1.2 J	<5 U	<5 U	<50 U
0809D031	IR03MW342A	02/28/2008	A	<5.4 U	<5 U	<5 U	<6.9 U
0817E034	IR03MW342A	04/22/2008	A	<5 U	<5 U	3.9 J	7.3 J
0509G009	IR04MW13A	03/03/2005	A	2.2 J	<5 U	30.1	<50 U
0526T039	IR04MW13A	06/27/2005	A	<5 U	<5 U	30.1	<50 U
0537T010	IR04MW13A	09/15/2005	A	<5 U	2.9 J	23.2	<50 U
0537T011	IR04MW13A	09/15/2005	A	<5 U	3.8 J	23.6	<50 U
0602D039	IR04MW13A	01/11/2006	A	<5 U	<5 U	26.6	<50 U
0611J032	IR04MW13A	03/16/2006	A	2.2 J	<5 U	29.5	<50 U
0611J033	IR04MW13A	03/16/2006	A	2.3 J	<5 U	32.5	<50 U
0622T013	IR04MW13A	05/31/2006	A	<5 U	<5 U	27.4	<50 U
0649D036	IR04MW13A	12/07/2006	A	1.3 J	<5 U	19.4 J	<50 UJ
0708G030	IR04MW13A	02/21/2007	A	<2.6 U	<5 U	22.8	<50 U
0719W020	IR04MW13A	05/10/2007	A	<5 U	<5 UJ	23.6 J	<50 UJ
0734D031	IR04MW13A	08/20/2007	A	1.3 J	<5 U	25.3	<50 UJ

Table 2-10. Groundwater Analytical Results for Metals, March 2005 to October 2009 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)
0741D034	IR04MW13A	10/08/2007	A	<5 U	2.4 J	24.5	<50 U
0809H025	IR04MW13A	02/27/2008	A	<2.1 U	<5 U	25.4	<50 U
0830H028	IR04MW13A	7/22/2008	A	<5 U	<6.8 U	23.4	<50 U
0912N016	IR04MW13A	3/16/2009	A	<5 U	<5 U	24.6	<50 U
0916P013	IR04MW13A	4/16/2009	A	<5 U	<5 U	25.2	<50 U
0509G004	IR04MW36A	03/02/2005	A	1.6 J	<5 UJ3	4.1 J3	<50 UJ3
0524T014	IR04MW36A	06/16/2005	A	<5 U	<5 U	<5 U	<50 U
0536T003	IR04MW36A	09/08/2005	A	<5 U	<5 U	<5 U	<50 U
0601T023	IR04MW36A	01/05/2006	A	<5 U	<5 U	<5 U	<50 UJ
0612H046	IR04MW36A	03/22/2006	A	<2.5 U	<5 U	<5 U	<50 U
0622T012	IR04MW36A	05/31/2006	A	<5 U	<5 U	<5 U	<50 U
0648G018	IR04MW36A	11/28/2006	A	<5 U	<5 U	<5 U	<2.3 U
0708G038	IR04MW36A	02/22/2007	A	<5 U	<5 U	<5 U	<50 U
0718J007	IR04MW36A	05/01/2007	A	<5 U	<5 U	<5 U	<50 U
0734H071	IR04MW36A	08/23/2007	A	<5 U	<5 U	<5 U	<50 U
0741N003	IR04MW36A	10/08/2007	A	<5 U	<5 U	<5 U	<5 U
0809D012	IR04MW36A	02/25/2008	A	<5 U	<5 UJ	<5 UJ	<50 UJ
0830H031	IR04MW36A	7/22/2008	A	<5 U	<5 U	<5 U	<50 U
0912W027	IR04MW36A	3/16/2009	A	<5 U	<5 U	0.58 J	5.6 J
0829G018	IR04MW37A	7/18/2008	A	<5 U	<5 UJ	5.4 J	<50 U
0911B027	IR04MW37A	3/13/2009	A	<5 U	<5 U	0.58 J	<50 U
0830E048	IR04MW40A	7/25/2008	A	<5 U	<5 UJ	33.5 J	<50 UJ
0911B030	IR04MW40A	3/13/2009	A	<5 U	<5 U	52.9	<51 U
0721J064	PA36MW02A	05/21/2007	A	<5 U	<5 U	18.5	<50 U
0920B016	IR02MW373A	5/13/2009	A	957	23.6	941	7,540 R
0916H011	IR05MW85A	4/15/2009	A	3 J	NA	NA	9.7 J
0839G034	IR12MW11A	9/23/2008	A	<5 U	<5 U	2.6	<50 U
0912W037	IR12MW11A	3/17/2009	A	2.9 J	<5 U	24.8	<50 U
0916P014	IR12MW11A	4/16/2009	A	<5 U	<5 U	14	<50 U
0916H005	IR12MW13A	4/14/2009	A	NA	NA	5.1	NA
0830D020	IR12MW14A	7/21/2008	A	<5 U	<7.5 U	1.5 J	<50 U
0911D026	IR12MW14A	3/13/2009	A	1.1 J	<5 U	0.72 J	6.4 J
0830D027	IR12MW18A	7/23/2008	A	<5 U	<5 U	141	<50 U
0841H015	IR12MW18A	10/8/2008	A	NA	NA	136	NA
0911W025	IR12MW18A	3/13/2009	A	<5 U	<5 U	129	<50 U
0916H003	IR12MW18A	4/14/2009	A	<5 U	<5 U	123	<50 U
0928W013	IR12MW18A	7/7/2009	A	NA	NA	141	NA
0941H019	IR12MW18A	10/5/2009	A	NA	NA	152	NA
0831E059	IR14MW10A	7/29/2008	A	<5 U	<5 U	<5.3 U	<50 U
0912H040	IR14MW10A	3/20/2009	A	2.5 J	<5 U	<5 U	<50 U
0829G019	IR36MW12A	7/18/2008	A	<25 U	<25 UJ	<2.1 UJ	27.1 J
0911B031	IR36MW12A	3/13/2009	A	<5 U	<5 U	<5 U	<50 U
0830D029	PA36MW03A	7/23/2008	A	219	<7 U	10.9	425
0912W048	PA36MW03A	3/20/2009	A	94.4	<5 U	4.7 J	164 J
0916H008	PA36MW03A	4/15/2009	A	412	NA	NA	1,050
0510R032	IR03MW373B	03/10/2005	B	1.5 J	<5 U	<5 U	<50 U
0526G046	IR03MW373B	06/28/2005	B	<2.4 U1	<5 UJ3	<5 UJ3	<50 UJ3
0538A040	IR03MW373B	09/23/2005	B	<1.1 U	<5 UJ	<5 U	<50 UJ
0602H041	IR03MW373B	01/09/2006	B	<5 U	<5 U	<5 U	<50 U
0611S026	IR03MW373B	03/17/2006	B	<2.4 UJ	<5 U	<5 U	<50 UJ

Table 2-10. Groundwater Analytical Results for Metals, March 2005 to October 2009 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)
0623P056	IR03MW373B	06/08/2006	B	1.7 J	<5 U	<5 U	<50 U
0634G006	IR03MW373B	08/25/2006	B	<5 U	<3 U	<5 U	<50 U
0649G031	IR03MW373B	12/04/2006	B	<5 U	<5 U	<5 U	<50 U
0709G048	IR03MW373B	02/28/2007	B	<5 U	<5 U	<5 U	<50 U
0720A055	IR03MW373B	05/17/2007	B	<5 U	<5 UJ	<5 UJ	<6.8 UJ
0735W060	IR03MW373B	08/27/2007	B	<5 U	<5 U	<5 U	<50 U
0740D023	IR03MW373B	10/04/2007	B	1.8 J	<5 UJ	<5 UJ	<50 UJ
0809E020	IR03MW373B	02/27/2008	B	<1.2 U	<5 U	<5 U	<6.9 U
0809E021	IR03MW373B	02/27/2008	B	<1.7 U	<5 U	<5 U	<7.6 U
0817E028	IR03MW373B	04/21/2008	B	1.4 J	<1.8 U	0.7 J	<8.6 U

Notes:
J = estimated value
J3 = compound is estimated because accuracy was exceeded in matrix spike, blank spike, or surrogate spike
J9 = metals result considered estimated because interference check sample
NA = not analyzed for
R = rejected value
U = nondetected (numeric value is reporting limit)
UJ = nondetected (numeric value is reporting limit), estimated value
µg/L = micrograms per liter

Table 2-11. Groundwater Analytical Results for PCBs, March 2005 to October 2009

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Aroclor-1254 (µg/L)	gamma-Chlordane (µg/L)	Heptachlor Epoxide (µg/L)
0511Z021	IR02MW300A	03/15/2005	A	NA	<0.05 U	<0.05 U
0720J061	IR02MW301A	05/18/2007	A	NA	<0.05 U	<0.05 U
0732D009	IR02MW301A	08/10/2007	A	NA	<0.05 U	<0.05 U
0740D007	IR02MW301A	10/02/2007	A	NA	<0.05 U	<0.05 U
0808D007	IR02MW301A	02/21/2008	A	NA	<0.05 U	<0.05 U
0817G023	IR02MW301A	04/21/2008	A	NA	NA	<0.05 U
0511G047	IR02MWB-3	03/15/2005	A	NA	<0.05 U	<0.05 U
0836G017	IR02MW374A	9/3/2008	A	<0.5 UJ	NA	NA
0842G005	IR02MW374A	10/13/2008	A	<0.5 U	NA	NA
0842G006	IR02MW374A	10/13/2008	A	<0.5 U	NA	NA
0912W041	IR02MW374A	3/19/2009	A	<0.5 U	NA	NA
0920W012	IR02MW374A	5/13/2009	A	<0.5 U	NA	NA
0928B011	IR02MW374A	7/7/2009	A	<0.5 U	NA	NA
0941W014	IR02MW374A	10/5/2009	A	<0.5 U	NA	NA
0836G016	IR02MW375A	9/3/2008	A	<0.5 UJ	NA	NA
0842G004	IR02MW375A	10/13/2008	A	<0.5 UJ	NA	NA
0912W042	IR02MW375A	3/19/2009	A	<0.5 U	NA	NA
0920W013	IR02MW375A	5/13/2009	A	<0.5 UJ	NA	NA
0928B012	IR02MW375A	7/7/2009	A	<0.5 U	NA	NA
0941W015	IR02MW375A	10/5/2009	A	<0.5 U	NA	NA
0510G025	IR03MW218A2	03/10/2005	A	0.5	NA	NA
0526G039	IR03MW218A2	06/27/2005	A	<0.5 U	NA	NA
0538A027	IR03MW218A2	09/21/2005	A	<0.5 U	NA	NA
0602H042	IR03MW218A2	01/10/2006	A	<0.5 U	NA	NA
0623T023	IR03MW218A2	06/08/2006	A	<0.5 U	NA	NA
0636D036	IR03MW218A2	09/06/2006	A	<0.5 U	NA	NA
0650B043	IR03MW218A2	12/12/2006	A	<0.5 U	NA	NA
0709L012	IR03MW218A2	02/27/2007	A	<0.5 U	NA	NA
0719G001	IR03MW218A2	05/10/2007	A	<0.5 U	NA	NA
0734D035	IR03MW218A2	08/21/2007	A	<0.5 UJ	NA	NA
0741D035	IR03MW218A2	10/08/2007	A	<0.5 U	NA	NA
0810D051	IR03MW218A2	03/04/2008	A	<0.5 U	NA	NA
0823H060	IR03MW218A2	06/04/2008	A	<0.5 U	NA	NA
0511Z018	IR03MW224A	03/15/2005	A	<0.5 U	NA	NA
0526G044	IR03MW224A	06/28/2005	A	<0.5 U	NA	NA
0526G045	IR03MW224A	06/28/2005	A	<0.5 U	NA	NA
0538T029	IR03MW224A	09/22/2005	A	<0.5 UJ	NA	NA
0602V032	IR03MW224A	01/10/2006	A	<0.5 U	NA	NA
0611S013	IR03MW224A	03/14/2006	A	<0.5 U	NA	NA
0623P049	IR03MW224A	06/06/2006	A	<0.5 U	NA	NA
0634G007	IR03MW224A	08/25/2006	A	<0.5 U	NA	NA
0649B038	IR03MW224A	12/08/2006	A	<0.5 U	NA	NA
0709G047	IR03MW224A	02/28/2007	A	<0.5 U	NA	NA
0720W046	IR03MW224A	05/18/2007	A	<0.5 U	NA	NA
0734H057	IR03MW224A	08/20/2007	A	<0.5 UJ	NA	NA
0740D024	IR03MW224A	10/04/2007	A	<0.5 U	NA	NA
0809E022	IR03MW224A	02/27/2008	A	<0.5 UJ	NA	NA
0817E029	IR03MW224A	04/21/2008	A	<0.5 U	NA	NA
0510G026	IR03MW342A	03/10/2005	A	NA	<0.05 U	<0.05 U
0526G043	IR03MW342A	06/28/2005	A	NA	<0.05 U	<0.05 U
0538A028	IR03MW342A	09/21/2005	A	NA	<0.05 U	<0.05 U
0602H043	IR03MW342A	01/10/2006	A	NA	<0.05 U	<0.05 U
0602H044	IR03MW342A	01/10/2006	A	NA	<0.05 U	<0.05 U
0611S012	IR03MW342A	03/14/2006	A	NA	<0.05 U	<0.05 U
0622S011	IR03MW342A	06/01/2006	A	NA	<0.05 U	<0.05 U

Table 2-11. Groundwater Analytical Results for PCBs, March 2005 to October 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Aroclor-1254 (µg/L)	gamma-Chlordane (µg/L)	Heptachlor Epoxide (µg/L)
0636D037	IR03MW342A	09/06/2006	A	NA	<0.05 U	<0.05 U
0636D038	IR03MW342A	09/06/2006	A	NA	<0.05 U	<0.05 U
0650W041	IR03MW342A	12/11/2006	A	NA	<0.05 UJ	<0.05 U
0708L005	IR03MW342A	02/22/2007	A	NA	<0.05 U	<0.05 U
0720G016	IR03MW342A	05/15/2007	A	NA	<0.05 U	<0.05 U
0735W059	IR03MW342A	08/27/2007	A	NA	<0.05 U	<0.05 U
0741G024	IR03MW342A	10/08/2007	A	NA	<0.05 U	<0.05 U
0809D031	IR03MW342A	02/28/2008	A	NA	<0.05 U	<0.05 U
0817E034	IR03MW342A	04/22/2008	A	NA	NA	<0.05 U
0509G009	IR04MW13A	03/03/2005	A	<0.5 U	<0.05 U	<0.05 U
0526T039	IR04MW13A	06/27/2005	A	<0.5 U	<0.05 U	<0.05 U
0537T010	IR04MW13A	09/15/2005	A	<0.5 U	<0.05 U	<0.05 U
0537T011	IR04MW13A	09/15/2005	A	<0.5 U	<0.05 U	<0.05 U
0602D039	IR04MW13A	01/11/2006	A	<0.5 U	<0.05 U	<0.05 U
0611J032	IR04MW13A	03/16/2006	A	<0.5 U	<0.05 U	<0.05 U
0611J033	IR04MW13A	03/16/2006	A	<0.5 U	<0.05 U	<0.05 U
0622T013	IR04MW13A	05/31/2006	A	<0.5 U	<0.05 U	<0.05 U
0649D036	IR04MW13A	12/07/2006	A	<0.5 U	<0.05 UJ	<0.05 UJ
0708G030	IR04MW13A	02/21/2007	A	<0.5 U	<0.05 U	<0.05 U
0719W020	IR04MW13A	05/10/2007	A	<0.5 U	<0.05 U	<0.05 U
0734D031	IR04MW13A	08/20/2007	A	<0.5 U	<0.05 U	<0.05 U
0741D034	IR04MW13A	10/08/2007	A	<0.5 UJ	<0.05 U	<0.05 U
0809H025	IR04MW13A	02/27/2008	A	<0.5 UJ	<0.05 U	<0.05 U
0823H062	IR04MW13A	6/4/2008	A	<0.5 U	<0.05 U	<0.05 U
0830H028	IR04MW13A	7/22/2008	A	<0.5 U	<0.05 U	<0.05 U
0912N016	IR04MW13A	3/16/2009	A	<0.5 U	<0.05 U	<0.05 U
0916P013	IR04MW13A	4/16/2009	A	<0.5 U	<0.05 U	<0.05 U
0509G004	IR04MW36A	03/02/2005	A	<0.5 U	<0.05 U	<0.05 U
0524T014	IR04MW36A	06/16/2005	A	<0.5 U	<0.05 U	<0.05 U
0536T003	IR04MW36A	09/08/2005	A	<0.5 U	<0.05 U	<0.05 U
0601T023	IR04MW36A	01/05/2006	A	<0.5 U	<0.05 U	<0.05 U
0612H046	IR04MW36A	03/22/2006	A	<0.5 U	<0.05 UJ	<0.05 U
0622T012	IR04MW36A	05/31/2006	A	<0.5 U	<0.05 U	<0.05 U
0648G018	IR04MW36A	11/28/2006	A	<0.5 U	<0.05 U	<0.05 U
0708G038	IR04MW36A	02/22/2007	A	<0.5 U	<0.05 U	<0.05 U
0718J007	IR04MW36A	05/01/2007	A	<0.5 U	<0.05 U	<0.05 U
0734H071	IR04MW36A	08/23/2007	A	<0.5 UJ	<0.05 UJ	<0.05 UJ
0741N003	IR04MW36A	10/08/2007	A	<0.5 UJ	<0.05 U	<0.05 U
0809D012	IR04MW36A	02/25/2008	A	<0.5 U	<0.05 U	<0.05 U
0830H031	IR04MW36A	7/22/2008	A	<0.5 U	<0.05 U	<0.05 U
0912W027	IR04MW36A	3/16/2009	A	<0.5 U	<0.05 U	<0.05 U
0839G034	IR12MW11A	9/23/2008	A	<0.5 U	<0.05 U	<0.05 U
0912W037	IR12MW11A	3/17/2009	A	<0.5 U	<0.05 U	<0.05 U
0916P014	IR12MW11A	4/16/2009	A	<0.5 U	<0.05 U	<0.05 U
0509R005	IR12MW17A	03/02/2005	A	NA	<0.05 U	<0.05 U
0525T026	IR12MW17A	06/21/2005	A	NA	<0.05 U	<0.05 U
0509R005	IR12MW17A	03/02/2005	A	<5 U	<0.05 U	<0.05 U
0525T026	IR12MW17A	06/21/2005	A	<1 UJ3	<0.05 U	<0.05 U
0831E059	IR14MW10A	7/29/2008	A	<0.5 U	NA	NA
0912H040	IR14MW10A	3/20/2009	A	<0.5 U	NA	NA
0830E033	IR14MW13A	7/23/2008	A	<0.5 UJ	NA	NA
0513Z028	IR36MW17A	03/29/2005	A	NA	<0.05 U	<0.05 U
0526D037	IR36MW17A	06/29/2005	A	NA	<0.05 U	<0.05 U
0538T030	IR36MW17A	09/22/2005	A	NA	<0.05 U	<0.05 U
0602H050	IR36MW17A	01/12/2006	A	NA	<0.05 U	<0.05 U

Table 2-11. Groundwater Analytical Results for PCBs, March 2005 to October 2009 *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Aroclor-1254 (µg/L)	gamma-Chlordane (µg/L)	Heptachlor Epoxide (µg/L)
0612M038	IR36MW17A	03/21/2006	A	NA	<0.05 U	<0.05 U
0612M039	IR36MW17A	03/21/2006	A	NA	<0.05 U	<0.05 U
0623M030	IR36MW17A	06/07/2006	A	NA	<0.05 U	<0.05 U
0623M031	IR36MW17A	06/07/2006	A	NA	<0.05 U	<0.05 U
0649D035	IR36MW17A	12/06/2006	A	NA	<0.05 UJ	<0.05 UJ
0712D021	IR36MW17A	03/20/2007	A	NA	<0.05 U	<0.05 U
0719W023	IR36MW17A	05/11/2007	A	NA	<0.05 U	<0.05 U
0719W024	IR36MW17A	05/11/2007	A	NA	<0.05 U	<0.05 U
0734D050	IR36MW17A	08/23/2007	A	NA	<0.05 UJ	<0.05 UJ
0740W028	IR36MW17A	10/05/2007	A	NA	<0.05 U	<0.05 U
0809E018	IR36MW17A	02/27/2008	A	NA	<0.05 U	<0.05 U
0809E019	IR36MW17A	02/27/2008	A	NA	<0.05 U	<0.05 U
0511R044	PA36MW01A	03/15/2005	A	NA	<0.05 U	<0.05 U
0525T035	PA36MW01A	06/24/2005	A	NA	<0.05 U	<0.05 U
0525T036	PA36MW01A	06/24/2005	A	NA	<0.05 U	<0.05 U
0538S047	PA36MW01A	09/23/2005	A	NA	<0.05 U	<0.05 U
0538S048	PA36MW01A	09/23/2005	A	NA	<0.05 U	<0.05 U
0602D042	PA36MW01A	01/11/2006	A	NA	<0.05 U	<0.05 U
0612H042	PA36MW01A	03/21/2006	A	NA	<0.05 U	<0.05 U
0623M027	PA36MW01A	06/06/2006	A	NA	<0.05 U	<0.05 U
0623M028	PA36MW01A	06/06/2006	A	NA	<0.05 U	<0.05 U
0648D027	PA36MW01A	12/01/2006	A	NA	<0.05 U	<0.05 UJ
0708H030	PA36MW01A	02/21/2007	A	NA	<0.05 U	<0.05 U
0708H031	PA36MW01A	02/21/2007	A	NA	<0.05 U	<0.05 U
0511G048	IR02MW127B	03/15/2005	B	<0.5 U	<0.05 U	<0.05 U
0510R032	IR03MW373B	03/10/2005	B	<0.5 U	<0.05 U	<0.05 U
0526G046	IR03MW373B	06/28/2005	B	<0.5 U	<0.05 U	<0.05 U
0538A040	IR03MW373B	09/23/2005	B	<0.5 U	<0.05 U	<0.05 U
0602H041	IR03MW373B	01/09/2006	B	<0.5 U	<0.05 U	<0.05 U
0611S026	IR03MW373B	03/17/2006	B	<0.5 U	<0.05 U	<0.05 U
0623P056	IR03MW373B	06/08/2006	B	<0.5 U	<0.05 U	<0.05 U
0634G006	IR03MW373B	08/25/2006	B	<0.5 U	<0.05 U	<0.05 U
0649G031	IR03MW373B	12/04/2006	B	<0.5 U	<0.05 U	<0.05 U
0709G048	IR03MW373B	02/28/2007	B	<0.5 U	<0.05 U	<0.05 U
0720A055	IR03MW373B	05/17/2007	B	<0.5 U	<0.05 U	<0.05 U
0735W060	IR03MW373B	08/27/2007	B	<0.5 UJ	<0.05 U	<0.05 U
0740D023	IR03MW373B	10/04/2007	B	<0.5 U	<0.05 U	<0.05 U
0809E020	IR03MW373B	02/27/2008	B	<0.5 UJ	<0.05 U	<0.05 U
0809E021	IR03MW373B	02/27/2008	B	<0.5 UJ	<0.05 U	<0.05 U
0817E028	IR03MW373B	04/21/2008	B	<0.5 U	NA	<0.05 U

Notes:

J3 = compound is estimated because accuracy was exceeded in matrix spike, blank spike, or surrogate spike

NA = not analyzed for

U = nondetected (numeric value is reporting limit)

UJ = nondetected (numeric value is reporting limit), estimated value

µg/L = micrograms per liter

Table 2-12. Groundwater Analytical Results for TPH, March 2005 to October 2009

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Gasoline (µg/L)	TPH-DRO (µg/L)	DRO Unknown (µg/L)	TPH-ORO (µg/L)	Total TPH (µg/L)
0511G050	IR02MW126A	03/17/2005	A	16 J	890 H	NA	1,300	2,206
0526G049	IR02MW126A	06/29/2005	A	69	1,100	NA	1,500	2,669
0538A043	IR02MW126A	09/23/2005	A	<20 U	990 H	NA	1,000	1,990
0602T033	IR02MW126A	01/10/2006	A	16 J	490 H	NA	1,400	1,906
0611J035	IR02MW126A	03/17/2006	A	<20 U	<760 UH	NA	1,400	1,400
0623D040	IR02MW126A	06/06/2006	A	27 Z	580 H	NA	1,000	1,607
0649G043	IR02MW126A	12/06/2006	A	<20 U	520 JH	NA	1,200	1,720
0709W026	IR02MW126A	02/28/2007	A	<20 U	550 JH	NA	1,500	2,050
0720J051	IR02MW126A	05/14/2007	A	23	660 J	NA	1,400	2,083
0732J005	IR02MW126A	08/10/2007	A	29	690 J	NA	1,500	2,219
0740W013	IR02MW126A	10/03/2007	A	23	700 J	NA	1,500	2,223
0808E010	IR02MW126A	02/21/2008	A	29 J	730	NA	1,600	2,359
0817H036	IR02MW126A	04/21/2008	A	24	710	NA	1,500	2,234
0830D021	IR02MW126A	7/21/2008	A	NA	780	NA	1,700	2,480
0912W038	IR02MW126A	3/17/2009	A	NA	1,100	NA	2,000	3,100
0836G017	IR02MW374A	9/3/2008	A	NA	230	NA	210	440
0842G005	IR02MW374A	10/13/2008	A	NA	110	NA	150	260
0842G006	IR02MW374A	10/13/2008	A	NA	91	NA	110	201
0836G016	IR02MW375A	9/3/2008	A	NA	630	NA	990	1,620
0842G004	IR02MW375A	10/13/2008	A	NA	350	NA	700	1,050
0511G047	IR02MWB-3	03/15/2005	A	<20 U	640 H	NA	970	1,610
0510G025	IR03MW218A2	03/10/2005	A	540	7,800	NA	4,400 J38	12,740
0526G039	IR03MW218A2	06/27/2005	A	460 J3	7,200	NA	4,000	11,660
0538A027	IR03MW218A2	09/21/2005	A	330 H	7,700	NA	4,500	12,530
0602H042	IR03MW218A2	01/10/2006	A	390 H	6,800	NA	3,800 J	10,990
0623T023	IR03MW218A2	06/08/2006	A	300 JH	9,200 J	NA	4,100 J	13,600
0636D036	IR03MW218A2	09/06/2006	A	340 H	7,600 H	NA	4,400	12,340
0650B043	IR03MW218A2	12/12/2006	A	210 Z	6,800 H	NA	5,600 J	12,610
0709L012	IR03MW218A2	02/27/2007	A	270 JZ	8,100 Z	NA	5,000	13,370
0719G001	IR03MW218A2	05/10/2007	A	270 J	6,800	NA	4,300	11,370
0734D035	IR03MW218A2	08/21/2007	A	370	7,900 J	NA	5,500 J	13,770
0741D035	IR03MW218A2	10/08/2007	A	340 J	9,000 J	NA	6,200	15,540
0810D051	IR03MW218A2	03/04/2008	A	250 J	9,300	NA	5,500	15,050
0823H060	IR03MW218A2	06/04/2008	A	140	6,900	NA	2,900 J	9,940
0509G009	IR04MW13A	03/03/2005	A	90	50	NA	500	640
0526T039	IR04MW13A	06/27/2005	A	73	50	NA	500	623
0537T010	IR04MW13A	09/15/2005	A	120	98 H	NA	<500 U	218
0537T011	IR04MW13A	09/15/2005	A	130	78 H	NA	<500 U	208
0602D039	IR04MW13A	01/11/2006	A	100	<50 U	NA	<500 U	100
0611J032	IR04MW13A	03/16/2006	A	110	<50 U	NA	<500 U	110
0611J033	IR04MW13A	03/16/2006	A	110	250 HJ	NA	<500 U	360
0622T013	IR04MW13A	05/31/2006	A	110 Z	<50 U	NA	<500 U	110
0649D036	IR04MW13A	12/07/2006	A	98 Z	<50 UJ	NA	<500 U	98
0708G030	IR04MW13A	02/21/2007	A	74 Z	<50 U	NA	<500 U	74
0719W020	IR04MW13A	05/10/2007	A	79	<50 U	NA	<500 U	79
0734D031	IR04MW13A	08/20/2007	A	100	<50 UJ	NA	<500 U	100
0741D034	IR04MW13A	10/08/2007	A	99	<50 UJ	NA	<500 U	99
0809H025	IR04MW13A	02/27/2008	A	77	<50 U	NA	<500 U	77

Table 2-12. Groundwater Analytical Results for TPH, March 2005 to October 2009 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Gasoline (µg/L)	TPH-DRO (µg/L)	DRO Unknown (µg/L)	TPH-ORO (µg/L)	Total TPH (µg/L)
0823H062	IR04MW13A	6/4/2008	A	NA	<50 U	NA	<500 U	0
0830H028	IR04MW13A	7/22/2008	A	NA	95	NA	92 J	187
0912N016	IR04MW13A	3/16/2009	A	NA	<40 U	NA	<40 U	0
0916P013	IR04MW13A	4/16/2009	A	NA	62	NA	100	162
0509G004	IR04MW36A	03/02/2005	A	46 H	590 J3	NA	500	1,136
0524T014	IR04MW36A	06/16/2005	A	<31 U2	260	NA	500	760
0536T003	IR04MW36A	09/08/2005	A	<20 U	130 H	NA	130 J	260
0601T023	IR04MW36A	01/05/2006	A	<20 U	<50 U	NA	<500 U	<500 U
0612H046	IR04MW36A	03/22/2006	A	<20 U	190 H	NA	190 J	380
0622T012	IR04MW36A	05/31/2006	A	<20 U	<50 U	NA	<500 U	<500 U
0648G018	IR04MW36A	11/28/2006	A	<20 U	<50 UJ	NA	<500 U	<500 U
0708G038	IR04MW36A	02/22/2007	A	<20 U	200 H	NA	350 J	550
0718J007	IR04MW36A	05/01/2007	A	<20 U	<50 UJ	NA	<500 U	<500 U
0734H071	IR04MW36A	08/23/2007	A	<20 U	<50 U	NA	<500 U	<500 U
0741N003	IR04MW36A	10/08/2007	A	<20 U	340 J	NA	480 J	820
0809D012	IR04MW36A	02/25/2008	A	<20 U	130	NA	<500 U	130
0830H031	IR04MW36A	7/22/2008	A	NA	460	NA	320 J	780
0912W027	IR04MW36A	3/16/2009	A	NA	120	NA	140	260
0839G034	IR12MW11A	9/23/2008	A	NA	100	NA	150	250
0912W037	IR12MW11A	3/17/2009	A	NA	220	NA	510	730
0916P014	IR12MW11A	4/16/2009	A	NA	110	NA	250	360
0509R005	IR12MW17A	03/02/2005	A	200 H	1,500 J3	NA	1,900	3,600
0525T026	IR12MW17A	06/21/2005	A	180	1,800	NA	1,500	3,480
0830E033	IR14MW13A	7/23/2008	A	NA	<820 U	NA	<850 UJ	0
0511R040	IR36MW12A	03/14/2005	A	<20 U	450	NA	370 J	820
0526T040	IR36MW12A	06/27/2005	A	<20 U	390	NA	320 J	710
0526T041	IR36MW12A	06/27/2005	A	<20 U	360	NA	310 J	670
0539A046	IR36MW12A	09/26/2005	A	<20 U	340	NA	200	540
0539A047	IR36MW12A	09/26/2005	A	<20 U	320	NA	190	510
0602V035	IR36MW12A	01/11/2006	A	<20 U	140	NA	<500 U	140
0602V036	IR36MW12A	01/11/2006	A	<20 U	150	NA	<500 U	150
0623S017	IR36MW12A	06/05/2006	A	<20 U	270 H	NA	<500 U	270
0623S018	IR36MW12A	06/05/2006	A	<20 U	310 H	NA	<500 U	310
0649H018	IR36MW12A	12/05/2006	A	<20 U	400 H	NA	320 J	720
0709W023	IR36MW12A	02/27/2007	A	<20 U	420 JH	NA	810	1,230
0720B004	IR36MW12A	05/17/2007	A	<20 U	410 J	NA	390 J	800
0734D045	IR36MW12A	08/23/2007	A	<20 U	410	NA	400 J	810
0740H021	IR36MW12A	10/03/2007	A	<20 U	320 J	NA	320 J	640
0809E034	IR36MW12A	02/29/2008	A	<20 U	400	NA	430 J	830
0817E041	IR36MW12A	04/22/2008	A	<20 U	450	NA	290 J	740
0829D017	IR36MW14A	7/18/2008	A	NA	110	NA	140	250
0914G010	IR36MW14A	3/30/2009	A	NA	95	NA	150	245
0511G046	IR56MW39A	03/15/2005	A	200	520	NA	440 J	1,160
0526D036	IR56MW39A	06/28/2005	A	170	640	NA	510	1,320
0539T037	IR56MW39A	09/26/2005	A	350	540	NA	320	1,210
0602T030	IR56MW39A	01/09/2006	A	170	300 L	NA	<500 U	470
0612H050	IR56MW39A	03/23/2006	A	170	540	NA	310 J	1,020
0612H051	IR56MW39A	03/23/2006	A	150	560	NA	300 J	1,010

Table 2-12. Groundwater Analytical Results for TPH, March 2005 to October 2009 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Aquifer	Gasoline (µg/L)	TPH-DRO (µg/L)	DRO Unknown (µg/L)	TPH-ORO (µg/L)	Total TPH (µg/L)
0623S025	IR56MW39A	06/07/2006	A	200 Z	330 Z	NA	<500 U	530
0623S026	IR56MW39A	06/07/2006	A	200 Z	320 Z	NA	<500 U	520
0649W035	IR56MW39A	12/07/2006	A	190 Z	880 JH	NA	590	1,660
0708H027	IR56MW39A	02/20/2007	A	47 Z	780 H	NA	800	1,627
0718A005	IR56MW39A	05/02/2007	A	66	900 J	NA	620 J	1,586
0735H082	IR56MW39A	08/27/2007	A	92	480 J	NA	540	1,112
0740W016	IR56MW39A	10/03/2007	A	110	350 J	NA	510	970
0809P006	IR56MW39A	02/26/2008	A	160 J	330	NA	360 J	850
0817D043	IR56MW39A	04/23/2008	A	120	300	NA	310 J	730
0830H042	IR56MW39A	7/24/2008	A	NA	260	NA	290	550
0911B028	IR56MW39A	3/13/2009	A	NA	240/280 R/	NA	340/280 R/J	580/560
0510R032	IR03MW373B	03/10/2005	B	12 J	50	NA	500	562
0526G046	IR03MW373B	06/28/2005	B	<20 U	50	NA	500	550
0538A040	IR03MW373B	09/23/2005	B	<20 U	<50 U	NA	<500 U	<500 U
0602H041	IR03MW373B	01/09/2006	B	<20 U	<50 U	NA	<500 U	<500 U
0611S026	IR03MW373B	03/17/2006	B	<20 U	<50 U	NA	<500 UJ	<500 U
0623P056	IR03MW373B	06/08/2006	B	27 Z	<50 U	NA	<500 U	27
0634G006	IR03MW373B	08/25/2006	B	<20 U	<50 U	NA	<500 U	<500 U
0649G031	IR03MW373B	12/04/2006	B	<20 U	<50 U	NA	<500 U	<500 U
0709G048	IR03MW373B	02/28/2007	B	<20 U	<50 UJ	NA	<500 U	<500 U
0720A055	IR03MW373B	05/17/2007	B	<20 U	<50 UJ	NA	<500 U	<500 U
0735W060	IR03MW373B	08/27/2007	B	<20 U	<50 UJ	NA	<500 U	<500 U
0740D023	IR03MW373B	10/04/2007	B	<20 U	<50 UJ	NA	<500 U	<500 U
0809E020	IR03MW373B	02/27/2008	B	<20 U	<50 U	NA	<500 U	<500 U
0809E021	IR03MW373B	02/27/2008	B	<20 U	<50 U	NA	<500 U	<500 U
0817E028	IR03MW373B	04/21/2008	B	<20 U	<50 U	NA	<500 U	<500 U

Notes:
DRO = diesel-range organics
H = pattern is heavier hydrocarbon end of the analyte's range in the standard
J = estimated value
J3 = compound is estimated because accuracy was exceeded in matrix spike, blank spike, or surrogate spike
J8 = result considered estimated because it exceeds calibration range
L = pattern is lighter hydrocarbon end of the analyte's range in the standard
NA = not analyzed for
ORO = (motor) oil-range organics
TPH = total petroleum hydrocarbons
U = nondetected (numeric value is reporting limit)
Z = other peak(s); chromatogram does not suggest the presence of a fuel
µg/L = micrograms per liter

Table 2-13. Groundwater Plumes Identified during RI at Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Plume Name	Redevelopment Block (IR Site)	Well(s) within RI plume boundary	Plume Chemicals
Metals			
IR-02 Northwest Metals Plume	EOS-1 (IR-02 Northwest)	IR02MW373A and IR02MW126A	Copper, lead, nickel, zinc
IR-05 Metals Plume	MU-1 (IR-05)	PA36MW03A	Copper and zinc
IR-12 Nickel Plume	MU-1 (IR-12)	IR12MW18A	Nickel
IR-02 Central Nickel Plume	EOS-2 (IR-02 Central)	IR02MWB-2	Nickel
IR-02 Southeast Metals Plume	EOS-4 (IR-02 Southeast)	IR02MW300A	Copper and zinc
Volatile Organic Compounds			
IR-02 Northwest Benzene Plume	EOS-1 (IR-02 Northwest)	IR02MW126A	Benzene
IR-03 Benzene Plume	EOS-3 (IR-03)	IR02MW146A, IR03MWO-1, IR03MW225A, IR03MW371A, IR03MW218A1, IR03MW218A2, IR03MW218A3, IR03MW370A, IR03MW226A, IR03MW369A, IR02MW173A, and IR03MW342A	Benzene
IR-12 Benzene Plume	MU-1 (IR-12)	IR12MW13A and IR12MW17A	Benzene
IR-39 Benzene Plume	MU-1 (IR-39)	IR39MW21A	Benzene
Building 406 TCE Plume	MU-2 (IR-36 South)	IR36MW232A, IR36MW237A,IR36MW237A, and PA50MW04A	TCE
IR-04 TCE Plume	MU-3 (IR-04)	IR04MW37A	TCE

Table 2-13. Groundwater Plumes Identified during RI at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Plume Name	Redevelopment Block (IR Site)	Well(s) within RI plume boundary	Plume Chemicals
Volatile Organic Compounds *(continued)*			
IR-56 TCE Plume	MU-3 (IR-74)	IR74MW01A	TCE
IR-12 PCE Plume	MU-1 and MU-2 (IR-12)	IR12MW19A, IR12MW45A	1,1-DCA and PCE
Polychlorinated Biphenyls			
IR-02 Northwest PCB Plume	EOS-1 (IR-02 Northwest)	IR02MW375A	Aroclor-1254
Total Petroleum Hydrocarbons			
IR-03 TPH Plume	EOS-3 (IR-03)	IR02MW146A, IR03MW225A, IR03MW371A, IR03MW218A1, IR03MW218A2, IR03MW218A3, IR03MW370A, IR03MW226A, IR03MW369A, IR03MWO-1, IR02MW173A, and IR03MW342A	TPH

Notes:
DCA = dichloroethane
IR = Installation Restoration
PCB = polychlorinated biphenyl
PCE = tetrachloroethene
RI = remedial investigation
TCE = trichloroethene
TPH = total petroleum hydrocarbons
VOC = volatile organic compound

Table 2-14. Groundwater COECs for Aquatic Wildlife
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analytical Group	COEC	Aquatic Evaluation Criterion Selected for Aquatic Evaluation (µg/L)[a]	Locations Recommended for Further Monitoring and Evaluation	Maximum Concentration (µg/L)	Calculated Trigger Level (µg/L)[b]
Metals	Arsenic	36	IR03MWO-1	1,180	36
			IR02MW173A	75.7	36
			PA50MW05A	42.7	36
	Copper	28.0[c]	IR02MW126A	1,000	28
			IR02MW373A	1,300	28
			IR03MW226A	824	28
			IR03MWO-1	3,240	28
	Lead	14.4[c]	IR02MW373A	35.2	14.4
			IR03MW218A	23.4	14.4
			IR03MW226A	613	14.4
			IR03MWO-1	65	14.4
	Mercury	0.60[c]	IR03MW226A	0.8	0.60
			IR03MWO-1	1.2	0.60
	Nickel	96.5[c]	IR02MWB-2	1,720	96.5
			IR02MWB-5	3,430	96.5
			IR02MW373A	1,460	96.5
			IR03MWO-1	1,140	96.5
	Zinc	81	IR02MW126A	2,320	81
			IR02MW373A	9,970	81
			IR03MW226A	1,180	81
			IR03MWO-1	2,400	81
PCBs and Pesticides	Aroclor-1254	0.03	IR02MW372A	35	0.06
			IR02MW375A[d]	40	0.03
			IR02MW146A	0.24	0.03
			IR03MW225A	1.2	0.03
	Aroclor-1260	0.03	IR03MW218A1	35	0.03
			IR03MW225A	40	0.03
			IR03MW226A	0.24	0.03
			IR03MWO-1	1.2	0.03
	4,4'-DDE	0.001	IR02MW372A	1.2	0.002
	Alpha-Chlordane	0.004	IR02MW372A	0.03	0.008
Petroleum Hydrocarbons	TPH (Total)	4,839[e]	IR02MW173A	6,900	4,839
		3,216[e]	IR03MW218A1	83,000	3,216
		3,216[e]	IR03MW218A2	19,900	3,216
		3,216[e]	IR03MW225A	12,000	3,216
		3,216[e]	IR03MW226A	17,670	3,216
		1,400[e]	IR03MW369A	13,500	1,400
		1,467[e]	IR03MW370A	27,560	1,467
		2,092[e]	IR03MW371A	10,890	2,092
		12,604[e]	IR03MWO-1	560,000	12,604

Table 2-14. Groundwater COECs for Aquatic Wildlife *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Notes:

(a) References for the aquatic evaluation criteria are included in Tables A-1 and A-2.

(b) Attenuation factor assigned based on nomographs developed specifically for HPS groundwater (see Attachment A-1).

(c) Value shown has been HGAL-adjusted and is applicable to the A-aquifer.

(d) Well IR02MWB-3 has been destroyed; new well IR02MW375A is located in approximately the same area.

(e) Range of values shown; total TPH aquatic criteria assigned as a function of distance from shoreline; the source of these criteria is the "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California" (Shaw Environmental, Inc., 2007)

COEC = chemical of ecological concern

DDE = dichlorodiphenyldichloroethene

HGALs = Hunters Point groundwater ambient levels

HPS = Hunters Point Shipyard

PCBs = polychlorinated biphenyls

TPH = total petroleum hydrocarbons

µg/L = micrograms per liter

Section 3. Remedial Action Objectives, Applicable or Relevant and Appropriate Requirements, General Response Actions, and Process Options

This section (1) presents the site-specific RAOs, including PRGs, for soil, shoreline sediment, and groundwater at Parcel E based on the COCs and COECs identified in the Revised RI Report and in Appendix A of this FS Report (see Section 3.1); (2) identifies potential ARARs (see Section 3.2); and (3) presents a range of GRAs and associated process options that will satisfy the RAOs for soil, shoreline sediment, and groundwater (see Section 3.3). The GRAs and process options retained through the screening process are used in later sections as the basis for developing remedial alternatives. A separate set of GRAs and process options were developed for NAPL at IR-03, the location of the former oil reclamation ponds. The prevalence of NAPL in the area of IR-03 and the associated site-specific contamination issues in soil and groundwater are addressed in the NAPL evaluation sections.

3.1. REMEDIAL ACTION OBJECTIVES

RAOs are medium-specific goals for protecting human health and the environment. Each RAO specifies (1) the COCs (or COECs), (2) the exposure route and receptors, and (3) an acceptable chemical concentration for each medium of concern (such as soil and groundwater). RAOs include both an exposure pathway and a chemical concentration in a given medium because protectiveness may be achieved in two ways: (1) by limiting or eliminating the exposure pathway or (2) by reducing chemical concentrations.

The RAO evaluation for this FS Report is based on (1) the results of the risk assessments presented in the Revised RI Report (Barajas & Associates, Inc., 2008b), with appropriate adjustments based on the amended redevelopment plan (SFRA, 2010c), and (2) the risk evaluation conducted to assess potential effects from groundwater discharge to San Francisco Bay (Appendix A of this FS Report). The NCP details the expectations for remedy selection in Title 40 CFR (40 CFR) § 300.430 (a)(1)(iii). The DoD integrates the NCP expectations with the objectives of the BRAC program for expediting transfer of DoD property for reuse and development. The NCP processes and criteria were used to develop RAOs for Parcel E.

An important component of developing RAOs is the determination of future land use. According to EPA's land use directive (EPA, 1995), RAOs "should reflect the reasonably anticipated future land use or

uses...," thereby allowing for the development of "alternatives that would achieve cleanup levels associated with the reasonably anticipated future land use..." of the site. The EPA land use directive states that "in cases where future land use is relatively certain, the remedial action objective generally should reflect this land use..." and "...need not include alternative land use scenarios..." (EPA, 1995). RAOs developed for Parcel E are based on the city's planned reuse for each redevelopment block, which is considered the reasonable anticipated end use of the property. In accordance with the EPA land use directive (EPA, 1995), this FS Report develops remedial alternatives based on the planned reuse only.

Figure 1-2 shows the redevelopment blocks within Parcel E. The RAOs for each environmental medium of concern are presented in the following sections.

3.1.1. RAOs for Soil and Soil Gas

The Revised RI Report evaluated risk from human exposure to soil (residential, industrial, and recreational) associated with each redevelopment block and its planned reuse (Barajas & Associates, Inc., 2008b). Based on the amended redevelopment plan (SFRA, 2010c), the reuses relevant to the Parcel E redevelopment blocks are mixed use and open space, as shown on Figure 1-2. The two exposure scenarios applicable to these planned reuses are residential and recreational, as shown in the table below. The COCs for each exposure scenario are also provided in the table and discussed later in this section.

Exposure Scenario	Redevelopment Block	Planned Reuse	COCs[a]
Residential	MU-1, MU-2, and MU-3	Mixed Use	3,3'-dichlorobenzidine, 4-nitrophenol, 4,4'-DDD, 4,4'-DDE, aldrin, alpha-BHC, antimony, Aroclor-1254, Aroclor-1260, arsenic, benzene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, cadmium, carbazole, copper, dibenz(a, h)anthracene, dieldrin, gamma-BHC, heptachlor epoxide, indeno(1,2,3-cd)pyrene, iron, lead, manganese, mercury, n-nitroso-di-n-propylamine, n-nitrosodiphenylamine, naphthalene, pentachlorophenol, thallium, vanadium, trichloroethylene, zinc, and xylene. **Most common: Metals (arsenic and manganese)**
Recreational	EOS-1, EOS-2, EOS-3, EOS-4, and EOS-5	Open Space	1,2,3,4,6,7,8-HPCDD, 1,2,3,7,8-PECDD, 2,3,4,7,8-PECDF, Aroclor-1254, Aroclor-1260, arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)-anthracene, dieldrin, heptachlor epoxide, indeno(1,2,3-cd)pyrene, lead, manganese, mercury, and nitroso-di-n-propylamine. **Most common: Metals (arsenic and lead), PAHs [benzo(a)pyrene], and PCBs (Aroclor-1260)**

Exposure Scenario	Redevelopment Block	Planned Reuse	COCs[a]
Industrial	Railroad Right-of-Way	Light Industrial	Arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, copper, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and lead. **Most common: Metals (lead) and PAHs [benzo(a)pyrene]**

Notes:

a Although the land use evaluated in the HHRA does not match the amended redevelopment plan (SFRA, 2010c), the above list of COCs was verified and modified as appropriate by conducting queries of the risk-based concentrations against the Parcel E soil data. Prior to conducting the data query, a comprehensive list of risk-based concentrations was developed for all COCs detected in one or more soil samples using the toxicity factors, exposure parameters, and chemical data used in the HHRA.

BHC benzene hexachloride
COCs chemicals of concern
DDD dichlorodiphenyldichloroethane
DDE dichlorodiphenyldichloroethene
HHRA human health risk assessment
HPCDD heptachlorodibenzo-p-dioxin
PAHs polycyclic aromatic hydrocarbons
PCBs polychlorinated biphenyls
PECDD pentachlorodibenzo-p-dioxin
PECDF pentachlorodibenzofuran
SFRA San Francisco Redevelopment Agency

The HHRA results, in particular the results from the residential exposure scenario, were evaluated as part of this FS Report to verify the COCs listed in the table above drive the risk to human health for the planned reuses of Parcel E. A construction worker exposure scenario was also evaluated but is not associated with a planned reuse. The following sections summarize the soil RAOs for protection of human health and the environment and present the PRGs identified for soil.

3.1.1.1. Soil and Soil Gas RAOs for the Protection of Human Health

RAOs for Parcel E soil were developed based on human receptors and results of the incremental risk assessment. Exposure to contaminated soil through inhalation, ingestion, and dermal contact presents unacceptable risk to humans.

The following RAOs apply to Parcel E soil and soil gas:

- Prevent exposure of humans to inorganic and organic chemicals in soil at concentrations exceeding the PRGs in Table 3-1 for the following exposure pathways:
  - Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet bgs by residents in areas zoned for mixed-use reuse
  - Ingestion of homegrown produce in native soil in areas zoned for mixed-use reuse
  - Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 2 feet bgs by recreational users in areas zoned for open space reuse
  - Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet bgs by construction workers in all areas
  - Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet bgs by industrial users of the railroad right-of-way

- Prevent exposure of humans to VOCs in soil gas at concentrations that would pose unacceptable risk via indoor air inhalation of vapors. The Navy has developed soil gas action levels (SGALs) to guide future vapor mitigation or remediation (ChaduxTt, 2010). A focused soil gas survey is currently being implemented to identify locations where concentrations of COCs in soil gas may exceed SGALs and to evaluate the extent of the VOC area requiring institutional controls (ARIC).

Exposure to VOCs in indoor air through the vapor intrusion pathway under the residential exposure scenario presents a potential unacceptable risk in some areas of Parcel E (Barajas & Associates, Inc., 2008b). Vapor intrusion is not applicable in open space areas (outdoors) because it applies only to indoor air where any discharged vapors cannot rapidly dissipate; open space areas are not likely to have buildings that are continuously occupied. VOCs in soil gas typically result from VOCs present in both soil and groundwater. The volatile COCs identified in the table above are present in soil at concentrations that may affect soil gas. Section 3.1.3 identifies additional volatile COCs in groundwater that may affect soil gas. The identified volatile COCs (in both soil and groundwater) will be further evaluated during the soil gas survey.

3.1.1.2. Soil RAOs for the Protection of the Environment

The BERA concluded that risk to wildlife is not considered significant and does not warrant response actions based only on ecological concerns; therefore, no ecological RAO for soil is proposed. However, ecological benchmarks (Table 3-1) will be considered during any response action undertaken to address risk identified in the HHRA.

3.1.1.3. Preliminary Remediation Goals for Soil

PRGs for soil were developed for COCs identified during the incremental risk evaluation. The PRGs, which will be finalized in the ROD, were developed based on the following approach:

- Soil RBCs for each exposure scenario were calculated based on a target cancer risk level of 1E-06 and target noncancer HI of 1, consistent with the exposure pathways and assumptions used in the HHRA to assess risks (Barajas & Associates, Inc., 2008b).
- PRGs for COCs in soil were selected based on a comparison of the RBC for each COC, the laboratory practical quantitation limit (PQL) based on standard EPA analytical methods, and the HPAL (metals only). For metals, the RBC was compared with the HPAL and, if the HPAL exceeded the RBC, the HPAL was selected. For organic chemicals, the RBC was selected, unless it was below the laboratory PQL. In that case, the laboratory PQL would be selected.
- Table 3-1 lists the PRGs for each COC in soil. The PRGs for use in implementation of the soil remedial action are developed and presented in Section 4, Development of Remedial Alternatives.

3.1.2. RAOs for Shoreline Sediment

RAOs were developed for shoreline sediment in Parcel E, located in the open space areas of EOS-1, EOS-2, EOS-3, and EOS-4. The RAOs for shoreline sediment are based on protection of human health and the environment. The Revised RI Report assessed exposure of humans and wildlife to shoreline sediment and identified the following COCs and COECs for each receptor group (Barajas & Associates, Inc., 2008b):

- COCs for humans: PCBs
- COECs for benthic invertebrates: copper, lead, mercury, zinc, PCBs, and DDTs
- COECs for birds (as represented by the willet, surf scoter, and red tailed-hawk): PCBs
- COECs for mammals (as represented by the house mouse): cadmium, copper, molybdenum, zinc, and PCBs

The following sections summarize the shoreline sediment RAOs for protection of human health and the environment and identify the PRGs for shoreline sediment.

3.1.2.1. Shoreline Sediment RAOs for the Protection of Human Health

The RAO for Parcel E shoreline sediment for the protection of human health was based on exposure through shellfish ingestion and direct contact. The following RAO for protection of human health applies to Parcel E shoreline sediment:

- Prevent exposure of humans to COCs in shoreline sediment at concentrations exceeding the PRGs in Table 3-2.

3.1.2.2. Shoreline Sediment RAOs for the Protection of the Environment

The following preliminary RAO was developed for shoreline sediment in the intertidal zone at Parcel E based on protection of wildlife:

- Prevent exposure of benthic invertebrates, birds, and mammals to COECs in shoreline sediment at concentrations exceeding the PRGs in Table 3-2.

3.1.2.3. Preliminary Remediation Goals for Shoreline Sediment

PRGs for COECs in shoreline sediment, as identified by the risk evaluations presented in the Revised RI Report, were selected based on a comparison of the receptor-specific RBCs (separate values for humans, birds, mammals, and benthic invertebrates), ambient values in San Francisco Bay sediment, and HPALs (metals only). The lowest of these receptor-specific RBCs was selected as the PRG unless the ambient value (either the bay sediment value [Water Board, 1998 and 2003a] or HPAL) was greater, in which case the highest ambient value was selected as the PRG. The PRGs for shoreline sediment are presented in Table 3-2. It should be noted that the PRGs in shoreline sediment did not require adjustment based on

laboratory PQLs because, for COCs and COECs identified in shoreline sediment, the receptor-specific RBCs are greater than the laboratory PQLs.

3.1.3. RAOs for Groundwater

RAOs for Parcel E groundwater were developed for exposure pathways with associated risks. The RAOs were developed for the following pathways:

- Human health risks via domestic use pathway from the B-aquifer
- Human health risks to construction workers from dermal exposure and inhalation from the A-aquifer
- The potential migration of contaminated groundwater into San Francisco Bay that could affect surface water

The potential human health risks from exposure to groundwater at Parcel E are described in the Revised RI Report (Barajas & Associates, Inc., 2008b). The potential risks to aquatic wildlife in San Francisco Bay exposed to groundwater at Parcel E are discussed in Appendix A. The HHRA identified potential unacceptable risk through inhalation of VOCs in indoor air (vapor intrusion) from the A-aquifer (Barajas & Associates, Inc., 2008b); however, as described in Section 3.1.1.1, the Navy has developed SGALs and is implementing a focused soil gas survey to guide future vapor mitigation or remediation. Future actions and decisions to address potential risks from vapor intrusion will be based on soil gas data and the SGALs, rather than groundwater data and the RBCs developed in the HHRA for vapor intrusion (ChaduxTt, 2010). Accordingly, the potential exposure from the vapor intrusion pathway is addressed by the soil gas RAO presented in Section 3.1.1.1.

The table below lists the A-aquifer plumes identified for evaluation in this FS Report and the associated COCs and COECs. The table presents two pathways of concern for human health as identified in the HHRA (vapor intrusion and dermal exposure). However, as discussed above, the vapor intrusion pathway is addressed under the RAOs for soil gas (Section 3.1.1.1). The identified volatile COCs in groundwater will be further evaluated during the soil gas survey. The estimated boundaries of the A-aquifer VOC plumes that pose a potential risk to humans are shown on Figure 2-5. As discussed in Section 2.3.3.2, the benzene plumes in IR-02 Northwest, IR-03, and IR-39 (Figure 2-5) are not evaluated in this FS Report. The IR-05 metals plume and the IR-12 nickel plume (Figure 2-4) are also not evaluated in this FS report based on the findings of the trigger-level evaluation (Appendix A). The estimated boundaries of the A-aquifer plumes that pose a potential risk to aquatic wildlife in San Francisco Bay are shown on Figure 2-8.

Redevelopment Block	Plume	COC	COEC	Pathway of Concern[a]
MU-1 and MU-2	Building 406 TCE Plume	TCE, 1,4-DCB, carbon tetrachloride, 1,2-DCE, PCE, vinyl chloride	---	Vapor intrusion
MU-1 and MU-3	IR-12 PCE Plume	PCE, TCE, 1,1-DCA, 1,4-DCB, isopropyl benzene, chloroform, chrysene, naphthalene, arsenic, pentachlorophenol	---	Vapor intrusion and dermal exposure
MU-1	IR-12 Benzene Plume	PCE, TCE, 1,1-DCA, 1,4-DCB, isopropyl benzene, chloroform, chrysene, naphthalene, arsenic, pentachlorophenol	---	Vapor intrusion and dermal exposure
MU-3	IR-04 TCE Plume	TCE, 1,1-DCE, 1,4-DCB, benzene, chloroform, Isopropylbenzene, naphthalene, PCE	---	Vapor intrusion
	IR-56 TCE Plume	TCE, chloroform	---	Vapor intrusion
EOS-1 and EOS-2	IR-02 Central Nickel Plume	Arsenic	---	Dermal Exposure
		---	Nickel	Impact to surface water
EOS-1	IR-02 Northwest Metals Plume	Arsenic	---	Dermal Exposure
		---	Copper, lead, nickel, zinc	Impact to surface water
	IR-02 Northwest PCB and Pesticide Plume	---	Aroclor-1254, 4,4'-DDE, alpha-chlordane	Impact to surface water
EOS-3	IR-03 TPH Plume	1,4-DCB, vinyl chloride, naphthalene[b], benzo(a)anthracene, benzo(b)fluoranthene, chrysene, arsenic	---	Vapor inhalation and dermal exposure[c]
		---	TPH, arsenic, nickel, zinc, Aroclor-1254, Aroclor-1260	Impact to surface water

Notes:

a Two pathways of concern evaluated in the HHRA (vapor intrusion and dermal exposure) are identified; however, the vapor intrusion pathway is addressed under the RAOs for soil gas, as discussed in Section 3.1.1.1.

b List of chemicals for monitoring in IR-03 TPH plume will be expanded to include the following VOCs: benzene, chloroform, TCE, and vinyl chloride (see Appendix C). These chemicals, which exceed risk-based concentrations for vapor intrusion, are not COCs because the vapor intrusion pathway is not complete in open space areas. However, monitoring will be performed in EOS-3 to ensure that these VOCs do not migrate to adjoining redevelopment blocks (where the vapor intrusion pathway is complete) at concentrations that pose a potential risk.

c Pathway of concern is associated with construction worker exposure scenario; the vapor intrusion pathway is not complete in open space areas.

COCs	chemicals of concern	DDE	dichlorodiphenyldichloroethene
DCA	dichloroethane	PCE	tetrachloroethene
DCB	dichlorobenzene	TCE	trichloroethene
DCE	dichloroethene	TPH	total petroleum hydrocarbons

The Revised RI Report did not identify any B-aquifer plumes at Parcel E. Several chemicals were previously detected in the B-aquifer at concentrations exceeding screening criteria, but were not persistent over time. Based on these historic detections, the HHRA identified the following COCs in the B-aquifer (Barajas & Associates, Inc., 2008b):

- Metals: arsenic, manganese, and thallium
- VOCs: 1,4-DCB, PCE, TCE, and vinyl chloride

As discussed in Section 2.5.2.3, COECs in groundwater were identified based on their potential risk to aquatic wildlife in San Francisco Bay, and groundwater migration at HPS was modeled, as discussed in Appendix A. Appendix A develops trigger-level concentrations for COECs to determine when response actions may be needed to prevent migration and discharge of contaminated groundwater to the bay. The trigger levels will be compared with concentrations of COECs in groundwater to identify when additional evaluation may be necessary. Additional evaluations may include:

- Increasing the monitoring frequency in the well where the trigger level was exceeded to evaluate whether the exceedance is persistent
- Monitoring groundwater at a downgradient location to evaluate whether the attenuation estimated in establishing the trigger level has occurred
- Monitoring along the groundwater/surface water interface to evaluate attenuation and groundwater impacts to surface water
- Using site-specific detailed information to more accurately estimate attenuation (including processes such as adsorption and degradation)
- Implementing a selected remedial alternative for treatment of groundwater

The trigger-level concentrations depend on attenuation as groundwater flows toward San Francisco Bay, so they vary based on plume location, distance from the onshore source of contamination to the bay, and width of the source plume. Appendix A (Table A-3) presents the trigger levels for COECs at each applicable location.

The following sections summarize the groundwater RAOs for protection of human health and the environment and present the PRGs identified for groundwater.

3.1.3.1. Groundwater RAOs for Protection of Human Health

Exposure to VOCs in indoor air through the vapor intrusion pathway under the residential exposure scenario presents a potential unacceptable risk in some areas of Parcel E (Barajas & Associates, Inc., 2008b). As described in Section 3.1.1.1, the Navy has developed SGALs and is implementing a focused soil gas survey to guide future vapor mitigation or remediation. Future actions and decisions to address potential risks from vapor intrusion will be based on soil gas data and the SGALs, rather than groundwater data and the RBCs

developed in the HHRA for vapor intrusion (ChaduxTt, 2010). Accordingly, the potential exposure from the vapor intrusion pathway is addressed by the soil gas RAO presented in Section 3.1.1.1.

Exposure to VOCs in groundwater presents a potential unacceptable risk to construction workers at Parcel E. As a result, the following RAO applies to A-aquifer groundwater at Parcel E:

- Prevent or minimize exposure of construction worker to VOCs in A-aquifer groundwater by dermal exposure and inhalation of vapors with chemicals exceeding PRGs.

Although the Revised RI Report did not identify any B-aquifer plumes at Parcel E, the HHRA concluded that exposure to metals and organic compounds in groundwater from domestic use in the B-aquifer presents a potential unacceptable risk at Parcel E. As a result the following RAO applies to the B-aquifer groundwater at Parcel E:

- Prevent or minimize exposure of humans to COCs in the B-aquifer at concentrations exceeding PRGs via the domestic use pathway.

For the purposes of this FS Report, it is assumed that continued groundwater monitoring will verify that chemical concentrations in B-aquifer wells will remain below their corresponding PRGs.

The RAOs for groundwater are based on risk of (1) construction worker exposure in trenches to inorganic and organic chemicals in the A-aquifer; and (2) domestic use in the B-aquifer (in areas underlying A-aquifer groundwater plumes). The RAOs require prevention or reduction of risk until concentrations decrease to an acceptable level of risk (target cancer risk of 1E-06 or target noncancer HI of 1) or an ARAR-based criterion (drinking water MCLs).

3.1.3.2. Groundwater Preliminary Remediation Goals for Protection of Human Health

The PRGs for COCs identified in A- and B-aquifer groundwater were developed using the following approach:

- RBCs for each exposure scenario were calculated based on a target cancer risk level of 1E-06 and target noncancer HI of 1, consistent with the exposure pathways and assumptions used in the HHRA to assess risks (Barajas & Associates, Inc., 2008b).
- The RBCs for A-aquifer COCs for the construction worker scenario were based on dermal contact with, and vapor inhalation of A-aquifer groundwater. The RBCs for the B-aquifer COCs were based on the domestic use scenario of B-aquifer groundwater.
- PRGs for COCs in groundwater in the A-aquifer were selected based on a comparison of the COC-specific RBC and the laboratory PQL based on standard EPA analytical methods. The RBC was selected as the PRG, unless the RBC was below the laboratory PQL. In that case, the laboratory PQL was selected as the PRG.

- For COCs in the B-aquifer, the chemical-specific ARAR is used as the PRG, when available. In the absence of chemical-specific ARARs, the chemical-specific RBC is used as the PRG. However, the PRG defaults to the laboratory PQL if the chemical-specific ARAR or RBC is lower than the PQL, because the ARAR or RBC would not be detectable at concentrations below the PQL.
- No data exist for the deeper bedrock water-bearing zone outside of the weathered residuum. Therefore, no COCs were determined for the bedrock water-bearing zone for the domestic use pathway.

Tables 3-3 and 3-4 present the PRGs for COCs in the A-aquifer and B-aquifer, respectively.

3.1.3.3. Groundwater RAOs for Protection of the Environment

Chemicals in groundwater at Parcel E pose a potential threat to aquatic wildlife in San Francisco Bay. As a result, the following RAO was developed to address potential migration of contaminated groundwater into the bay that could affect surface water:

- Prevent or minimize migration of arsenic, copper, lead, nickel, zinc, Aroclor-1254, Aroclor-1260, alpha-chlordane, and 4,4'-DDE to prevent discharge that would result in concentrations exceeding corresponding surface water quality criteria for aquatic wildlife (Table 3-5)[2].
- Prevent or minimize migration of A-aquifer groundwater containing total TPH concentrations greater than 1,400 µg/L (where commingled with CERCLA substances) into San Francisco Bay.

Plume-specific trigger levels for these chemicals are listed in Table 3-5 and will be used as groundwater monitoring criteria to support the groundwater RAOs for Parcel E[2].

3.1.4. RAOs for Nonaqueous-Phase Liquids

IR-03, the former oil reclamation ponds, is located within Redevelopment Block EOS-3 and contains NAPL over an area approximately 1 acre in size. The NAPL is a source of contamination to A-aquifer groundwater and poses a potential risk to aquatic wildlife in San Francisco Bay. IR-03 is evaluated separately from other areas of soil and groundwater contamination within Parcel E because the NAPL is highly viscous, present over a large area, and may be over 10 feet thick in some locations (Barajas & Associates, Inc., 2008b). These site conditions, coupled with previous investigations that noted free-phase petroleum as deep as 25 feet bgs (IT Corporation, 1997a), prompted the Navy to evaluate remedial alternatives specific to the NAPL at IR-03.

The COCs at IR-03 are a subset of the COCs identified in soil and groundwater at Parcel E (Section 3.1.1 and 3.1.3, respectively). The most prevalent COCs in IR-03 soils are:

[2] This evaluation should not be interpreted to state or imply that surface water ARARs such as the California Toxics Rule are ARARs for in-situ groundwater. Surface water ARARs apply to surface waters.

- Metals: arsenic and lead
- PAHs: benzo(a)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene
- PCBs: Aroclor-1254 and Aroclor-1260
- Total TPH, which is total total petroleum hydrocarbons, including all fractions (e.g., diesel, purgeable, motor oil, etc.)

The most prevalent COCs in A-Aquifer groundwater at IR-03 are:

- Metals: arsenic
- VOCs: 1,4-DCB, naphthalene, and vinyl chloride
- PCBs: Aroclor-1260
- TPH

As discussed in Section 3.1.3, the Revised RI Report did not identify any B-aquifer plumes at Parcel E. Several chemicals were previously detected in the B-aquifer at concentrations exceeding screening criteria, but were not persistent over time. Based on these historic detections, the HHRA identified several COCs in the B-aquifer that will require continued monitoring. For the purposes of this FS Report, it is assumed that continued groundwater monitoring will verify that chemical concentrations in B-aquifer wells will remain below their corresponding PRGs.

Because NAPL at IR-03 is a source of contamination to Parcel E groundwater and potentially to San Francisco Bay, the following RAOs for protection of the environment apply to NAPL at IR-03:

- Prevent or minimize migration of NAPL to prevent discharge that would result in COEC concentrations greater than the water quality criteria for aquatic wildlife.
- Prevent or minimize migration of NAPL to prevent discharge that would result in total TPH groundwater concentrations greater than 1,400 µg/L into San Francisco Bay.

The COCs in soil and groundwater at IR-03 would be subject to the RAOs established in Sections 3.1.1.1, 3.1.3.1, and 3.1.3.3.

3.2. POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

CERCLA § 121(d)(l) states that remedial actions on CERCLA sites must attain (or the decision document must justify the waiver of) any ARARs, which include environmental regulations, standards, criteria, or limitations promulgated under federal or more stringent state laws. An ARAR may be either applicable, or relevant and appropriate, but not both. The NCP (40 CFR § 300.5) definition of applicable, and relevant and appropriate is presented below.

> *Applicable requirements mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site.*
>
> *Relevant and appropriate requirements mean those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.*

To qualify as a state ARAR under CERCLA and the NCP, a state requirement must be (1) a standard, requirement, criterion, or limitation under a state environmental or facility siting law; (2) promulgated (of general applicability and legally enforceable); (3) substantive (not procedural or administrative); (4) more stringent than the federal requirement; (5) identified by the state in a timely manner; and (6) consistently applied.

CERCLA § 121(e) exempts any response action conducted entirely on site from having to obtain a federal, state, or local permit when the action is carried out in compliance with § 121. In general, on-site actions need only comply with the substantive aspects of ARARs, not with the corresponding administrative procedures, such as administrative reviews and recording and record-keeping requirements. Off-site actions must comply with all legally applicable requirements, both substantive and administrative.

ARAR identification considers a number of site-specific factors, including potential remedial actions, compounds at the site, site physical characteristics, and the site location. ARARs are usually divided into three categories: chemical-specific, location-specific, and action-specific.

EPA (1988) guidance recommends that the lead federal agency consult with the state when identifying state ARARs for remedial actions. CERCLA and NCP requirements (40 CFR § 300.515) for remedial actions state that the lead federal agency will request that the state identify chemical- and location-specific state ARARs after completion of site characterization. The requirements also provide that the lead federal agency request identification of all categories of state ARARs (chemical-, location-, and action-specific) upon completion of identification of remedial alternatives for detailed analysis. Identification of potential state ARARs was initiated through Navy requests to the DTSC, Water Board, and San Francisco Bay Conservation and Development Commission (Navy, 2009). In two sets of

consolidated responses received in March 2009 (Water Board, 2009; DTSC, 2009a), potential state ARARs were specified by the DTSC, Water Board, the California Department of Public Health (CDPH), the California Integrated Waste Management Board, California Department of Fish and Game, California Air Resources Board, and the Bay Area Air Quality Management District (BAAQMD). In April 2009, additional potential state ARARs were identified by the DTSC on behalf of San Francisco Bay Conservation and Development Commission (DTSC, 2009b).

This section addresses potential ARARs for CERCLA hazardous substances, with the exception of radionuclides. Potential ARARs for radiological contamination will be addressed in the Radiological Addendum to this FS Report. Both chemical and radiological contaminants will then be addressed together in the Proposed Plan and ROD.

This section summarizes potential federal and state of California ARARs for Parcel E. Section 3.2.1 discusses potential chemical-specific ARARs, Section 3.2.2 discusses potential location-specific ARARs, and Section 3.2.3 discusses potential action-specific ARARs. Appendix B presents the complete ARARs evaluation.

3.2.1. Potential Chemical-Specific ARARs

Chemical-specific ARARs are health- or risk-based numerical values or methods that, when applied to site-specific conditions, result in the establishment of numerical cleanup values. These values are protective of human health and the environment and establish the acceptable amount or concentration of a chemical that may be found in or discharged to the ambient environment.

For Parcel E, soil, shoreline sediment, groundwater, surface water, and air are the environmental media potentially affected by the response action. This section summarizes the potential chemical-specific ARARs for these media.

3.2.1.1. Soil

The Navy has identified the substantive provisions of the following potential federal and state chemical-specific ARARs for soil:

- Resource Conservation and Recovery Act (RCRA) hazardous waste definitions at *California Code of Regulations* (Cal. Code Regs.) Title (tit.) 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Non-RCRA, state-regulated hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (a)(4), 66261.24(a)(2) through (a)(8), 66261.101, 66261.3(a)(2)(C) and (a)(2)(F)

- Designated and nonhazardous solid waste definitions at Cal. Code Regs. tit. 27, §§ 20210 and 20220
- Requirements for risk-based cleanup and disposal of PCB remediation waste at 40 CFR § 761.61(c).

3.2.1.2. Shoreline Sediment

The Navy has identified the substantive provisions of the following potential federal and state chemical-specific ARARs for shoreline sediment:

- RCRA hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Non-RCRA, state-regulated hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (a)(4), 66261.24(a)(2) through (a)(8), 66261.101, and 66261.3(a)(2)(C) and (a)(2)(F)
- Designated and nonhazardous solid waste definitions at Cal. Code Regs. tit. 27, §§ 20210 and 20220

3.2.1.3. Groundwater

The Navy has identified the substantive provisions of the following potential federal and state chemical-specific ARARs for groundwater:

- RCRA groundwater protection standards in Cal. Code Regs. tit. 22, §§ 66264.94(a)(1), (a)(3), (c), (d), and (e) for the A-aquifer. These sections are relevant for achieving the lowest concentration limit in the A-aquifer based on unacceptable risk from the vapor intrusion pathway.
- Federal MCLs for tetrachloroethene and TCE as promulgated by EPA under Safe Drinking Water Act (SDWA) at 40 CFR § 141.61(a), for the B-aquifer.
- Federal MCL for arsenic, as promulgated by EPA under the SDWA at 40 CFR § 141.62(b), for the B-aquifer.
- Federal maximum contaminant level goal (MCLG) for thallium, as promulgated by EPA under the SDWA at 40 CFR § 141.51(b), for the B-aquifer.
- State primary MCLs for 1,4-dichlorobenzene and vinyl chloride, as set forth in Cal. Code Regs. tit. 22, § 64444, for the B-aquifer.
- The substantive provisions of California Water Code §§ 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Water Quality Control Act, as enabling legislation as implemented through the beneficial uses, water quality objectives (WQOs), waste discharge requirements (WDRs), and promulgated policies of the Comprehensive Water Quality Control Plan for the San Francisco Bay Region (referred to as the "Basin Plan") (Water Board, 2007).

- The substantive provisions for groundwater relating to beneficial uses, WQOs, WDRs, and promulgated policies in Chapters 2 and 3 of the Basin Plan (Water Board, 2007), except for the municipal and domestic supply designation for the A-aquifer.
- SWRCB Resolution 88-63, identifying exceptions to potential sources of drinking water (SWRCB, 1988).

These potential ARARs pertain to specific scenarios identified below.

- Containment of in-place waste at Parcel E IR-02 and IR-03, for which federal MCLs, federal MCLGs, and State primary MCLs are potential ARARs for groundwater in the B-aquifer downgradient of the point of compliance (POC). The POC for Parcel E IR-02 and IR-03 is consistent with Cal. Code Regs. tit. 22, § 66264.95.
- Clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which (1) federal MCLs, federal MCLGs, and State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plumes, and (2) the concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, § 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plumes.
- Clean closure of IR-03, for which (1) federal MCLs, federal MCLGs, and State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plume emanating from IR-03, and (2) the concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, § 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plume emanating from IR-03.

The Navy has also identified the substantive provisions of the following potential federal and state chemical-specific ARARs for groundwater, which provide definitions for potential waste generated during the construction of groundwater monitoring wells:

- RCRA hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Non-RCRA, state-regulated hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (a)(4), 66261.24(a)(2) through (a)(8), 66261.101, and 66261.3(a)(2)(C) and (a)(2)(F)
- Designated and nonhazardous solid waste definitions at Cal. Code Regs. tit. 27, §§ 20210 and 20220

3.2.1.4. Surface Water

The only surface water bodies at Parcel E consist of intertidal wetlands along the shoreline that are hydraulically connected to surface water in the bay. Groundwater at Parcel E has the potential to discharge to these intertidal wetlands and the bay. The Navy has identified the substantive provisions of (1) the California Toxics Rule (40 CFR § 131.38) and (2) Table 3-3 of the Basin Plan as potentially

applicable chemical-specific ARARs for surface water at Parcel E. All of these standards apply to surface water; none of them apply to groundwater. Therefore, these potential surface water ARARs would be applied to the interface of A-aquifer groundwater with San Francisco Bay. These potential surface water ARARs would also be applied to surface water bodies (e.g., tidal wetlands) at Parcel E.

3.2.1.5. Air

There are no potential chemical-specific air ARARs for inhalation of VOCs from groundwater. Risks from inhalation of vapors originating in VOC-contaminated groundwater are addressed under the groundwater alternatives.

3.2.2. Potential Location-Specific ARARs

Location-specific ARARs are restrictions placed on the concentrations of hazardous substances or the conduct of activities based on site characteristics or the site's immediate environment. The Navy has identified the substantive provisions of the following potential federal and state location-specific ARARs:

- Requirements for discharge of dredged or fill material into waters of the United States in the Clean Water Act of 1977 (33 U.S.C. § 1344 and its accompanying implementing regulations in 40 CFR Part 230 and 33 CFR Part 320)
- Requirement that activities comply with approved state coastal zone programs in the Coastal Zone Management Act (16 U.S.C. §§ 1456[c][1][A] and its accompanying implementing regulations in 15 CFR Part 930)
- Enabling legislation for the San Francisco Bay Plan in McAteer-Petris Act to reduce fill and disposal of dredged material in San Francisco Bay (California Government Code §§ 66600 through 66661)
- The approved state coastal zone management plan in the San Francisco Bay Plan to reduce fill and protect the beneficial uses of the bay (Cal. Code Regs. tit. 14 §§ 10110 through 11990)
- Prohibition on the pursuit, hunting, capturing, and killing, or the attempt to take, capture or kill any migratory bird at the Migratory Bird Treaty Act of 1972 (16 U.S.C. § 703)
- Protection of American peregrine falcons, a species that is protected under California Fish and Game Code § 3511[3]
- Prohibition on the passage of enumerated substances or materials into waters of the state deleterious to fish, plant life, or birds (California Fish and Game Code §§ 5650[a], [b], and [c])
- Requirement that CERCLA remedial actions take into account the effects of remedial activities on any historic properties included on or eligible for inclusion on the National Register (§ 106 of the National Historic Preservation Act [16 U.S.C. § 470–470x-6] and its accompanying implementing regulations in 36 CFR Part 800)

[3] The Navy will implement reasonable measures to ensure adequate protection of ecological receptors during response action construction and will coordinate with the State, through CDFG-OSPR, prior to implementation of such reasonable measures. The Navy understands that the State of California reserves the right to conduct periodic site visits during removal or remedial activities to confirm implementation of avoidance measures.

3.2.3. Potential Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations for remedial activities. These requirements are triggered by the particular remedial activities conducted at the site and indicate how a selected remedial alternative should be achieved. The Navy has identified the substantive provisions of the following potential federal and state action-specific ARARs for the soil, shoreline sediment, groundwater and NAPL alternatives evaluated in this FS Report.

3.2.3.1. Potential Action-Specific ARARs for Soil and Shoreline Sediment Alternatives

Remedial alternatives evaluated for Parcel E soil and shoreline sediment include the following types of actions, as discussed in more detail in Section 4: (1) covering portions of the site with soil, concrete, asphalt, or a low-permeability geosynthetic material; (2) institutional controls; (3) shoreline protection; (4) excavation and off-site disposal; and (5) SVE. The following discussion summarizes potential ARARs for these actions.

Covers

The Navy has identified the following potential relevant and appropriate federal and state action-specific ARARs for construction of covers throughout Parcel E.

- Final cover requirement to accommodate lateral and vertical shear forces generated by the maximum credible earthquake at Cal. Code Regs. tit. 22, § 66264.310(a)(5).
- Final cover maintenance requirements and final cover run-on and runoff controls contained in Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4).
- Survey benchmark maintenance required in Cal. Code Regs. tit. 22, § 66264.310(b)(5).
- Stormwater discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4). The substantive requirements of the State's general permit for stormwater discharges (SWRCB Orders 09-09-DWQ and 10-14-DWQ) are "to be considered" in complying with the requirement to apply best management practices for stormwater discharges promulgated at 40 CFR § 122.44(k)(2) and (4).
- The requirement that public agencies comply with Cal. Code Regs. tit. 27 to the extent feasible when taking action to clean up unauthorized releases at Cal. Code Regs. tit. 27, § 20090(d)
- Permanent monument requirements at Cal. Code Regs. tit. 27, § 20950(d)
- Erosion and related damage prevention requirements at Cal. Code Regs. tit. 27, § 21090(c)(4)
- Aerial photographic survey, or alternative survey, requirements at Cal. Code Regs. tit. 27, § 21090(e)(1) and (e)(3)
- Final cover and alternative final cover standards at Cal. Code Regs. tit. 27, § 21140(a) and (b)
- Final slope requirements at Cal. Code Regs. tit. 27, § 21145(a)

- Drainage and erosion control system requirements at Cal. Code Regs. tit. 27, § 21150(a)
- Toxic control measures for airborne asbestos during construction, grading, quarrying, and surface mining operations at Cal. Code Regs. tit. 17, § 93105

In addition, the Navy has identified the following potential relevant and appropriate federal and state action-specific ARARs for construction of low-permeability covers in select areas of Parcel E.

- Compaction: Cal. Code Regs. tit. 22, § 66264.228(e)(1). This section requires that, if waste is to remain in a unit, the unit shall be compacted before any portion of the final cover is installed.
- Post-closure water entry requirement that the final cover be designed to prevent the downward entry of water into the closed landfill throughout a period of at least 100 years at Cal. Code Regs. tit. 22, § 66264.310(a)(1).
- Leachate collection and removal requirements at Cal. Code Regs. tit. 22, § 66264.310(b)(2), if needed based on results of groundwater monitoring.
- Capping permeability requirements at Cal. Code Regs. tit. 27, §§ 20320 (c) and (d).
- Erosion control requirements at Cal. Code Regs. tit. 27, §§ 20365(c) and (d).
- Post-closure requirement that the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality at Cal. Code Regs. tit. 27, §§ 20950(a).
- Foundation layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(1).
- Erosion-resistant layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(3).
- Final cover design, grading, and maintenance requirements at Cal. Code Regs. tit. 27, § 21090(b)(1)
- Emergency response requirements at Cal. Code Regs. tit. 27, § 21130.
- Site security requirements at Cal. Code Regs. tit. 27, §§ 21135(f) and (g).
- Structure removal requirements at Cal. Code Regs. tit. 27, § 21137.
- Final grading requirements at Cal. Code Regs. tit. 27, § 21142(a).
- Leachate collection and control requirements at Cal. Code Regs. tit. 27, § 21160(a) and (c).
- Postclosure requirement that the post-closure maintenance and monitoring extend for no less than 30 years following closure at Cal. Code Regs. tit. 27, § 21180(a).

Institutional Controls

The substantive provisions of the following state statutes and regulations have been accepted by the Navy as potentially relevant and appropriate state ARARs for implementing institutional controls and entering into a Covenant to Restrict Use of Property with DTSC, as specified in Appendix B (Section B4.1.2.2).

- California Civil Code § 1471. The substantive provisions of this section are potential ARARs. This section provides conditions under which land use restrictions will apply to successive owners of land.
- California Health and Safety Code § 25202.5. This section allows DTSC to enter into an agreement to restrict land uses.
- California Health and Safety Code § 25232(b)(1)(A)-(E). This section sets forth land use restrictions for hazardous waste property.
- California Health and Safety Code § 25233(c). The substantive provisions of this section for obtaining written variances from land use restrictions are identified in Section B4.1.2.2 of Appendix B and are accepted as ARARs. Procedural requirements do not qualify as ARARs.
- California Health and Safety Code § 25234. The substantive provisions of this section for removing land use restrictions are identified in Section B4.1.2.2 of Appendix B and are accepted as ARARs. Procedural requirements do not qualify as ARARs.
- California Health and Safety Code §§ 25222.1 and 25355.5(a)(1)(C). These sections provide DTSC the authority to enter into voluntary agreements with land owners to restrict use of property. The substantive provisions of this requirement are identified in Section B4.1.2.2 of Appendix B.
- 22 CCR § 67391.1. The Navy recognizes that the substantive provisions of 22 CCR § 67391.1 are state ARARs as stated in Section B4.1.2.2 of Appendix B.

EPA Region 9 agrees that the substantive portions of the State statutes and regulations referenced in this section are ARARs. EPA Region 9 specifically considers subsections (a), (b), (d), and (e) of Cal. Code Regs., tit. 22 § 67391.1, to be ARARs for this FS Report. DTSC's position is that all of the State statutes and regulations referenced in this section are ARARs.

Shoreline Protection

The potential federal and state action-specific ARARs for constructing covers are also potential ARARs for the shoreline protection evaluated in this FS Report. In addition, construction of the shoreline protection would require dredging sediment from the shoreline of the bay. The Navy has identified the following potential federal and state action-specific ARARs for the shoreline protection:

- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Temporary staging pile requirements at 40 CFR § 264.554 (d)(1)(i) through (ii), (d)(2), (e), (f), (h), (i), (j), and (k). These requirements are applicable to excavated sediment that meets the definition of RCRA hazardous waste and relevant and appropriate to excavated soil that does not meet the definition of RCRA hazardous waste.

- 33 CFR § 320.4. This section presents general policies for evaluating permit applications for proposed discharge of dredged or fill material into waters of the United States (Note: Only substantive provisions of this regulation are considered ARARs; CERCLA response actions are exempt from permit requirements pursuant to Section 121[e] of CERCLA).
- 33 CFR § 330.1(e)(3). This section identifies terms and conditions under the nationwide permit program for discharges into wetlands.
- 40 CFR § 230.10. This section describes specific restrictions on the discharge of dredged or fill material into waters of the United States.
- 40 CFR § 230.11. This section identifies the factual determinations necessary for making a finding of compliance with 40 CFR § 230.10.
- 40 CFR §§ 230.20–230.25, 230.31, 230.32, 230.41, 230.42, and 230.53. These sections identify relevant factors to consider when evaluating the potential impacts of a discharge of fill material.
- 40 CFR §§ 230.70–230.77. These sections identify potential actions to minimize adverse impacts of a discharge of fill material.
- 40 CFR § 230.93. This section identifies general requirements for compensatory mitigation to offset losses from unavoidable impacts to waters of the United States.
- 40 CFR §§ 230.94(c), 230.95, 230.96, and 230.97. These sections identify required content for mitigation plans, including ecological performance standards and monitoring/management requirements.
- San Francisco Bay Plan, Parts III and IV and Cal. Code Regs. tit 14 § 10700. The substantive provisions of the policies contained within Parts III and IV of the San Francisco Bay Plan and Cal. Code Regs. tit 14 § 10700 are potential ARARs. The subject sections pertain to protection of specific coastal resources (specifically, tidal marshes and tidal flats) and identify specific conditions under which fill material may be placed in San Francisco Bay.

The Navy has evaluated the proposed shoreline protection relative to the substantive provisions of the above requirements. This evaluation, presented in Appendix D, demonstrates that the proposed shoreline protection can be designed in a manner to comply with the substantive provisions of the above requirements. The Navy will mitigate the loss of the wetlands at Parcel E using on-site compensatory mitigation to be implemented in conjunction with the remedy for Parcel E-2 (Shaw, 2009). The final details of the plan for wetland mitigation will be included in the remedial design for Parcel E-2.

Excavation and Off-Site Disposal

The Navy has identified the following potentially applicable action-specific ARARs for excavation and preparation for off-site disposal:

- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Temporary staging pile requirements at 40 CFR § 264.554 (d)(1)(i) through (ii), (d)(2), (e), (f), (h), (i), (j), and (k). These requirements are applicable to excavated soil that meets the definition of RCRA hazardous waste and relevant and appropriate to excavated soil that does not meet the definition of RCRA hazardous waste.
- Stormwater discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4). The Navy will implement the substantive provisions of state general stormwater discharge permit, Orders 09-09-DWQ and 10-14-DWQ (adopted pursuant to Clean Water Act § 402), to comply with the federal Clean Water Act ARARs and water quality state ARARs for discharge to surface water. The federal and state ARARs require best management practices and a storm water plan to meet the substantive numeric effluent limit and action level requirements.
- The requirement to accurately characterize wastes under Cal. Code Regs. tit. 27, § 20200(c).
- The discharge requirements for designated waste to Class I or Class II waste management units at Cal. Code Regs. tit. 27 § 20210.
- The discharge requirements for nonhazardous solid to classified units at Cal. Code Regs. tit. 27, §§ 20220(b), (c), and (d).
- The requirement that source emissions not equal or exceed 20 percent opacity for a period or periods more than 3 minutes in any hour under BAAQMD Regulation 6-302.
- Toxic control measures for airborne asbestos during construction, grading, quarrying, and surface mining operations at Cal. Code Regs. tit. 17, § 93105.

Soil Vapor Extraction

Any waste generated in implementing the SVE system would be disposed of off site at an appropriate facility. The potential federal and state action-specific ARARs identified for excavation and off-site disposal of soil are potential ARARs for the waste generated in implementing the SVE system. In addition, the Navy has identified the following potentially applicable federal action-specific ARARs from the Clean Air Act for operating a SVE system:

- The requirement to use the best available control technology for new emission sources contained in BAAQMD Regulation 2-2-301
- The requirements for soil vapor extraction systems contained in BAAQMD Regulation 8-47

3.2.3.2. Potential Action-Specific ARARs for Groundwater Alternatives

Remedial alternatives evaluated for Parcel E groundwater include the following types of actions, as discussed in more detail in Section 4: (1) institutional controls; (2) groundwater monitoring and monitored natural attenuation (MNA); (3) groundwater containment; (4) in-situ treatment; and (5) air sparging. The following discussion summarizes potential ARARs for these actions.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified and briefly described in Section 3.2.3.1; ARARs for institutional controls are discussed in detail in Appendix B (Section B4.1.2.2).

Groundwater Monitoring and Monitored Natural Attenuation

The Navy has identified the substantive provisions of the following requirements as potential relevant and appropriate federal and state action-specific ARARs for groundwater monitoring and MNA:

- Constituent of concern requirements identified in Cal. Code Regs. tit. 22, § 66264.93
- Point of compliance requirements identified in Cal. Code Regs. tit. 22, § 66264.95
- The requirement to establish a sufficient number of monitoring points at Cal. Code Regs. tit. 22, § 66264.97(b)(1)(A), (b)(1)(D)(1) and (2)
- Monitoring well construction requirements at Cal. Code Regs. tit. 22, § 66264.97(b)(4), (5), (6), and (7)
- Sample collection requirements at Cal. Code Regs. tit. 22, § 66264.97(e)(6), (e)(12)(A)(3), (e)(12)(B), (e)(13), and (e)(15)
- The requirement to implement a corrective action monitoring program that demonstrates the effectiveness of the corrective action program at Cal. Code Regs. tit. 22, § 66264.100(d)
- The requirement to determine if generated waste is hazardous at Cal. Code Regs. tit. 22, §§ 66262.10(a) and 66262.11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- The requirement that public agencies comply with tit. 27 to the extent feasible when taking action to clean up unauthorized releases at Cal. Code Regs. tit. 27, §20090(d)
- The requirement to accurately characterize wastes under Cal. Code Regs. tit. 27, § 20200(c).
- The discharge requirements for designated waste to Class I or Class II waste management units at Cal. Code Regs. tit. 27 § 20210.
- The discharge requirements for nonhazardous solid to classified units at Cal. Code Regs. tit. 27, §§ 20220(b), (c), and (d).

Groundwater Containment

Groundwater containment options include a vertical slurry wall that would involve excavating a narrow trench below the water table, backfilling with a soil bentonite mixture, and disposing of the excess soil off-site. The Navy identified the following potential federal and state action-specific ARARs for this activity:

- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary staging pile requirements at 40 CFR § 264.554 (d)(1)(i) through (ii), (d)(2), (e), (f), (h), (i), (j), and (k). These requirements are applicable to excavated soil that meets the definition of RCRA hazardous waste and relevant and appropriate to excavated soil that does not meet the definition of RCRA hazardous waste.
- The requirement that source emissions not equal or exceed 20 percent opacity for a period or periods more than 3 minutes in any hour under BAAQMD Regulation 6-302.
- The requirement to accurately characterize wastes under Cal. Code Regs. tit. 27, § 20200(c).
- The discharge requirements for designated waste to Class I or Class II waste management units at Cal. Code Regs. tit. 27 § 20210.
- The discharge requirements for nonhazardous solid to classified units at Cal. Code Regs. tit. 27, §§ 20220(b), (c), and (d).
- The requirement that source emissions not equal or exceed 20 percent opacity for a period or periods more than 3 minutes in any hour under BAAQMD Regulation 6-302.
- The asbestos airborne toxics control measure for construction, grading, quarrying, and surface mining operations at Cal. Code Regs. tit. 17, § 93105.

Groundwater extraction is sometimes combined with physical barriers such as slurry walls. If deemed necessary, extracted groundwater would be collected, stored temporarily on site, characterized, treated (if necessary), and discharged to a publicly owned sanitary sewer system. These activities would comply with the substantive provisions of the following potential federal action-specific ARARs:

- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Pretreatment standards contained in 40 CFR Part 403.

In-Situ Treatment

In-situ treatment options include injection of either a biological substrate or a ZVI slurry into the subsurface. The Navy has identified the following potential federal action-specific ARAR under the Underground Injection Control Program of the SDWA for these activities.

- The prohibition against constructing, operating, maintaining, converting, plugging, abandoning, or conducting any other injection in a manner that allows movement of fluid containing any contaminant into underground sources of drinking water. This prohibition applies if the presence of the contaminant may violate any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons at 40 CFR § 144.12(a). The substantive provisions of 40 CFR § 144.12 [excluding the reporting requirements in §§ 144.12(b) and 144.12(c)(1)] are potential applicable federal action-specific ARARs.

Air Sparging

The potential federal and state ARARs identified in Section 3.2.3.1 for SVE are also potential ARARs for air sparging.

3.2.3.3. Potential Action-Specific ARARs for NAPL Alternatives

Remedial alternatives evaluated for Parcel E NAPL (at IR-03) include the following types of actions, as discussed in more detail in Section 4: (1) source containment; (2) groundwater monitoring and MNA; (3) institutional controls; (4) source removal by thermally-enhanced extraction; (5) in-situ treatment; and (6) excavation and off-site disposal. The following discussion summarizes potential ARARs for these actions.

Source Containment

A low-permeability cover is contemplated as a final closure component for IR-03 (former oil reclamation ponds). The Navy identified the substantive provisions of the following requirements as potential federal and state action-specific ARARs for the low-permeability cover at IR-03.

- Compaction: Cal. Code Regs. tit. 22, § 66264.228(e)(1). This section requires that, if waste is to remain in a unit, the unit shall be compacted before any portion of the final cover is installed.
- Post-closure water entry requirement that the final cover be designed to prevent the downward entry of water into the closed landfill throughout a period of at least 100 years at Cal. Code Regs. tit. 22, § 66264.310(a)(1).
- Final cover requirement to accommodate lateral and vertical shear forces generated by the maximum credible earthquake at Cal. Code Regs. tit. 22, § 66264.310(a)(5).
- Final cover maintenance requirements and final cover run-on and runoff controls contained in Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4).

- Leachate collection and removal requirements at Cal. Code Regs. tit. 22, § 66264.310(b)(2), if needed based on results of groundwater monitoring.
- Survey benchmark maintenance required in Cal. Code Regs. tit. 22, § 66264.310(b)(5).
- Storm water discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4).
- The requirement that public agencies comply with Cal. Code Regs. tit. 27 to the extent feasible when taking action to clean up unauthorized releases at Cal. Code Regs. tit. 27, § 20090(d).
- Capping permeability requirements at Cal. Code Regs. tit. 27, §§ 20320 (c) and (d).
- Erosion control requirements at Cal. Code Regs. tit. 27, §§ 20365(c) and (d) and 21090(c)(4).
- Post-closure requirement that the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality at Cal. Code Regs. tit. 27, §§ 20950(a).
- Permanent monument requirements at Cal. Code Regs. tit. 27, § 20950(d).
- Foundation layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(1).
- Erosion-resistant layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(3).
- Final cover design, grading, and maintenance requirements at Cal. Code Regs. tit. 27, § 21090(b)(1).
- Erosion and related damage prevention requirements at Cal. Code Regs. tit. 27, § 21090(c)(4).
- Aerial photographic survey, or alternative survey, requirements at Cal. Code Regs. tit. 27, § 21090(e)(1) and (e)(3).
- Emergency response requirements at Cal. Code Regs. tit. 27, § 21130.
- Site security requirements at Cal. Code Regs. tit. 27, §§ 21135(f) and (g).
- Structure removal: Cal. Code Regs. tit. 27, § 21137.
- Final cover and alternative final cover standards at Cal. Code Regs. tit. 27, § 21140 (a) and (b).
- Final grading requirements at Cal. Code Regs. tit. 27, § 21142(a).
- Final slope requirements at Cal. Code Regs. tit. 27, § 21145(a).
- Drainage and erosion control system requirements at Cal. Code Regs. tit. 27, § 21150(a).
- Leachate collection and control requirements at Cal. Code Regs. tit. 27, § 21160(a) and (c).
- Postclosure requirement that the post-closure maintenance and monitoring extend for no less than 30 years following closure at Cal. Code Regs. tit. 27, § 21180(a).

The groundwater containment option contemplated for IR-03 is similar to the one evaluated under the groundwater alternatives. These potential federal action-specific ARARs for groundwater containment are identified in Section 3.2.3.2.

Groundwater Monitoring and Monitored Natural Attenuation

The potential federal and state action-specific ARARs for groundwater monitoring and MNA are identified in Section 3.2.3.2.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section 3.2.3.1.

Source Removal by Thermally-enhanced NAPL Extraction

There are no potential federal ARARs for heating the subsurface to mobilize NAPL for extraction. However, the Navy has identified the following potential federal ARARs for the dual-phase (vapor and water) extraction process proposed for NAPL removal.

- The requirement to use the best available control technology for new emission sources contained in BAAQMD Regulation 2-2-301.
- The requirements for soil vapor extraction systems contained in BAAQMD Regulation 8-47.
- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Pretreatment standards contained in 40 CFR Part 403.

The potential federal and state action-specific ARARs identified for excavation and off-site disposal of soil are potential ARARs for the waste generated in implementing the thermal treatment system or NAPL removal. These potential ARARs are identified in Section 3.2.3.1.

In-Situ Treatment

The potential federal and state action-specific ARARs for in-situ treatment are identified in Section 3.2.3.2.

Excavation and Off-Site Disposal

The potential federal and state action-specific ARARs for excavation and off-site disposal are identified in Section 3.2.3.1.

3.3. ANALYSIS OF GENERAL RESPONSE ACTIONS AND PROCESS OPTIONS

GRAs are categories of actions that are made up of technologies. Multiple process options may be available for each technology. These GRAs are responses or remedies that would meet the RAOs to protect human health and the environment from known contamination at Parcel E. Process options are specific technologies used to carry out a GRA.

Section 3.3.1 describes the development of GRAs for Parcel E soil, shoreline sediment, groundwater, and NAPL. NAPL is evaluated separately to address the unique nature and extent of the NAPL (see Section 3.1.4). Section 3.3.2 presents the results of the analysis of the proposed GRAs and associated process options.

3.3.1. Development of GRAs

GRAs were developed based on professional engineering judgment and experience with response actions proven successful for the COCs at Parcel E and elsewhere at HPS. Because the RAOs were developed based on the planned future land use, the GRAs were also developed based on the planned future land use of each redevelopment block. Table 3-6 presents the GRAs and the process options for soil and shoreline sediment. Table 3-7 presents the GRAs and process options for groundwater. A separate analysis is presented for NAPL to address IR-03, the site of the former oil reclamation ponds. Table 3-8 presents the GRAs and process options for NAPL.

The following GRAs were identified to ensure that the RAOs for all media are achieved.

Soil and Shoreline Sediment

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use and access restrictions implemented through legal and administrative mechanisms (such as restrictive covenants and deed restrictions) to mitigate potential unacceptable exposure to chemicals in soil and shoreline sediment
- Engineering controls – Includes fencing, barriers, and signs to restrict access and potential unacceptable exposure to contaminated soil and shoreline sediment
- Monitoring – Includes soil gas monitoring to evaluate the potential for vapor intrusion
- Removal – Includes excavation and off-site disposal of contaminated soil and shoreline sediment
- Treatment – Includes in-situ and ex-situ treatment of soil or shoreline sediment to reduce the toxicity, mobility, and volume of chemicals
- Containment – Includes covering (1) contaminated soil to prevent direct exposure of humans through dermal contact, inhalation, or ingestion; and (2) contaminated shoreline sediment to prevent direct contact with humans or wildlife

Groundwater

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use and access restrictions implemented through legal and administrative mechanisms (such as restrictive covenants and deed restrictions) to mitigate potential unacceptable exposure to chemicals in soil gas or groundwater
- Engineering controls – Includes vapor barriers, sub-slab depressurization, and epoxy coatings to mitigate potential unacceptable vapor intrusion risk from VOCs in soil gas or groundwater
- Monitoring – Includes groundwater monitoring to assess changes in the concentrations of chemicals in groundwater
- Treatment – Includes in-situ and on-site ex-situ treatment of contaminated groundwater
- Removal – Includes pumping to remove contaminated groundwater and off-site treatment or disposal
- Containment – Includes installing (1) vertical barriers to control groundwater flow and limit migration of contaminated groundwater and (2) barriers or covers to prevent vapor intrusion or limit infiltration

NAPL (IR-03)

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use and access restrictions implemented through legal and administrative mechanisms (such as restrictive covenants and deed restrictions) to mitigate potential unacceptable exposure to contaminated media at IR-03
- Engineering controls – Includes fencing, barriers, and signs to restrict access and potential unacceptable exposure to contaminated media at IR-03
- Monitoring – Includes groundwater monitoring to assess the adequacy of remediation
- Removal – Includes pumping or excavation to remove NAPL and associated contaminated soil and groundwater for off-site treatment or disposal
- Treatment – Includes in-situ and on-site ex-situ treatment of NAPL and associated contaminated soil and groundwater
- Containment – Includes (1) installing vertical barriers to control NAPL and limit migration of contaminated groundwater and (2) covering contaminated soil to limit infiltration and prevent direct exposure of humans through the dermal contact, inhalation, and ingestion exposure pathways

3.3.2. Analysis of GRAs and Process Options

Technologies and process options for each of the GRAs selected for this FS Report underwent an initial screening. The goal of screening process options is to provide a “toolbox” of available technologies that can be applied as needed in the selected remedial alternative presented in the ROD to best achieve the

RAOs. The language in the ROD needs to be flexible enough to allow application of appropriate technologies based on results of treatability studies and other design-related studies for various sites across Parcel E.

During the initial screening, a range of technology types and process options were evaluated in terms of technical implementability, site conditions, waste characteristics, chemical properties, and the ability to meet NCP requirements and RAOs. Tables 3-6, 3-7, and 3-8 summarize the initial screening results for soil and shoreline sediment, groundwater, and NAPL, respectively. Those GRAs and process options that were carried forward from the initial screening were then analyzed with respect to effectiveness, implementability, and cost. Section 3.3.2.1 presents the analysis for the applicable process options for soil and shoreline sediment, and Section 3.3.2.2 presents the analysis for the applicable process options for groundwater. Section 3.3.2.3 presents the analysis of the applicable process options for NAPL and associated soil and groundwater. Tables 3-9, 3-10, and 3-11 summarize the results of the detailed analysis for soil and shoreline sediment, groundwater, and NAPL, respectively.

3.3.2.1. Screening and Detailed Analysis of GRAs and Process Options for Soil and Shoreline Sediment

Potentially applicable GRAs identified for soil and shoreline sediment at Parcel E consist of (1) no action, (2) institutional controls, (3) engineering controls, (4) monitoring, (5) removal, (6) treatment, and (7) containment. Table 3-6 presents the initial screening of technologies and process options for these GRAs. This table includes the various technology types, process options, and results of the screening analysis for each GRA for soil and shoreline sediment. The rationale for those options eliminated from further evaluation is presented in Table 3-6; these eliminated technologies and process options are not discussed further.

All seven GRAs were retained for further evaluation, including no action. Removal process options were considered effective and implementable for many COCs, but were not considered implementable for the ubiquitous metals that are present in fill at Parcel E at concentrations greater than PRGs. Containment process options, supplemented with institutional controls, were considered effective and implementable for the ubiquitous metals at Parcel E. Most of the technologies and process options for treatment were eliminated during the initial screening for soil and shoreline sediment at Parcel E; only SVE was retained for evaluation. Treatment is not cost effective or as implementable as removal and containment process options.

Those technologies and process options retained during the initial screening were evaluated for effectiveness, implementability, and cost, in accordance with the NCP (specifically 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988; Section 4.2.5). Table 3-9 summarizes the results of the detailed analysis. The analysis of GRAs and process options focuses primarily on soil because site-specific conditions at Parcel E (including the volume of contaminated soil and the range of chemical

concentrations exceeding PRGs) require consideration of a wide range of potential response actions. The analysis of GRAs and process options for soil gas and shoreline sediment is briefly discussed in conjunction with the soil evaluation. A more detailed analysis of soil gas GRAs and process options is not needed because the existing data indicate that the primary areas of concern are localized and can be adequately addressed through a relatively narrow range of response actions (institutional controls, engineering controls, and removal and treatment at areas with collocated soil and groundwater contamination). Similarly, site conditions along the Parcel E shoreline can be addressed through a relatively narrow range of response actions (evaluated further in Appendix D).

3.3.2.1.1. No Action

The NCP requires that the no-action option be carried through the detailed analysis of alternatives. Under the no-action option, no response action would be implemented. Soil and shoreline sediment would be left as is without implementing any institutional controls, containment, removal, treatment, or other mitigating actions. Because soil and shoreline sediment at Parcel E pose a risk to human health and the environment under the anticipated future land use scenario, the no-action option would not be effective in achieving the RAOs. No cost is associated with this option because no action is taken. The no-action option will be retained for further evaluation as a remedial alternative for comparison purposes only, as required under the NCP.

3.3.2.1.2. Institutional Controls

Institutional controls, as defined by the DoD (2001), are nonengineering measures limiting potential exposures to a site or medium of concern or ensuring that engineering measures designed to remediate a site, or limit access to a site, remain in place. Similarly, EPA defines institutional controls as "non-engineering measures designed to prevent or limit exposure to hazardous substances left in place at a site, or assure effectiveness of a selected remedy" (EPA, 2000c).

Institutional Controls in General

Institutional controls limit potential exposure to hazardous substances by restricting specified land uses and activities on the parcel. The following paragraphs discuss institutional controls that are included in the potential remedial alternatives for Parcel E, including institutional controls related to potential radionuclides and VOC vapors. Institutional controls are legal and administrative mechanisms used to implement land use restrictions that are used to limit the exposure of future landowner(s) or user(s) of the property to hazardous substances present on the property, and to ensure the integrity of the remedial action. Institutional controls are required on a property where the selected remedial cleanup levels result in contamination remaining at the property above concentrations that allow for unlimited use and unrestricted exposure. Institutional controls will be maintained until the concentrations of hazardous substances in soil and groundwater are at such levels to allow for unrestricted use and exposure.

Implementation of institutional controls includes requirements for monitoring, inspections and reporting to ensure compliance with land use or activity restrictions.

Legal mechanisms include proprietary controls such as restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and ordinances, construction permitting, or other existing land use management systems that are intended to ensure compliance with land use or activity restrictions. The ARIC for CERCLA-regulated hazardous substances, including radionuclides, is presented on Figure 3-1.

The Navy has determined that it will rely upon proprietary controls in the form of environmental restrictive covenants as provided in the "Memorandum of Agreement Between the United States Department of the Navy and the California Department of Toxic Substances Control" (hereinafter referred to as "Navy/DTSC MOA") and attached covenant models (Navy and DTSC, 2000).

More specifically, land use and activity restrictions will be incorporated into two separate legal instruments as provided in the Navy/DTSC MOA:

1. Restrictive covenants included in one or more Quitclaim Deeds from the Navy to the property recipient.
2. Restrictive covenants included in one or more "Covenant to Restrict Use of Property" entered into by the Navy and DTSC as provided in the Navy/DTSC MOA and consistent with the substantive provisions of Cal. Code Regs. tit. 22, § 67391.1.

The "Covenant(s) to Restrict Use of Property" will incorporate the land use and activity restrictions into environmental restrictive covenants that run with the land and that are enforceable by DTSC and any other signatory state entity against future transferees and users. The Quitclaim Deed(s) will include the identical land use and activity restrictions in environmental restrictive covenants that run with the land and that will be enforceable by the Navy against future transferees.

The activity restrictions in the "Covenant(s) to Restrict Use of Property" and Quitclaim Deed(s) shall be defined in the land use control remedial design (LUC RD) report that would be reviewed and approved by the FFA signatories and, if deemed necessary, implemented through the Parcel E Risk Management Plan (RMP) to be prepared by the CCSF and approved by the Navy and FFA signatories. The LUC RD report shall be referenced in the applicable Covenant to Restrict Use of Property and Deed.

In addition to being set forth in the "Covenant(s) to restrict Use of Property" and Quitclaim Deed(s) as described above, restrictions applied to specified portions of the property will be described in findings of suitability to transfer and findings of suitability for early transfer.

Access

The Deed and Covenant shall provide that the Navy and FFA signatories, where applicable, and for CDPH in radiological ARICs (Figure 3-1), and their authorized agents, employees, contractors and subcontractors shall have the right to enter upon HPS Parcel E to conduct investigations, tests, or surveys; inspect field activities; or construct, operate, and maintain any response or remedial action as required or necessary under the cleanup program, including but not limited to monitoring wells, pumping wells, treatment facilities, and cap and containment systems.

Implementation

The Navy shall address and describe implementation of institutional controls and maintenance actions, including periodic inspections and reporting requirements in the preliminary and final RD reports to be developed and submitted to the FFA signatories and CDPH in regard to radionuclides for review pursuant to the FFA (see "Navy Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions" attached to the January 16, 2004, DoD memorandum titled "Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Record of Decision (ROD) and Post-ROD Policy" [DoD, 2004]). The preliminary and final RD reports are primary documents as provided in Section 7.3 of the FFA (Navy, EPA, DTSC, and Water Board, 1991).

Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy shall retain ultimate responsibility for remedy integrity.

Activity Restrictions that Apply Throughout Parcel E

The following sections describe the institutional control objectives to be achieved through activity restrictions throughout Parcel E to ensure that any necessary measures to protect human health and the environment and the integrity of the remedy have been undertaken.

Restricted Activities

The following restricted activities throughout HPS Parcel E must be conducted in accordance with the "Covenant(s) to Restrict Use of Property," Quitclaim Deed(s), the Operation and Maintenance Plan(s), LUC RD report and, if required, the Parcel E RMP and any other work plan or document approved in accordance with these referenced documents:

- "Land disturbing activity," which includes but is not limited to (1) excavation of soil and sediment; (2) construction of roads, utilities, facilities, structures, and appurtenances of any kind; (3) demolition or removal of "hardscape" (for example, concrete roadways, parking lots, foundations, and sidewalks); (4) any activity that involves movement of soil to the surface from below the surface of the land; and (5) any other activity that causes or facilitates the movement of groundwater known to be contaminated with radioactive or nonradioactive chemicals.

- Alteration, disturbance, or removal of any component of a response or cleanup action (including but not limited to pump-and-treat facilities, and soil cap and containment systems); groundwater extraction, injection, and monitoring wells and associated piping and equipment; or associated utilities.
- Extraction of groundwater and installation of new groundwater wells.
- Removal of or damage to security features (for example, locks on monitoring wells, survey monuments, fencing, signs, or monitoring equipment and associated pipelines and appurtenances).

Prohibited Activities

The following activities are prohibited throughout Parcel E:

- Growing produce in native soil for human consumption
- Use of groundwater

Activity Restrictions Relating to Soil and Associated VOC Vapors at Specific Locations within Parcel E

Any proposed construction and occupancy of enclosed structures within the ARIC for VOC vapors (Figure 3-1) must be approved by the FFA signatories in accordance with the "Covenant to Restrict Use of the Property," Quitclaim Deed, and LUC RD to ensure that the risks of potential exposures to VOC vapors are reduced to acceptable levels that are adequately protective of human health. The ARIC for VOC vapors at Parcel E will be reevaluated as soon as practical based on the ongoing soil vapor investigation. As discussed in Section 2.3.3.2, the investigation at Parcel E is scheduled for 2014.

The reduction in potential risk can be achieved through engineering controls or other design alternatives that meet the specifications set forth in the ROD, RD reports, and LUC RD report. When construction of enclosed structures or reuse of an existing building is proposed in an ARIC for VOC vapors (Figure 3-1), the design of the vapor control system built into foundations must be approved by the FFA signatories. In addition, enclosed structures within the ARIC for VOC vapors at Parcel E shall not be occupied until the Owner has requested and obtained FFA signatory approval (through approval of a Remedial Action Completion Report or similar document) that any necessary engineering controls or design alternatives have been properly constructed and are operating successfully.

The ARIC may be modified by the FFA signatories and CDPH, if IR-02 and IR-03 are involved, as soil contamination areas and groundwater contaminant plumes that are producing unacceptable vapor inhalation risks are reduced over time or in response to further soil, vapor, and groundwater sampling and analysis for VOCs that establishes that areas now included in the ARIC do not pose unacceptable potential exposure risk to VOC vapors.

Additional Land Use Restrictions for IR-02 and IR-03 and Other Areas Designated for Open Space or Industrial Reuse

In addition to the specific activities prohibited below, IR-02 and IR-03 would be restricted to open space and recreational uses, unless written approval for other uses is granted by the FFA signatories and CDPH. In addition, the following land uses would be specifically prohibited unless written approval for such uses is granted by the FFA signatories and the CDPH in accordance with the "Covenant(s) to Restrict Use of the Property," Quitclaim Deed(s), and LUC RD report:

- A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation
- A hospital for humans
- A school for persons under 21 years of age
- A daycare facility for children

The restricted land uses identified above shall also apply to property areas in the Shipyard Shoreline Open Space District, as identified in the amended "Hunters Point Shipyard Redevelopment Plan" (SFRA, 2010c), unless written approval for such uses is granted by the FFA signatories in accordance with the "Covenant(s) to Restrict Use of the Property," Quitclaim Deed(s), and LUC RD report. Parcel E property areas within the Shipyard Shoreline Open Space District are identified as Redevelopment Blocks EOS-1, EOS-2, EOS-3, EOS-4, and EOS-5 (Figure 1-2).

In addition, land use restrictions identified above shall also apply to property areas in IR-52 (Railroad Right-of-Way; see Figure 1-2), unless written approval for such uses is granted by the FFA signatories in accordance with the "Covenant(s) to Restrict Use of the Property," Quitclaim Deed(s), and LUC RD report. The future reuse for IR-52 is predominantly light industrial, as identified in the redevelopment plan for the Bayview Hunters Point redevelopment project adjoining HPS (SFRA, 2010b).

Additional Activity Restrictions Related to Radionuclides at IR-02 and IR-03.

Exposure to radioactive chemicals in the radiological ARIC, comprising IR-02 and IR-03 (see Figure 3-1), would be prevented by three separate components: (1) an engineered cover, consisting of clean imported fill and (in some areas) a low hydraulic conductivity layer, to provide adequate shielding against residual radioactivity; (2) permeable geosynthetic fabric to serve as a "demarcation layer" between soil cover and underlying soil with residual radioactivity; and (3) institutional controls to implement land use and activity restrictions necessary to limit the exposure to radiological hazardous substances and to ensure the integrity of the remedial action.

In addition to the land use and activity restrictions specified earlier in this section, the following activity restrictions would apply in the radiological ARIC.

- Land-disturbing activities within the radiological ARIC, as defined above and including installation of water lines, storm drains, or sanitary sewers below the demarcation layer, are strictly prohibited unless approved in writing by the FFA signatories and the CDPH. Any proposed land-disturbing activity within the ARIC for radionuclides shall be required to be described in a work plan that will include but not be limited to a radiological work plan, the identification of a radiological safety specialist, a soil management plan, soil sampling and analysis requirements, and a plan for off-site disposal of any excavated radionuclides by the transferee in accordance with federal and state law. This work plan must also specify appropriate procedures for the proper identification and handling of MPPEH. This work plan must be submitted to and approved in writing by the FFA signatories and CDPH in accordance with procedures (including dispute resolution procedures) and timeframes that will be set forth in the Parcel E OMP and LUC RD report.
- Following implementation of an approved land-disturbing activity within the radiological ARIC, the integrity of the cover/cap must be restored upon completion of excavation as provided in the Parcel E OMP, LUC RD report, or similar document. A completion report describing the details of the implementation of the work plan, sampling and analysis (if required), off-site disposal (if required), and the restoration of the integrity of the cover/cap must be submitted to and approved in writing by the FFA signatories and CDPH in accordance with procedures (including dispute resolution procedures) and timeframes that will be set forth in the Parcel E OMP and LUC RD report.
- For land-disturbing activities, as defined above and including installation of water lines, storm drains, or sanitary sewers above the demarcation layer, the LUC RD report, the OMP, or, if required, the Parcel E RMP or a project-specific work plan will list the procedures for ensuring that the cover is not disturbed or breeched. The specific design of the cover shall be agreed to in the RD.

At the time of transfer, the areas that require this restriction will be surveyed to define the legal metes and bounds for inclusion in the property transfer documents. No variance or exemption from this restriction shall be allowed unless written approval is provided by the FFA signatories and CDPH. The OMP for Parcel E or LUC RD report shall address any necessary additional soil and radiological management requirements; for example, inspections, monitoring, and reporting requirements for portions of Parcel E in the radiological ARIC.

The process options related to institutional controls will be retained for development and evaluation of remedial alternatives.

3.3.2.1.3. Engineering Controls

Engineering controls are physical mechanisms that serve to restrict access and potential exposure to contaminated media. Process options include physical barriers such as fences and informational devices such as warning signs. Fences can be installed around the perimeter of the site to restrict public access. Signs warning of the presence and potential danger of hazardous materials can be posted to further mitigate exposure to contaminated media. Fencing and signs can be effective in controlling potential exposure to hazardous materials during implementation of remedial actions; however, their long-term use

as part of a remedy must be aligned with the planned reuse. For example, fencing that restricts public access would conflict with the planned open space reuse of portions of Parcel E. In open space areas, fences would not be used as a permanent component of remedies because their use would conflict with the planned reuse. In areas planned for other reuses, fencing would not be used if another component of the remedy (for example, an asphalt cover) adequately prevented exposure to the contaminated media. Signs would be an effective component to remedial alternatives that leave contaminated material in place.

The process options related to engineering controls will be retained for development and evaluation of remedial alternatives.

3.3.2.1.4. Monitoring

Under CERCLA, site monitoring is a required component for any site remedy. Short-term monitoring is conducted to ensure that potential risks to human health and the environment are controlled while a site remedy is being implemented. Long-term monitoring can be used to track site chemicals following a remedial action or to ensure that hazardous chemicals left in place are not migrating off site at concentrations that might affect humans or the environment.

As discussed above, soil gas monitoring will be used to determine whether vapor intrusion risks from VOCs have been adequately reduced so that the ARIC may be modified. Future soil gas monitoring will be performed to evaluate the potential for vapor intrusion and assess the need for further monitoring, remediation, or institutional controls.

The process options related to monitoring will be retained for development and evaluation of remedial alternatives.

3.3.2.1.5. Removal

As identified in Table 3-6, excavation and off-site treatment and disposal is the primary process option for the removal GRA. The following paragraphs evaluate the excavation and off-site treatment and disposal process option relative to effectiveness, implementability, and cost.

Consistent with EPA RI/FS guidance (EPA, 1988), the evaluation of process options should focus primarily on the following factors relating to effectiveness:

- The potential effectiveness of the process option in handling the estimated areas and volumes of contaminated media and meeting the PRGs identified in the RAOs.
- The potential impacts to human health and the environment during the construction and implementation phase.
- The degree to which the process option is proven and reliable in addressing the site-specific contaminants and conditions.

Excavation and off-site treatment and disposal is an effective option for all contaminant groups associated with soil at Parcel E, and has been successfully implemented during interim cleanup actions at Parcel E. In addition, excavation and off-site treatment and disposal is an effective option for steam and fuel lines (IR-45 and IR-47, respectively) within Parcel E; the steam and fuel lines are addressed in the removal GRA for soil. Some pretreatment such as stabilization may be required or preferred to meet land disposal restrictions so that the most economical disposal option can be applied. Important considerations with the excavation and disposal technologies include excavation volume, fugitive emissions, hauling distance, and type of treatment and disposal facility for final deposition. The excavation cleanup criteria would be specific to the reuse type and chemical-specific PRGs presented in Sections 3.1.1.3 and 3.1.2.3.

The estimated areas and volumes requiring excavation and off-site treatment and disposal is potentially very large considering the history of HPS and the nature and extent of contamination. Most of the near-surface soil at Parcel E is fill that was placed at the parcel. As described in Section 2.2.6.1, studies have shown that metals (arsenic, nickel, manganese, and others) are present at elevated concentrations in the local bedrock that was used for fill across HPS (ITSI et al., 2004). The Navy acknowledges that industrial sources for metals exist, and that some concentrations of metals have sources other than naturally occurring bedrock. However, with a few exceptions, the widespread distribution of these ubiquitous metals remaining in soil is consistent with the concentrations present in native bedrock. The following paragraphs estimate the areas and volumes that would potentially require excavation and off-site treatment and disposal to address the PRGs identified in the RAOs, and discuss the potential effectiveness and reliability of excavation and off-site treatment and disposal in addressing the estimated areas and volumes.

Excavation of ubiquitous metals, along with other chemical contamination exceeding PRGs that may be present over large portions of Parcel E, could involve excavating most of Parcel E to 10 feet bgs (or to 2 feet bgs in the open space areas or to the top of the bedrock surface where the depth to bedrock is less than 10 feet). The estimated excavation volume would be about 1,300,000 cubic yards (72 acres of open space areas excavated to 2 feet bgs; 66 acres of non-open space areas excavated to 10 feet bgs). Experience from removal actions in Parcels E and E-2 has provided useful information for evaluating potential waste excavation, including field production rates, types of wastes encountered, and level of effort to implement site-specific requirements (e.g., the requirement to screen material excavated in Parcel E for radioactivity). However, the contemplated excavation volume is over 11 times the total volume of material removed at the four removal action areas at Parcels E and E-2 (113,400 cubic yards removed from the Metal Slag Area, PCB Hotspot Area, IR-02 Northwest and Central Removal Action Area, and Metal Debris Reef).

Excavation of such large volumes is possible but the overall effectiveness and reliability of such an option is complicated because of the following factors:

- Radiological screening, characterization, and confirmation sampling of all soils and debris transported from the site (for disposal and treatment) and to the site (for backfill and restoration)
- Locating and importing multiple, large-volume sources of backfill material that are free of contamination and do not contain metals concentrations in excess of existing ambient levels
- Groundwater inflow control for excavation below the water table
- Controls required to minimize, manage, treat (if necessary), and dispose of contaminated water during excavation and waste segregation processes
- Control of potential releases of chemicals from waste and soil during removal and transport through the surrounding neighborhood

In addition, this excavation scenario would likely require multiple years of continuous construction to complete, and the resulting traffic, noise, and emissions from heavy equipment operation would affect the local population. These challenges directly correspond to the high projected costs. The primary factors that result in the high costs of excavation and disposal are:

- Large volume of soil and shoreline sediment to be excavated and disposed of off site
- Large volume of soil and shoreline sediment to be screened for radiological contamination, sampled for characterization, and transported and treated or disposed of off site
- Large volume of imported clean fill required for backfill to restore the site

Overall, the potentially poor short-term effectiveness, implementation challenges, and high cost of excavating most of the soil at Parcel E do not offset the long-term effectiveness of such an action. Therefore, using the framework established in EPA guidance (EPA, 1988) and the NCP (55 Federal Register 8849, March 8, 1990), excavation is not a feasible option (effective or implementable) to address removal of ubiquitous metals at concentrations exceeding PRGs. Because excavation of ubiquitous metals at Parcel E is not feasible, other process options must be identified that can prevent exposure of humans and wildlife to ubiquitous metals concentrations in soil that exceed PRGs. Institutional controls and covers can be implemented throughout Parcel E, as described in Sections 3.3.2.1.2 and 3.3.2.1.7, to effectively prevent exposure of humans and wildlife to COCs in soil at concentrations exceeding PRGs. If institutional controls and covers are implemented throughout Parcel E, then excavation would not be required to prevent exposure to relatively low concentrations of COCs exceeding PRGs (with an associated risk that falls within the risk management range [i.e., 10-4 to 10-6] specified in the NCP). Rather, excavation would focus on removing higher concentrations of COCs that pose a more substantial risk to humans and wildlife.

As a result, excavation options evaluated in this FS Report will focus on removing (1) COCs at concentrations significantly exceeding PRGs (by either 5 or 10 times) and (2) COCs indicative of a source to groundwater contamination that may pose a risk to humans or wildlife. A focused excavation process

would reduce COC concentrations so that remaining incremental risk is within the risk management range (i.e., 10-4 to 10-6) specified in the NCP. Other process options (such as, institutional controls or engineered covers) would address the exposure pathway for any remaining low-level organic chemical concentrations exceeding PRGs, consistent with NCP, 40 CFR § 300.430 (a)(1)(iii)(B). The NCP states that containment technologies are likely to be appropriate for sites with relatively low-level threats or where treatment is impractical.

Proposed excavations are presented in Section 4.2.3. Costs for the excavation process option would be high. The excavation technology is retained for development and evaluation of remedial alternatives.

3.3.2.1.6. Treatment

Treatment processes directly reduce the toxicity, mobility, or volume of chemicals. As identified in Table 3-6, SVE is the only treatment technology for soil that was retained following an initial screening; Table 3-6 identifies other treatment technologies for soil and explains why such technologies were not retained for a more detailed evaluation. SVE is widely recognized as an effective technology for removal of VOCs from unsaturated soil. Results of pilot tests of SVE at HPS have shown that this technology is implementable and of moderate cost. Results of pilot testing of SVE at Building 406 in Parcel E have shown this technology to be effective for reducing the mass of VOCs in soil (IT Corporation, 2002). SVE will likely be effective at addressing residual concentrations of VOCs in soil and soil vapor following or in conjunction with groundwater remediation. Air sparging may be used to enhance the removal of VOCs in soil and in groundwater, where the need for SVE and remediation of VOCs in groundwater overlap. Treatment of extracted VOCs, using granular activated carbon (GAC) or a permanganate-impregnated zeolite (for vinyl chloride), is also a proven technology that can be implemented. Implementation and operation costs of an SVE system are considered moderate. Further soil vapor studies, such as passive soil gas sampling, would be performed prior to the RD. The studies would form the basis for determining the areas where SVE treatment would be used. The SVE process option is retained for development and evaluation of remedial alternatives.

3.3.2.1.7. Containment

Containment processes are intended to isolate contaminated soil to prevent direct exposure to and migration of chemicals.

Covers

Surface covers are the most appropriate containment process options for soil at Parcel E. Cover materials used to prevent direct exposure may include clean soil, asphalt, concrete, or an engineered cover. Engineered covers typically consist of a combination of soil and synthetic materials (geosynthetic liners) that create a low-permeability barrier that limits surface infiltration, thereby minimizing migration of

chemicals in the soil to the underlying groundwater. The material to be used will depend on the planned reuse associated with each redevelopment block.

General considerations for implementing covers include:

- Existing asphalt and concrete surfaces and buildings would be considered existing covers so long as they block the exposure pathway from soil to the potential surface receptors (humans). Existing asphalt could be rehabilitated with an asphalt seal coat, and concrete surfaces and building floors could be patched, so long as the patches and seals adequately block the pathway. Rehabilitation of existing covers would be designed to meet the same minimum requirements as new covers.
- Where covers are needed, areas would be covered with a durable material that would be maintained to minimize breakage, erosion, or deterioration such that the underlying soil becomes exposed. Standard construction practices for roads, sidewalks, and buildings would likely be adequate to meet this performance standard. Other examples of covers could include a minimum 4 inches of asphalt (or 2 inches of asphalt over a 4- to 6-inch base), a minimum 2 feet of clean imported soil, or other engineered cover design. All covers must achieve a full cover over the entire area designated as requiring cover. The exact nature and specifications for covers could vary from block to block, but all covers must meet the performance standard of preventing exposure to soil and being durable. The cover design, including details on how the cover will be finished at the seawall at the southeast portion of Parcel E (see Figure 1-2), will be provided in the RD. Table 3-12 summarizes the types of covers evaluated as remedial technologies and the associated performance standards that apply to the individual types of covers. The performance standards for covers are adequately specified in the ARARs described in Section 3.2.3.1, and would not be altered in the RD.
- Engineered covers would be used in areas where COCs in soil are a source to groundwater contamination that may pose a risk to humans or wildlife. The performance standards would be developed in the RD but would be based on the goal of limiting infiltration through the unsaturated zone to minimize generation of contaminated groundwater. For evaluation purposes in this FS Report, two engineered cover options were retained (a reinforced geosynthetic clay liner [GCL] and high-density polyethylene [HDPE] geomembrane); these options would be adequate to limit infiltration and minimize generation of contaminated groundwater. Both of these cover options will also include and underlying soil foundation layer and overlying soil vegetative cover.
- Drainage for asphalt and concrete covers would be consistent with the adjacent existing covers. Drainage for soil covers would be engineered to minimize erosion and prevent standing water.
- All existing or newly installed covers would need to be maintained. The ROD will include language concerning cover maintenance and integrity. The language will reference the land use or activity restrictions that control human intrusions of the cover through periodic inspections and reporting to the FFA signatories and CDPH (for activities within the radiological ARIC). Maintenance includes inspections and repairs for covers that are left in place during future land use. If the future land use requires excavation or demolition of the covers during construction, equivalent barriers would need to be installed in exposed areas. Any modification of existing hardscape would be subject to the institutional controls described in Section 3.3.2.1.2.

- Where needed, covers would be maintained to laterally contain the soil up to the seawalls (see Figure 1-2). The RD will include plans for a performance standard for completion near the seawalls, as well as inspection, maintenance, and identification of problems.
- Sampling requirements associated with disturbance of covers will be in accordance with the OMP and will be subject to the review and approval of the FFA signatories and CDPH (for activities within the radiological ARIC).

The technology of covers and the process options of asphalt, soil, and engineered covers are effective, so long as the covers are properly installed and maintained and are replaced after excavation or demolition during redevelopment. The implementability and cost of covers are expected to be moderate because they are already in place at most of the redevelopment blocks at Parcel E.

The process option of soil and asphalt covers and engineered alternative covers is retained for development and evaluation of remedial alternatives.

Shoreline Protection Technologies and Process Options

Shoreline protection works are used to retain or rebuild natural systems (such as cliffs, dunes, wetlands, and beaches) or to protect manmade structures (such as buildings, infrastructure, engineered berms, etc.) landward of the shoreline. In the case of Parcel E, shoreline protection is necessary to help control migration or erosion of contaminated shoreline sediments, and to help prevent exposure of wildlife to contaminated shoreline sediments.

Appendix D evaluates various shoreline protection options that could be implemented at the Parcel E shoreline in conjunction with options that address onshore soil. The evaluation consists of (1) an initial screening of various shoreline protection options, (2) a detailed evaluation of the retained options and identification of the most viable options, and (3) a regulatory analysis of the most viable options relative to the pertinent location- and action-specific ARARs identified in Sections 3.2.2 and 3.2.3. Appendix D evaluates three shoreline protection options in detail relative to their effectiveness, implementability, and cost, in accordance with the NCP (specifically Title 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988, Chapter 4.2.5). The conclusions of the detailed evaluation are summarized below.

- Armoring: Rock revetment – The armoring (rock revetment option) would provide a robust containment system that is readily implementable and is the most cost-effective of the three shoreline protection options; however, this option limits pedestrian access and shoreline recreation and may not be considered aesthetically pleasing by site users.
- Hybrid Shoreline Stabilization: Natural shoreline materials with an offshore reef – This is not a reliable option to control erosion and prevent exposure to contaminated sediments. Although this option would provide habitat for aquatic wildlife and would be visually appealing to future users of the shoreline, it would also limit shoreline recreation, pose significant implementation challenges, and have a high cost compared with the other shoreline protection options.

- Hybrid Shoreline Stabilization: Natural shoreline materials with underlying rock armor – This option would provide an effective and reliable containment system that is readily implementable and would not limit pedestrian access or shoreline recreation; however, this option requires potentially significant long-term operation and maintenance (O&M) and has a moderate cost compared with the other shoreline protection options.

Based on the evaluation presented in Appendix D, the most viable shoreline protection options for the Parcel E shoreline are armoring (rock revetment) and hybrid stabilization using natural shoreline materials with underlying rock armor. The hybrid stabilization option using natural shoreline materials with an offshore reef will not be carried forward to the detailed evaluation of remedial alternatives primarily because it would not reliably control erosion and prevent exposure to contaminated sediments; this option would also limit shoreline recreation and pose significant implementation challenges. However, the Navy encourages the CCSF to evaluate the offshore reef as a non-CERCLA post-transfer project and coordinate with appropriate regulatory agencies. The Navy will continue to work closely with CCSF and other stakeholders to align the remedial alternatives for Parcel E with CCSF's redevelopment project to the maximum extent practical.

The armoring (rock revetment) option is the most appropriate approach for protecting the steep and narrow shoreline areas. Steep and narrow areas of the intertidal shoreline zone are predominately narrow (most of the area is 50 feet wide or less) with predominately steep slopes (1 foot of vertical rise for each 3 feet of horizontal distance [1V:3H]). The hybrid stabilization option using natural shoreline materials with underlying rock armor is the most appropriate approach for protecting the gradually sloped and wide shoreline areas. Gradually sloped and wide areas of the intertidal shoreline zone are predominately wide (most of the area is greater than 50 feet wide) with predominately gradual slopes (less than 1V:3H, with many portions close to 1V:10H). These two options are retained for further analysis because they are anticipated to have a reasonable cost and effectively achieve the RAOs for shoreline sediment (described in Section 3.1.2.3).

3.3.2.2. Screening and Detailed Analysis of GRAs and Process Options for Groundwater

Potentially applicable GRAs identified for groundwater at Parcel E consist of (1) no action, (2) institutional controls, (3) engineering controls, (4) monitoring, (5) treatment, (6) removal, and (7) containment. Table 3-7 presents the initial screening of process options for the remedial technology types for the groundwater GRAs. This table presents the various technology types, process options, and results of the screening analysis for each groundwater process option. The rationale for those technologies and process options eliminated from further evaluation is presented in Table 3-7; these technologies and options are not discussed further.

Those process options retained during the initial screening are evaluated for effectiveness, implementability, and cost and are discussed in this section. Table 3-10 summarizes the results of the detailed evaluation.

3.3.2.2.1. No Action

The NCP requires that the no-action option be carried through the detailed analysis of alternatives. Under the no-action option, no response action is taken. Groundwater would be left as is without implementation of any institutional controls, containment, removal, monitoring, treatment, or other mitigating actions. Groundwater at Parcel E poses a risk to human health and the environment based on the current HHRA and ERA. Therefore, the no-action option would not be effective in achieving the RAOs.

No cost is associated with this option because no action is taken. The no-action option is retained for further evaluation as a remedial alternative for comparison only, as required under the NCP.

3.3.2.2.2. Institutional Controls

As discussed in Section 3.3.2.1.2, the Navy will use institutional controls that limit potential exposure to hazardous substances by restricting specified land uses and activities on the parcel. Land use and activity restrictions, including restricted land uses, restricted activities, and prohibited activities are discussed under the evaluation of soil process options in Section 3.3.2.1.2.

The process options related to institutional controls are retained for development and evaluation of remedial alternatives.

3.3.2.2.3. Engineering Controls

Vapor barriers are engineering controls that can be used to mitigate potential vapor intrusion risk from VOCs in soil gas or groundwater. Sub-slab depressurization and epoxy coatings were identified as two process options that are potentially applicable for Parcel E. Sub-slab depressurization involves a system of vapor collection wells installed below the building, with blowers to maintain a negative pressure gradient and prevent vapor intrusion. Epoxy coatings are used on the floor of the building to seal and provide a physical barrier to vapor migration. Vapor barriers are easy to implement, effective, and low cost. These process options are adequate to develop and evaluate the remedial alternatives for Parcel E. Additional vapor barrier options may be evaluated during the RD; however, any alternate vapor barrier would need to satisfy the RAOs.

3.3.2.2.4. Monitoring

Monitoring is an effective technology for assessing changes in the concentrations of chemicals in groundwater. Groundwater monitoring can detect potential increases in concentrations or migration of

chemicals that could increase the risk of exposure of humans or marine organisms in San Francisco Bay. Based on the contaminant levels at Parcel E, long-term groundwater monitoring would likely be necessary, depending on the effectiveness of the remedial alternative. The groundwater monitoring parameters will be determined in the RD. Focused sampling at wells or areas where water quality criteria have been exceeded will be evaluated at that time. Monitoring would occur in all water-bearing zones where chemicals have been reported at concentrations that may pose a risk to humans or wildlife. The monitoring option would be easy to implement at moderate cost. The long-term groundwater monitoring process option is retained for development and evaluation of remedial alternatives.

3.3.2.2.5. Treatment

A-aquifer groundwater at Parcel E contains COCs at concentrations exceeding PRGs. Based on the HHRA, VOCs in A-aquifer groundwater pose risk to human health; the exposure pathway is from vapor intrusion into indoor air. Additionally, metals (copper, lead, nickel, and zinc), PCBs (Aroclor-1254, Aroclor-1260), pesticides (4,4'-DDE, alpha-chlordane), and TPH are also COECs in groundwater that may migrate and discharge to San Francisco Bay at concentrations high enough to affect aquatic wildlife.

Passive Treatment Methods

MNA is a passive treatment method that monitors natural processes and the resulting reduction in chemical concentrations in groundwater.

This process option involves natural subsurface processes such as dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials that are allowed to reduce chemical concentrations to acceptable levels. Consideration of this option usually requires modeling and evaluation of chemical degradation rates and pathways and predicting chemical concentrations at downgradient receptor points, especially in cases where the plume is still expanding and migrating. The primary objective of site modeling is to demonstrate that natural processes of chemical degradation will reduce chemical concentrations to below regulatory standards or RBCs before potential exposure pathways are completed. In addition, long-term monitoring must be conducted throughout the process to confirm that degradation is proceeding at rates consistent with achieving the RAOs.

The following factors may limit the applicability and effectiveness of MNA:

- Extensive amounts of data must be collected and analyzed to determine plume behavior
- MNA should be used only where there are no effects on potential receptors
- Subsurface conditions may not be conducive to MNA for COCs

MNA would not be sufficiently effective as a single response action to achieve the RAOs. However, if institutional controls are implemented and other response actions are undertaken to reduce contamination in the source area, MNA would likely be an effective tool for managing residual contamination.

Extensive guidance is available in support of the MNA approach and extensive field testing demonstrates its effectiveness (EPA, 1999b). MNA may be appropriate following remediation of source areas. MNA is retained for development and evaluation of remedial alternatives.

In-Situ Physical Groundwater Treatment

In-situ physical treatment process options for Parcel E groundwater include air sparging and pneumatic fracturing. Both of these processes are intended for use in conjunction with other processes as a part of an integrated remedial alternative. Each process option is discussed below.

Air Sparging with SVE

In areas where VOCs are present in groundwater at concentrations requiring action and SVE is proposed as a soil remedy, air sparging may also be implemented to promote accelerated vapor extraction, as well as to enhance removal of VOCs from groundwater. Air sparging is an in situ remedial technology that reduces concentrations of volatile constituents in petroleum products that are adsorbed to soils and dissolved in groundwater. This technology involves the injection of air into the saturated zone, enabling a phase transfer of hydrocarbons from a liquid to a vapor phase. The vapor plume is then vented through the unsaturated zone. When air sparging is combined with SVE, the SVE system creates a negative pressure in the unsaturated zone through a series of extraction wells to control the vapor plume migration.

Air sparging is generally more applicable to the lighter gasoline constituents (i.e., benzene, ethylbenzene, toluene, and xylene), because they readily transfer from the dissolved to the gaseous phase. The SVE approach is also discussed in the evaluation in Section 3.3.2.1. The air sparging treatment process option reduces the toxicity, mobility, and volume of hazardous substances in groundwater and satisfies the RAOs.

Pneumatic Fracturing

In-situ treatment methods often require injection of substrate or solutions into the subsurface. To achieve treatment, the injected solutions must come into contact with COCs in groundwater. Common factors that prevent the even distribution of injected solutions include preferential flow paths and low-permeability zones. In areas where these factors may be present, air or water may be injected into the subsurface, prior to injecting the treatment solution, to fracture the subsurface, creating cracks in low-permeability zones. These fractures enhance the distribution of the treatment solutions and associated treatment efficiency.

In-Situ Biological Groundwater Treatment

The retained in-situ biological treatment technologies consist of aerobic and anaerobic treatment.

In-Situ Aerobic and Anaerobic Treatment

In-situ biological treatment technology consists of aerobic and anaerobic reaction process options in the aquifer that degrade the dissolved-phase organic chemicals to less toxic compounds. These in-situ

processes tend to be more economical than ex-situ processes because no removal or handling of groundwater is required for these methods. In-situ biodegradation is generally implemented by injecting into the contaminant plume a nutrient substrate that may be infused with microorganisms specific for degrading COCs. This process option may also be implemented by injecting only a nutrient substrate to enhance the growth of naturally occurring microorganisms.

Under both aerobic and anaerobic process options, the microorganisms metabolize and mineralize the COCs into less toxic byproducts. Some organisms degrade specific compounds anaerobically, while others degrade compounds aerobically. For example, anaerobic conditions are best for degrading chlorinated compounds (such as PCE and TCE); this is also known as reductive dechlorination. Anaerobic degradation effectiveness diminishes when compounds are degraded to vinyl chloride. Therefore, monitoring would be needed to evaluate whether aerobic in-situ biological groundwater treatment would be needed to treat vinyl chloride or any other residual chemicals better treated by aerobic in-situ biological groundwater treatments In-situ biological groundwater treatment is not effective for extremely high concentrations or NAPL; however, these processes would be effective for moderate concentrations of VOCs found at Parcel E, assuming the optimal species and nutrients are applied.

A GWTS at Parcel C demonstrated that native microorganisms present in the A-aquifer are capable of degrading VOCs using anaerobic processes (Shaw, 2005). This study also demonstrated that aerobic bioremediation is effective for fuel-related products such as naphthalene and for chlorobenzenes, as well as for less-chlorinated VOCs (such as vinyl chloride) (Shaw, 2005). Oxygen sparging or introduction of a proprietary substrate such as oxygen release compounds could be used to generate aerobic conditions.

Although it is not effective in treating most metals in groundwater, in-situ biodegradation is an effective treatment option for VOCs and SVOCs. Additionally, the mobility of metals may be decreased following in-situ biodegradation treatment, as a byproduct of the induced reductive groundwater conditions.

The in-situ biological treatment process option reduces the toxicity, mobility, and volume of hazardous substances in groundwater and satisfies the RAOs. The in-situ biological groundwater treatment process option is a standard and proven technology that is easily implemented; however, the number of chemicals and possibility of encountering pockets of NAPL at Parcel E will likely drive costs higher than they would be at a site with a less complex contaminant distribution.

The other major challenge to the in-situ biological groundwater treatment technology is achieving effective mass transfer of the substrate throughout the treatment zone. Because the subsurface at Parcel E is primarily fill material, the site has inherent preferential pathways and variable densities. The fill is not a uniform material that allows for reliable prediction of permeability and flow paths. To effectively inject substrate throughout the treatment zone, targeted hydraulic fracturing could be used to create pathways. Where that is ineffective, treatment could be accomplished by extracting groundwater, performing ex-situ

mixing of the groundwater and in-situ bioremediation (ISB)-enhancing products, and reinjecting the groundwater into the subsurface. The aerobic and anaerobic bioremediation process options are retained for development and evaluation of remedial alternatives for groundwater.

In-Situ Chemical Groundwater Treatment

In-situ chemical groundwater treatment technology consists of oxidation and reduction reaction process options in the aquifer to degrade dissolved-phase chemicals to less toxic compounds or to precipitate chemicals within the aquifer. As with in-situ biological remediation, no removal or handling of groundwater is required. This factor tends to make in-situ processes more economical than ex-situ processes. The paragraphs below describe the retained in-situ chemical groundwater treatment technology for Parcel E.

In-Situ Chemical Reduction (ZVI Injection)

A reduction reaction is generally most appropriate for chlorinated compounds and, to some degree, for metals; therefore, a reduction reaction would be most effective for VOCs present in groundwater at Parcel E. Chemical degradation through injection of reduction reagents is generally initiated by injecting reactive chemicals, such as ZVI or other compounds, to create a reduced condition in the aquifer. The injected reagents chemically degrade the chemicals into less toxic byproducts by dechlorinating the VOCs. These reactions usually stimulate biodegradation by naturally occurring microorganisms that further enhances the degradation of VOCs. This type of reaction is effective for the VOCs found at Parcel E and would be effective at reducing both high and low concentrations of these chemicals in groundwater. Mobility of metals is likely to decrease by precipitation due to reducing conditions.

The in-situ groundwater ZVI treatment process option reduces the toxicity, mobility, and volume of hazardous substances in groundwater and satisfies the RAOs. This treatment process option is fairly easy to implement as a standard, proven technology. ZVI is implementable at moderate to high costs, depending on the type of additives used, the volume of additive needed, and the number of inoculations. As with bioremediation, achieving effective mass transfer of ZVI throughout the treatment zone is a key factor in the successful implementation of this technology. The in-situ chemical reduction reaction process option is retained for development and evaluation of remedial alternatives.

3.3.2.2.6. Removal

No groundwater extraction (removal) process options were retained, as described in Table 3-7. Groundwater extraction is typically combined with some form of ex-situ treatment. The most common form of removal is a pump-and-treat system. Pump and treat was eliminated because it is generally not a cost-effective approach for the site conditions at Parcel E (relatively low-level groundwater contamination in heterogeneous soil).

3.3.2.2.7. Containment

Containment actions include technologies that isolate contaminated media from humans and wildlife. These actions isolate the chemical's source, preventing migration to downgradient groundwater or receptors (humans and wildlife); containment actions may also address migration of chemicals in vapor from the subsurface into buildings.

Technologies for groundwater containment include physical barriers (such as slurry or sheet-pile walls) and hydraulic barriers (such as groundwater flow diversion structures or extraction wells). Depending on the chemical concentrations present, groundwater collected with hydraulic barriers can be disposed of off site, discharged to the surface, discharged to a publicly owned treatment works (POTW) facility for additional treatment, or reinjected into the ground after treatment.

Physical barriers are effective at containing NAPL and groundwater contamination. Using physical barriers such as slurry or sheet-pile walls, the hydraulic gradient will decrease and consequently increase the residence time during which chemical concentrations would be reduced through physical, chemical, and biological processes. Implementation of this process could involve installing a slurry or sheet-pile wall at the IR-02 Northwest metals plume and at IR-03 (discussed in Section 3.3.2.3 below). Costs for the physical barrier are moderate to high.

Physical and hydraulic barriers (such as slurry and sheet-pile walls with groundwater extraction wells, if necessary) are retained for further consideration to reduce migration of chemicals in groundwater at the IR-02 Northwest metals plume and at IR-03.

3.3.2.3. Screening and Detailed Analysis of GRAs and Process Options for NAPL at IR-03

The nature and extent of NAPL at IR-03, as summarized in Section 2.3.1, pose challenges to the successful implementation of remedial technologies. Specifically, the presence of NAPL in numerous wells at IR-03 illustrates the presence of a significant source of contamination over a large area and range of depths (Figure 2-7). The available information suggests that very large volumes will need to be addressed by the remedial technologies. In addition, the thick, viscous nature of NAPL may limit the effectiveness of many remedial technologies, and may warrant consideration of multiple technologies used in combination.

As discussed in Section 2.3.1, the Navy performed additional characterization of NAPL at IR-03 in September and October 2011, along with a subsequent bench-scale treatability study, in accordance with a work plan that was approved by the regulatory agencies (ITSI, 2011). The Navy is preparing a report, concurrent with the final version of this FS Report, summarizing the results of the additional characterization and the bench-scale treatability study. The Navy expects that the additional characterization and bench-scale testing will help refine the NAPL remediation approach at IR-03. For example, the additional characterization will refine the nature and extent of NAPL at IR-03, and thereby

help refine the approach for future source removal and treatment. In addition, the bench-scale testing will provide information regarding the effectiveness of thermally-enhanced NAPL extraction; preliminary results indicate that the site conditions at IR-03 may not be conducive to performing thermally-enhanced NAPL extraction in a cost-effective manner. Once the findings of the study are reviewed, the Navy will consult with the regulatory agencies to determine whether additional characterization or a pilot-scale treatability study is necessary to refine the remediation approach at IR-03. For the purposes of this FS Report, the Navy believes that there is adequate information to support an evaluation of the NAPL remediation technologies and process options. The goal of this evaluation is to identify a suitable range of technology types and process options that could be used in combination to cost-effectively achieve the NAPL RAOs identified in Section 3.1.4.

Potentially applicable GRAs identified for NAPL at IR-03 are (1) no action, (2) institutional controls, (3) engineering controls, (4) monitoring, (5) removal, (6) treatment, and (7) containment. Table 3-8 shows the initial screening of process options for the remedial technology types for the GRAs for NAPL. The table presents the various technology types, process options, and results of the screening analysis for each NAPL process option.

The technologies and process options retained during the initial screening were evaluated for effectiveness, implementability, and cost and are discussed in the sections below. Table 3-11 summarizes the results of the detailed evaluation. Additionally, Table 3-11 addresses associated soil and groundwater remediation technologies and processes needed to clean up IR-03. The analysis below describes the soil and groundwater process options, referring to prior discussions of GRA elements in the soil and shoreline sediment and groundwater sections (3.3.2.1 and 3.3.2.2), as appropriate.

3.3.2.3.1. No Action

The NCP requires that the no-action option be carried through the detailed analysis of alternatives. See the prior no-action discussions for soil and shoreline sediment and groundwater in Sections 3.3.2.1.1 and 3.3.2.2.1. No cost is associated with this option because no action is taken. The no-action option is retained for further evaluation as a remedial alternative for comparison only, as required under the NCP.

3.3.2.3.2. Institutional Controls

As discussed in Section 3.3.2.1.2, the Navy will use institutional controls that limit potential exposure to hazardous substances by restricting specified land uses and activities on the parcel. Land use and activity restrictions, including restricted land uses, restricted activities, and prohibited activities are discussed under the evaluation of soil process options in Section 3.3.2.1.2. The institutional controls will be implemented at IR-03 in a manner consistent with those institutional controls implemented throughout the remainder of Parcel E, as appropriate.

The process options related to institutional controls are retained for development and evaluation of remedial alternatives.

3.3.2.3.3. Engineering Controls

As described earlier (Sections 3.3.2.1.3), engineering controls are physical mechanisms that serve to restrict access and potential exposure to contaminated media. The fencing and warning signs may apply at IR-03, but the long-term use of fencing for IR-03 would conflict with the planned open space reuse. For this reason, only temporary fencing would be used at IR-03, during implementation of the remedial action.

3.3.2.3.4. Monitoring

Groundwater monitoring for IR-03 is a baseline requirement to assess the adequacy of remediation regardless of the remedial alternative selected, similar to other areas in Parcel E. Monitoring elements discussed in Section 3.3.2.2.4 are applicable to IR-03.

3.3.2.3.5. Removal

Technologies used to address free-phase NAPL generally use some form of extraction or excavation to remove the NAPL source. Removal of a NAPL source, to the maximum extent practicable, is consistent with Water Board guidance for closure of low-risk fuel sites in the San Francisco Bay Region (Water Board, 1996). This guidance is being applied to the TPH corrective action program at Parcel E (Shaw, 2009b). Because of the presence of various CERCLA-regulated hazardous substances, IR-03 is being addressed in this FS Report and not as part of the TPH corrective action program; however, the Water Board guidance is considered at IR-03 because TPH is the most prevalent constituent identified in soil and groundwater. Accordingly, NAPL removal is presumed to be the most administratively implementable GRA for IR-03. However, the site conditions at IR-03 (thick, viscous NAPL present over a large area and at varying depths) pose challenges to effectively removing NAPL from the subsurface. The following paragraphs discuss potential extraction and excavation technologies for IR-03.

Extraction

Extraction technologies aid mass transfer of NAPL into a carrier fluid (liquid or gas). When the carrier fluid is a gas, the primary mass transfer mechanism is volatilization. When the carrier fluid is a liquid, the primary mass transfer mechanism is dissolution. In both cases, secondary mechanisms may also be involved, such as mobilization of free-phase NAPL or accelerated chemical or biological destruction of some chemicals (Interstate Technology and Regulatory Cooperation Work Group, 2000).

The technologies evaluated in this section extract NAPL from the aquifer and process the carrier fluid above ground to recover NAPL. Recovered NAPL is then disposed of at a licensed waste management

facility. Other solid, liquid, or gaseous waste streams may also result from carrier fluid processing. These waste streams are typically treated or disposed of off site.

Extraction processes evaluated for use at IR-03 are thermally-enhanced liquid-phase extraction and thermally-enhanced dual-phase extraction (to capture both liquid phase and vapor phase chemicals). Standard liquid-phase and dual-phase extraction systems are proven effective technologies in the removal of groundwater for further treatment. The effectiveness of these technologies diminishes significantly when the NAPL is too viscous to flow using conventional pumping methods, as is the case at IR-03. In addition, the mobility of NAPL, and the related effectiveness of extraction technologies, varies based on site-specific soil and groundwater conditions including soil porosity, soil stratigraphy, depth to groundwater, and water table fluctuations (Geosphere, Inc. and CH2M Hill Inc., 2006).

Past efforts to extract NAPL from IR-03 using conventional methods had relatively low yields (approximately 25 gallons of floating product and 70 gallons of waste oil were recovered from four wells during previous extraction in 1991 [Barajas & Associates, Inc., 2008b]) that demonstrate the relatively low effectiveness of conventional extraction of NAPL. These findings also suggest that the NAPL at IR-03 may be relatively immobile. To improve the implementability and effectiveness of liquid-phase and dual-phase extraction processes, they could be coupled with a thermal enhancement process. Thermal enhancement imparts heat to the contaminated medium to reduce the viscosity of the NAPL, thus making it easier to extract from the subsurface using conventional pumping methods.

Thermally-enhanced extraction process options include hot water injection and circulation, resistive heating, conductive heating, and steam injection. Hot water injection and circulation involves extraction, heating, and reinjection of groundwater. Resistive heating involves the passage of an electric current through saturated media. Conductive heating uses buried heater elements to transfer heat to the subsurface. Steam stripping involves aboveground production of steam and injection into the subsurface. Each of these process options can be used to heat NAPL (to reduce its viscosity). Once the NAPL's viscosity is reduced, it can be extracted using either of the extraction methods presented above.

If either liquid-phase or dual-phase extraction are used, groundwater is typically extracted with the NAPL. The NAPL and groundwater can be separated from the extracted liquid using an oil-water separator. The water generated can be treated and discharged or disposed of off site. The NAPL must also be disposed of off site.

If dual-phase extraction is used, the vapor generated during is typically collected and treated. Collected vapor is condensed, nonaqueous phases are separated, and the aqueous phase is reused or treated and disposed of off site. If vapor is to be treated, some form of thermal or catalytic oxidation process is typically used.

The standard extraction and the dual-phase extraction systems are both moderate in cost. When coupled with thermal enhancement, costs increase significantly. Thermal enhancement technologies are considered to be capital- and energy-intensive because of the specialized equipment and significant power demand required for implementation. However, the coupling of thermal enhancement with the extraction technologies can significantly increase the effectiveness of those technologies. Also, capital and energy costs can be minimized by implementing a phased approach (i.e., optimization of heating temperature to enhance extraction of NAPL) coupled with a gradual implementation (i.e., target heating areas expanded and contracted incrementally, as needed). Pre-implementation bench-scale and pilot-scale studies would need to be conducted to assess the viability of a thermally-enhanced remediation technology at IR-03. Preliminary results from the recent bench-scale testing indicate that the site conditions at IR-03 may not be conducive to performing thermally-enhanced NAPL extraction in a cost-effective manner. Once the findings of the study are reviewed, the Navy will consult with the regulatory agencies to determine whether a pilot-scale treatability study is necessary to further evaluate the viability of thermally-enhanced NAPL extraction at IR-03. In the absence of further information, this FS Report retains thermally-enhanced remediation technologies, coupled with dual-phase extraction, for further evaluation based on effectiveness, implementability, and potentially manageable cost, as described in Table 3-11. Accordingly, thermally-enhanced NAPL extraction may be incorporated, in combination with other technologies, into remedial alternatives to cost-effectively achieve the NAPL RAOs identified in Section 3.1.4.

Excavation

Excavation of NAPL is retained as a process option to remove NAPL to the depth of groundwater and to remove NAPL below groundwater, as feasible. Soil could be excavated with backhoes, front loaders, continuous excavators, scrapers, or other equipment. Sludge could be removed with open-face (impeller) centrifugal pumps, backhoes, or similar equipment.

Practical considerations regarding equipment limitations and sidewall stability could restrict the depth of excavation to a maximum of about 25 to 30 feet in a single lift. If needed, excavation could be performed in lifts, accessed by ramps. This technique could extend the maximum depth of excavation in unconsolidated soil to over 40 feet; however, the unit cost of soil excavation increases rapidly with increasing depth of excavation. Additionally, implementation of methods to control or prevent the movement of groundwater into the excavation is required for source removal options that extend below the water table. These methods are expensive and could require placement of driven sheet piling and excavation dewatering. A staging area would be required for handling excavated soil prior to off-site disposal. Additional characterization of the site would be required prior to implementation to properly delineate the extents of the excavation. Excavation of the NAPL source zone would incur a large capital cost but no O&M cost. It is a proven technology and would be implementable at IR-03.

3.3.2.3.6. Treatment

The site conditions at IR-03 (thick, viscous NAPL present over a large area and at varying depths) pose challenges to effectively treating NAPL in-situ. As summarized in Table 3-8, only stabilization/solidification was retained for further evaluation as a stand-alone treatment technology. A wider range of treatment technologies were retained for further evaluation to address groundwater contamination once the NAPL source is removed. The following types of groundwater treatment technologies were retained for detailed analysis: (1) ISB, (2) passive treatment (MNA), and (3) in-situ thermal treatment. Table 3-11 presents the detailed evaluation of retained technologies relative to effectiveness, implementability, and cost.

Solidification/Stabilization

Solidification refers to chemical or mechanical processes that are used to encapsulate a waste to form a solid material and to restrict contaminant migration. Stabilization refers to processes involving chemical reactions that reduce the leachability of a waste. Solidification and stabilization are often implemented in combination and involve mixing one or more reagents into the contaminated material (EPA, 2000d). Stabilizing reagents include cement, and reactive agents include chemical oxidants. Bench-scale or pilot-scale studies would be required to identify the appropriate reagent(s) to efficiently solidify and stabilize the contaminated soil and NAPL at IR-03. Two solidification/stabilization process options were evaluated: (1) in-situ mixing, and (2) and ex-situ mixing. Table 3-11 details the evaluation of these two options, which is briefly summarized in the following paragraphs.

In-situ mixing would use specialized mechanical equipment, which is typically crane-mounted, to excavate a series of large-diameter vertical boreholes in which one or more reagents are directly mixed into the contaminated soil and NAPL zone. The specialized equipment is capable of uniformly mixing the reagents and soil, while also capturing fugitive emissions and residual liquid. In-situ mixing would be readily implementable in most NAPL-impacted soil at IR-03; however, in-situ mixing may be difficult to implement in shoreline areas due to the presence of large debris. Capital costs for in-situ mixing would be moderate to high, depending on the treatment volume, but operational costs would be relatively low because minimal long-term management of groundwater would be needed for the stabilized waste (which would have a low hydraulic conductivity).

Ex-situ mixing would use conventional mechanical equipment to (1) excavate contaminated soil and NAPL; (2) transport the material to an on-site location where it would be spread in layers; (3) mix a binding reagent into the soil and NAPL, and (4) transport and place the stabilized material back in the excavation. Ex-situ mixing may be difficult to implement for large treatment volumes because of the limited on-site area available for mixing operations. In addition, the capital costs to perform ex-situ mixing on a large scale would be higher than in-situ mixing because of the increased effort to handle and

transport the material. However, ex-situ mixing may be a viable option in localized areas where the presence of large debris precludes in-situ mixing.

As previously discussed, removal of a NAPL source, to the maximum extent practicable, is consistent with Water Board guidance for closure of low-risk fuel sites in the San Francisco Bay Region (Water Board, 1996), and such guidance is considered at IR-03 because TPH is the most prevalent constituent identified in soil and groundwater. Accordingly, the administrative implementability of solidification and stabilization may be challenging if other removal options (such as excavation, thermally-enhanced extraction, and off-site treatment/disposal) are determined to be practicable for IR-03.

In-situ and ex-situ mixing are retained for further evaluation based on effectiveness, implementability, and potentially manageable cost, as described in Table 3-11. Accordingly, these solidification and stabilization options may be incorporated, in combination with other technologies, into remedial alternatives to cost-effectively achieve the NAPL RAOs identified in Section 3.1.4.

In-Situ Bioremediation of IR-03 Groundwater

ISB is an additional process option included for IR-03 to treat groundwater remaining after removal of the NAPL source zone. As described under the groundwater process options (Section 3.3.2.2.5), the in-situ biological treatment technology may consist of aerobic and anaerobic reaction process options with injection of substrate to promote biodegradation as appropriate. Use of ISB to treat organic chemicals at low to moderate concentrations is a proven technology. Costs would be moderate, and the technology would be implementable at Parcel E with possible use of targeted fracturing, if needed, to deliver substrate adequately in the heterogeneous fill material (see Section 3.3.2.2.5). ISB was retained for further consideration.

Passive Treatment (MNA)

This process option, as described in Section 3.3.2.2.5, involves natural subsurface processes to reduce chemical concentrations to acceptable levels. This process option usually requires modeling to demonstrate that natural processes of chemical degradation will reduce chemical concentrations below regulatory standards or RBCs before potential exposure pathways are completed. In addition, long-term monitoring must be conducted throughout the process to confirm that degradation is proceeding at rates consistent with achieving the RAOs.

MNA is not sufficiently effective as a single response action to achieve the RAOs. If institutional controls are implemented, however, and other response actions are undertaken to reduce contamination in the source area, MNA would likely be an effective tool to manage residual contamination. MNA might be appropriate following remediation of source areas. MNA was retained for further consideration.

In-Situ Thermal Treatment

As described above, thermally-enhanced extraction can be used to facilitate the extraction of NAPL from the subsurface. Thermal enhancement technologies can also be used to heat contaminated groundwater to the point of vaporization, allowing the contaminants to be stripped from the vapor phase after extraction. Technologies for in-situ thermal treatment at IR-03 are those described under thermally-enhanced extraction in Section 3.3.2.3.5. For IR-03, it is anticipated that thermally-enhanced extraction processes could be used first to enhance removal of NAPL (as described earlier in Section 3.3.2.3.5); then, for treatment of remaining VOCs and SVOCs in groundwater. This would be achieved by increasing the amount of heat imparted by the system. The thermal treatment process option could be used to volatilize contaminants into the vapor phase, which would be collected and treated using a vapor extraction system. Typical treatment technologies that are coupled with thermal treatment process options include thermal or catalytic oxidation. Thermally-enhanced treatment, or "steaming," is a highly effective technology that can be easily implemented using the same equipment used to perform thermally-enhanced extraction. Energy input to the system would be increased to achieve groundwater vaporization to eliminate plumes remaining following NAPL removal.

As described in Section 3.3.2.3.5, the thermal treatment technologies are generally considered to be capital- and energy-intensive, and bench-scale and pilot-scale studies would need to be conducted to assess the viability of a thermally-enhanced remediation technology at IR-03. Preliminary results from the recent bench-scale testing indicate that the site conditions at IR-03 may not be conducive to performing thermally-enhanced NAPL extraction in a cost-effective manner. Once the findings of the study are reviewed, the Navy will consult with the regulatory agencies to determine whether a pilot-scale treatability study is necessary to further evaluate the viability of thermally-enhanced NAPL extraction at IR-03. In the absence of further information, this FS Report retains thermally-enhanced remediation technologies, for both NAPL extraction and treatment of residual groundwater contamination, for further evaluation based on effectiveness, implementability, and potentially manageable cost, as described in Table 3-11. Accordingly, thermal treatment of groundwater may be incorporated, in combination with other technologies, into remedial alternatives to cost-effectively achieve the NAPL RAOs identified in Section 3.1.4.

3.3.2.3.7. Containment

Containment technologies for IR-03 focus on NAPL and also address associated soil and groundwater as appropriate. Containment technologies are evaluated for use in preventing direct exposure to and migration of chemicals. Containment measures previously implemented at IR-03 include a cover consisting of an engineered clay liner, plus 1 foot of soil cover. In addition, a sheet-pile wall was installed at IR-03 to reduce migration of NAPL in groundwater; however, the sheet-pile wall does not have a cathodic protection system and, during the more than 13 years since its installation, the wall has likely corroded to a point that it would not be an effective component of a future remedial action. The

containment technologies that are considered for application at IR-03 are described below. A more detailed description of these alternatives can be found in Sections 3.3.2.1.7 and 3.3.2.2.7.

Covers

Cover materials are used to prevent direct exposure and minimize water infiltration to the contaminated zone. In the open space area at IR-03, the general approach for implementing covers includes:

- Maintenance and upgrade of the existing engineered cover (clay liner) and soil cover.
- In areas identified for new or rehabilitated cover, a durable material would be used and maintained to minimize breakage, erosion, or deterioration such that the underlying soil becomes exposed. Cover designs developed in the RD are anticipated to include a minimum 2 feet of clean imported soil or other engineered cover design.
- The RD would address (1) drainage to prevent erosion and standing water, (2) maintenance, and (3) methods for completion of the cover near the shoreline protection features.
- Sampling requirements associated with disturbance of covers would be in accordance with the OMP and will be subject to the review and approval of the FFA signatories and CDPH (for activities within the radiological ARIC).

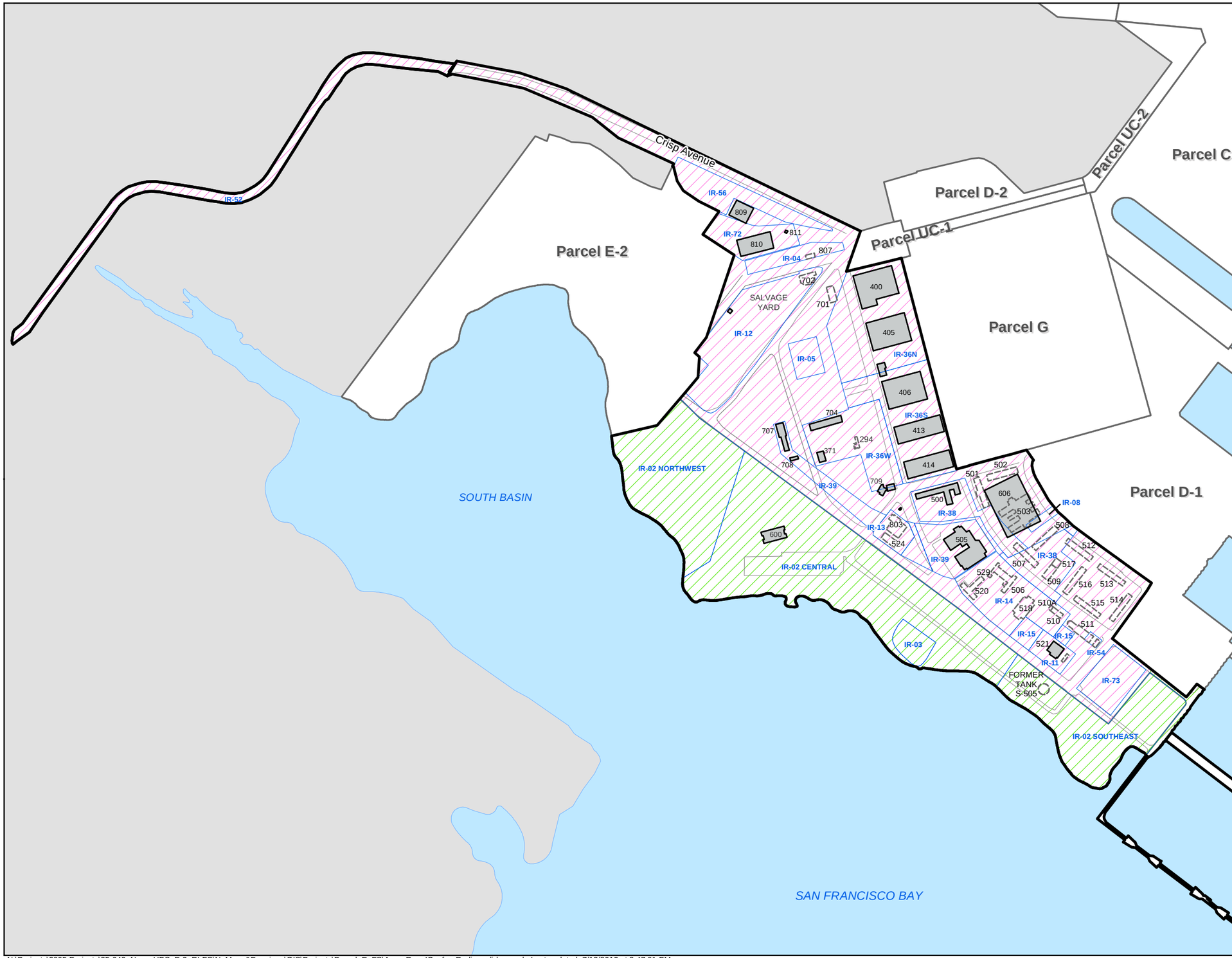
The technology of covers and the process options of soil and engineered covers are effective, so long as the covers are properly installed and maintained and are replaced after excavation or demolition during redevelopment. The implementability and cost of covers would be moderate since a cover already exists at IR-03. Table 3-12 presents the types of covers evaluated as remedial technologies and the associated performance standards that apply to the individual types of covers. The performance standards for covers are adequately specified in the ARARs described in Section 3.2.3.1, and would not be altered in the RD.

The cover process option is retained for development and evaluation of remedial alternatives.

NAPL and Groundwater Containment

As presented in Section 3.3.2.2.7, technologies for NAPL and groundwater containment include physical barriers (such as slurry or sheet-pile walls). At IR-03, both slurry walls and sheet-pile walls are retained for further evaluation, as described in Table 3-11. These vertical barriers effectively control migration of NAPL and associated contaminated groundwater. The subsurface conditions at IR-03 (fill material containing large rocks and metal debris) pose challenges to implementing this technology; however, pre-design investigations could be used to identify subsurface obstructions in advance and develop alternate alignments.

Figures



LEGEND

- Area Requiring Insitutional Controls for Radionuclides and Other Hazardous Substances in Soil, Soil Gas, and Groundwater
- Area Requiring Institutional Controls for Nonradiological Hazardous Substances in Soil, Soil Gas, and Groundwater
- IR Site Boundary
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- Existing Building
- Demolished Building
- Road

Note:
Other land use and activity restrictions apply to Parcel E; refer to Section 3.3.2.1.2 of Feasibility Study Report for Parcel E.

600 0 600

Scale in Feet

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California

Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 3-1

AREA REQUIRING INSTITUTIONAL CONTROLS

Feasibility Study Report for Parcel E

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Tables

Table 3-1. Preliminary Remediation Goals for COCs in Soil

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Exposure Scenario	COC	Redevelopment Block	Risk-Based Concentration (mg/kg) [a]	HPAL (mg/kg)	Laboratory PQL (mg/kg)	PRG (mg/kg)
Residential	3,3'-Dichlorobenzidine	MU-1	0.008	--	0.005	0.008
	4-Nitrophenol	MU-1	0.29	--	0.05	0.29
	4,4'-DDD	MU-2	2.1	--	0.33	2.1
	4,4'-DDE	MU-1 and MU-2	1.6	--	0.33	1.6
	Aldrin	MU-1	0.024	--	0.008	0.024
	alpha-BHC	MU-2	0.0019	--	0.0034	0.0019
	Antimony	MU-1, MU-2, and MU-3	10	9.05	1	10
	Aroclor-1254	MU-1 and MU-2	0.093	--	0.03	0.093
	Aroclor-1260	MU-1, MU-2, and MU-3	0.21	--	0.03	0.21
	Arsenic	MU-1, MU-2, and MU-3	0.038	11.1	1	11.1
	Benzene	MU-1 and MU-3	0.18	--	0.005	0.18
	Benzo(a)anthracene	MU-1, MU-2, MU-3, and IR-52	0.37	--	0.33	0.37
	Benzo(a)pyrene	MU-1, MU-2, MU-3, and IR-52	0.037	--	0.33	0.33
	Benzo(b)fluoranthene	MU-1, MU-2, MU-3, and IR-52	0.34	--	0.33	0.34
	Benzo(k)fluoranthene	MU-1, MU-2, MU-3, and IR-52	0.34	--	0.33	0.34
	Bis(2-ethylhexyl)phthalate	MU-1, MU-2, and MU-3	1.1	--	0.33	1.1
	Cadmium	MU-1, MU-2, and MU-3	3.5	3.14	0.20	3.5
	Carbazole	MU-1	2.2	--	0.05	2.2
	Copper	MU-1, MU-2, MU-3, and IR-52	160	124.3	1.5	160
	Dibenz(a,h)anthracene	MU-1, MU-2, and IR-52	0.058	--	0.33	0.33
	Dieldrin	MU-1 and MU-2	0.00066	--	0.0034	0.0034
	gamma-BHC	MU-1	0.0026	--	0.005	0.005
	Heptachlor epoxide	MU-1 and MU-3	0.00054	--	0.0034	0.00054

Table 3-1. Preliminary Remediation Goals for COCs in Soil *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Exposure Scenario	COC	Redevelopment Block	Risk-Based Concentration (mg/kg) [a]	HPAL (mg/kg)	Laboratory PQL (mg/kg)	PRG (mg/kg)
Residential *(continued)*	Indeno(1,2,3-cd)pyrene	MU-1, MU-2, MU-3, and IR-52	0.35	--	0.33	0.35
	Iron	MU-1, MU-2, and MU-3	22,000	58,000	10	58,000
	Lead	MU-1, MU-2, MU-3, and IR-52	155	8.99	1	155
	Manganese	MU-1, MU-2, and MU-3	840	1,431	0.5	1,431
	Mercury	MU-1, MU-2, and MU-3	1.6	2.28	0.03	2.28
	n-Nitroso-di-n-propylamine	MU-1 and MU-2	0.0002	--	0.0034	0.0034
	n-Nitrosodiphenylamine	MU-1 and MU-2	0.68	--	0.0034	0.68
	Naphthalene	MU-1 and MU-2	1.7	--	0.33	1.7
	Pentachlorophenol	MU-2 and MU-3	2.6	--	0.68	2.60
	Thallium	MU-1, MU-2, and MU-3	5.0	0.81	1	5.0
	Vanadium	MU-1, MU-2, and MU-3	65	117	0.5	117
	Trichloroethene	MU-2	2.9	--	0.005	2.9
	Zinc	MU-1, MU-2, and MU-3	370	110	2.0	370
	Xylene	MU-3	270	--	0.005	270
	Total TPH [b]	MU-3	--	--	--	3,500
Construction Worker	1,2,3,7,8-PECDD	EOS-3	0.00010	--	0.00001	0.0001
	1,2,4-Trichlorobenzene	EOS-1	230	--	0.05	230
	1,2,4-Trimethylbenzene	EOS-1 and EOS-2	170	--	0.05	170
	1,3,5-Trimethylbenzene	EOS-1	69	--	0.05	69
	2,3,4,6,7,8-HXCDF	EOS-3	0.0010	--	0.00001	0.001
	2,3,4,7,8-PECDF	EOS-3	0.00020	--	0.00001	0.0002
	Aldrin	EOS-1	0.54	--	0.008	0.54
	Antimony	EOS-1 and EOS-4	120	9.05	1	120

Table 3-1. Preliminary Remediation Goals for COCs in Soil *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Exposure Scenario	COC	Redevelopment Block	Risk-Based Concentration (mg/kg) [a]	HPAL (mg/kg)	Laboratory PQL (mg/kg)	PRG (mg/kg)
Construction Worker *(continued)*	Aroclor-1248	EOS-1	2.1	--	0.03	2.1
	Aroclor-1254	MU-1, MU-2, and EOS-1, and EOS-4	2.1	--	0.03	2.1
	Aroclor-1260	MU-1, MU-2, MU-3, EOS-1, EOS-2,	2.1	--	0.03	2.1
	Arsenic	MU-1, MU-2, MU-3, EOS-1, EOS-2,	1.6	11.1	1	11.1
	Benzene	MU-1	9.4	--	0.005	9.4
	Benzo(a)anthracene	MU-1, EOS-1, EOS-2, EOS-3, EOS-4,	6.4	--	0.33	6.4
	Benzo(a)pyrene	MU-1, MU-2, MU-3, EOS-1, EOS-2,	0.65	--	0.33	0.65
	Benzo(b)fluoranthene	EOS-1, EOS-2, EOS-3, EOS-4, and IR-	6.5	--	0.33	6.5
	Benzo(k)fluoranthene	EOS-1, EOS-2, EOS-3, and EOS-4	6.5	--	0.33	6.5
	Copper	EOS-1 and EOS-4	11,000	124.3	1.5	11,000
	Dibenz(a,h)anthracene	MU-1, EOS-1, and IR-52	1.1	--	0.33	1.1
	Indeno(1,2,3-cd)pyrene	EOS-3	6.5	--	0.33	6.5
	Iron	MU-1 and EOS-1	93,000	58,000	10	93,000
	Lead	MU-1, MU-2, MU-3, EOS-1, EOS-2,	800	8.99	1	800
	Manganese	MU-2 and EOS-4	6,900	1,431	0.5	6,900
	Mercury	MU-1	93	2.28	0.03	93
	Naphthalene	EOS-2	75	--	0.33	75
	Nickel	EOS-1	5,800	--	0.5	5,800
	n-Nitroso-di-n-propylamine	EOS-4	1.3	--	0.0034	1.3
	Vanadium	MU-1, EOS-1, and EOS-4	310.0	117.20	0.5000	310.0
	Total TPH [b]	MU-3, EOS-1, EOS-3, EOS-4, and Railroad Right-of-Way	--	--	--	3,500

Table 3-1. Preliminary Remediation Goals for COCs in Soil *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Exposure Scenario	COC	Redevelopment Block	Risk-Based Concentration (mg/kg) [a]	HPAL (mg/kg)	Laboratory PQL (mg/kg)	PRG (mg/kg)
Recreational	Aroclor-1254	EOS-1, EOS-3, and EOS-4	0.74	--	0.03	0.74
	Aroclor-1260	EOS-1, EOS-2, EOS-3, and EOS-4	0.74	--	0.03	0.74
	Arsenic	EOS-1, EOS-2, EOS-3, and EOS-4	0.37	11.1	1	11.1
	Benzo(a)anthracene	EOS-1, EOS-2, EOS-3, and EOS-4	1.3	--	0.33	1.3
	Benzo(a)pyrene	EOS-1, EOS-2, EOS-3, and EOS-4	0.13	--	0.33	0.33
	Benzo(b)fluoranthene	EOS-1, EOS-2, EOS-3, and EOS-4	1.3	--	0.33	1.3
	Benzo(k)fluoranthene	EOS-1, EOS-2, EOS-3, and EOS-4	1.3	--	0.33	1.3
	Chrysene	EOS-1 and EOS-3	13	--	1	13
	Dibenz(a,h)anthracene	EOS-1, EOS-2, EOS-3, and EOS-4	0.21	--	0.33	0.33
	Dieldrin	EOS-1 and EOS-4	0.12	--	0.33	0.12
	Heptachlor epoxide	EOS-1	0.21	--	0.0034	0.21
	Indeno(1,2,3-cd)pyrene	EOS-1, EOS-2, EOS-3, and EOS-4	1.3	--	0.33	1.3
	Lead	EOS-1, EOS-2, EOS-3, and EOS-4	155	8.99	1	155
	Manganese	EOS-2	2,430	1,431	0.5	2,430
	Mercury	EOS-4	210	2.28	0.030	210
	n-Nitroso-di-n-propylamine	EOS-4	0.27	--	0.0034	0.27
	Total TPH [b]	EOS-1 and EOS-4	--	--	--	3,500
Industrial	Arsenic	Railroad Right-of-Way	0.43	11.1	1	11.1
	Benzo(a)anthracene	Railroad Right-of-Way	1.8	--	0.33	1.8
	Benzo(a)pyrene	Railroad Right-of-Way	0.18	--	0.33	0.33
	Benzo(b)fluoranthene	Railroad Right-of-Way	1.8	--	0.33	1.8
	Benzo(k)fluoranthene	Railroad Right-of-Way	1.8	--	0.33	1.8
	Copper	Railroad Right-of-Way	76,000	124.3	1.50	76,000

Table 3-1. Preliminary Remediation Goals for COCs in Soil *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Exposure Scenario	COC	Redevelopment Block	Risk-Based Concentration (mg/kg) [a]	HPAL (mg/kg)	Laboratory PQL (mg/kg)	PRG (mg/kg)
Industrial *(continued)*	Dibenz(a,h)anthracene	Railroad Right-of-Way	0.29	--	0.33	0.33
	Indeno(1,2,3-cd)pyrene	Railroad Right-of-Way	1.8	--	0.33	1.8
	Lead	Railroad Right-of-Way	800	8.99	1	800
	Total TPH [b]	Railroad Right-of-Way	--	--	--	3,500
Ecological Pathway [c]	Copper	--	470 [d]	--	1.5	470
	Lead	--	197 [d]	--	1	197
	Total Aroclors	--	37 [d]	--	0.01	37

Notes:

a = Unless otherwise noted, risk-based concentration is from HHRA (Appendix I of Revised RI Report for Parcel E [Barajas and Associates, 2008b]). Although the land use presented in the HHRA does not match the 2010 Redevelopment Plan, the above list of COCs was verified by conducting queries of the risk-based concentrations against the Parcel E soil data. Prior to conducting the data query, a comprehensive list of risk-based concentrations was developed for all COCs detected in one or more soil samples using the toxicity factors, exposure parameters, and chemical data used in the HHRA.

b = The TPH PRG is based on the HPS petroleum source criterion (Shaw, 2007)

c = BERA concluded that risk to wildlife does not warrant response actions based only on ecological concerns; however, ecological benchmarks will be considered during response actions to address risk identified in the HHRA

d = Risk-based concentration is from BERA (Appendix J of Revised RI Report for Parcel E [Barajas and Associates, 2008b])

BERA = baseline ecological risk assessment
BHC = benzene hexachloride
COC = chemical of concern
DDD = dichlorodiphenyldichloroethane
DDE = dichlorodiphenyldichloroethene
HHRA = human health risk assessment
HPAL = Hunters Point ambient level
HXCDF = hexachlorodibenzofuran
IR = Installation Restoration
mg/kg = milligrams per kilogram
PECDD = pentachlorodibenzodioxin
PECDF = pentachlorodibenzofuran
PQL = practical quantitation limit
PRG = preliminary remediation goal
RI = Remedial Investigation
TPH = total petroleum hydrocarbons

Table 3-2. Preliminary Remediation Goals for COECs and COCs in Shoreline Sediment
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

COEC/COC	Benthic Invertebrate RBC [a] (mg/kg)	Bird/Mammal RBC [b] (mg/kg)	Human Health RBC [c] (mg/kg)	HPAL (mg/kg)	SF Bay Ambient Value [d] (mg/kg)	PRG (mg/kg)
Cadmium	NC	0.17	NC	3.14	0.33	3.14
Copper	270	17	NC	124	68.1	124
Lead	218	NC	NC	6.99	43.2	218
Mercury	0.71	NC	NC	2.28	0.43	2.28
Molybdenum	NC	0.14	NC	2.68	NA	2.68
Zinc	410	43	NC	110	158	158
Total DDTs	0.046	NC	NC	NA	0.007	0.0461
Total Aroclors	0.18	0.12	1.4	NA	0.2[e]	0.2

Notes: COECs presented are those identified in the Revised RI Report (Section 5.3) as posing risk to benthic invertebrates, birds, mammals, and humans along the Parcel E and E-2 shoreline (Barajas & Associates, Inc., 2008b).

a RBCs for benthic invertebrates are based on ER-M values from Long and Morgan (1991) and Long and others (1995). See Table G-4 in the Revised RI Report (Barajas & Associates, Inc., 2008b).

b RBCs for bird and mammals are based on the house mouse, which is the most sensitive of the birds and mammals evaluated in the shoreline Screening-Level Ecological Risk Assessment. See Table G-16 in the Revised RI Report (Barajas & Associates, Inc., 2008b).

c Human health RBCs are based on shellfish consumption pathway using methodology established in the Parcel F Validation Study (Battelle, Blasland, Bouck & Lee, Inc., and Neptune & Company, 2005). PCB criterion was presented in Attachment 1 of the Parcel F Feasibility Study Report (Barajas & Associates, Inc., 2008a). Chromium criterion is presented in Attachment 1 of this FS Report.

d Ambient values are based on Water Board (1998) unless otherwise noted.

e Nearshore ambient value from Water Board (2003).

COC = chemical of concern
COEC = chemical of ecological concern
DDT = dichlorodiphenyltrichloroethane
ER-M = Effects range-median
HPAL = Hunters Point ambient level
mg/kg = milligram per kilogram
NA = not available
NC = not calculated; not a COEC or COC for the specified receptor
PRG = preliminary remediation goal
RBC = risk-based concentration
RI = Remedial Investigation
SF = San Francisco Bay
Water Board = San Francisco Bay Regional Water Quality Control Board

Table 3-2. Preliminary Remediation Goals for COECs and COCs in Shoreline Sediment *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sources:

Barajas & Associates, Inc. 2008a. "Final Feasibility Study Report for Parcel F, Hunters Point Shipyard, San Francisco, California." April 30.

Barajas & Associates, Inc. 2008b. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. "Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments." *Environmental Management*. Volume 19. Number 1. Pages 81 to 97.

Long, E.R, and L.G. Morgan. 1991. "The Potential for Biological Effects of Sediment-Sorbed Contaminants Tested in the National Status and Trends Administration Program." National Oceanic and Atmospheric Administration, Technical Memorandum NOS OMA 52. Seattle, Washington. March.

Water Board. 1998. "Staff Report: Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments." May.

Water Board. 2003. Letter Regarding Comments on PCB Cleanup Goals for Parcel F, South Basin, Feasibility Study Approach and PRG Development. From Naomi L. Feger, Water Board. To Keith S. Forman, Department of the Navy. February 18.

Table 3-3. Preliminary Remediation Goals for COCs in A-Aquifer Groundwater

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Exposure Scenario	COC	Redevelopment Block	Plume/Exposure Area	Risk-Based Concentration (µg/L) [a]	HGAL (µg/L)	Laboratory PQL (µg/L)	PRG (µg/L) [b]
Construction Worker	1,2-Dichloroethene (total)	MU-2	Building 406 TCE Plume	305	--	0.5	305
	1,4-Dichlorobenzene	MU-1, MU-2, and EOS-3	IR-03 TPH, IR-12 Benzene, and IR-12 PCE Plumes	65	--	0.5	65
	Arsenic	MU-1, MU-2, EOS-1, EOS-2, and EOS-3	IR-02 Central Nickel, IR-02 Northwest Metals, IR-03 TPH, IR-12 Benzene, and IR-12 PCE Plumes	39	27.3	0.5	39
	Benzo(a)anthracene	EOS-3	IR-03 TPH Plume	0.65	--	0.05	0.65
	Benzo(a)pyrene	EOS-3	IR-03 TPH Plume	0.045	--	0.05	0.05
	Benzo(b)fluoranthene	EOS-3	IR-03 TPH Plume	0.45	--	0.05	0.45
	Chrysene	MU-1, MU-2, and EOS-3	IR-03 TPH, IR-12 Benzene, and IR-12 PCE Plumes	6.7	--	0.05	6.7
	Indeno(1,2,3-cd)pyrene	EOS-3	IR-03 TPH Plume	0.31	--	0.05	0.31
	Naphthalene	MU-1, MU-2, and EOS-3	IR-03 TPH, IR-12 Benzene, and IR-12 PCE Plumes	22	--	0.05	22
	Pentachlorophenol	MU-1 and MU-2	IR-12 Benzene and IR-12 PCE Plumes	8.2	--	50	50
	Trichloroethene	MU-2	Building 406 TCE Plume	370	--	0.5	370
	Vinyl chloride	MU-2	Building 406 TCE Plume	6.3	--	0.5	6.3

Table 3-3. Preliminary Remediation Goals for COCs in A-Aquifer Groundwater *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes:

a = Risk-based concentration is from human health risk assessment (Appendix I of Revised Remedial Investigation Report for Parcel E [Barajas and Associates, 2008b]). Remedial goals for the vapor intrusion pathway under the residential scenario is not presented because, as discussed in Section 3.1.3.1 of the Feasibility Study Report, this potential exposure pathway is addressed by the soil remedial action objectives presented in Section 3.1.1.1.

b = PRGs in groundwater are referred to elsewhere in the text as "institutional controls termination goals"; the term "PRG" is retained in this table for brevity

COC = chemical of concern

HGAL = Hunters Point ambient groundwater level

IR = Installation Restoration

PQL = practical quantitation limit

PRG = preliminary remediation goal

µg/L = micrograms per liter

Table 3-4. Preliminary Remediation Goals for COCs in B-Aquifer Groundwater

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Exposure Senario	COC	Redevelopment Block	Plume/Exposure Area [a]	Risk-Based Concentration (µg/L) [b]	HGAL (µg/L)	MCL (µg/L)	Laboratory PQL (µg/L)	PRG (µg/L)
Residential - Domestic Use of B-Aquifer	1,4-Dichlorobenzene	MU-2	Building 406 TCE Plume	0.30	--	5	0.5	5
	Arsenic	MU-2, EOS-1, and EOS-3	IR-02 Northwest Metals, IR-03 TPH, and Building 406 TCE Plumes	0.007	27.3	10	5	27.3 [c]
	Manganese	MU-2, EOS-1, and EOS-3	IR-02 Northwest Metals, IR-03 TPH, and Building 406 TCE Plumes	870	8,140	50	10	8,140 [c]
	Tetrachloroethene	MU-2 and EOS-3	IR-03 TPH and Building 406 TCE Plumes	0.10	--	5	0.5	5
	Thallium	MU-2	Building 406 TCE Plume	2.3	12.97	0.5 [d]	2	12.97 [c]
	Trichloroethene	MU-2	Building 406 TCE Plume	1.4	--	5	0.5	5
	Vinyl chloride	MU-2	Building 406 TCE Plume	0.032	--	0.5	0.5	0.5

Notes:

a = Plumes are located in the A-aquifer, and no plumes are present in the B-aquifer; HHRA methodology extended the A-aquifer plume footprints into the B-aquifer for evaluation purposes

b = Risk-based concentration is from human health risk assessment (Appendix I of Revised RI Report for Parcel E [Barajas and Associates, 2008b])

c = PRG based on HGAL because MCL (or MCL goal) is lower than the HGAL (see Appendix B, Section B2.2.3)

d = Federal maximum contaminant level goal (0.5 µg/L) is more stringent than the corresponding federal MCL (2 µg/L)

COC = chemical of concern

HGAL = Hunters Point ambient groundwater level

HHRA = human health risk assessment

IR = Installation Restoration

MCL = maximum contaminant level

PQL = practical quantitation limit

PRG = preliminary remediation goal

µg/L = micrograms per liter

-- Not applicable

Table 3-5. Surface Water Quality Criteria and Groundwater Trigger Levels
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analytical Group	COEC	Surface Water Quality Criteria for Aquatic Wildlife (µg/L)	Basis for Surface Water Quality Criteria [a]	Wells Recommended for Further Monitoring and Evaluation	Maximum Reported Concentration (µg/L)	Calculated Trigger Level (µg/L) [b]
Metals	Arsenic	36	CTR	IR03MWO-1	1,180	36
				IR02MW173A	75.7	36
				PA50MW05A	42.7	36
	Copper	28.0	HGAL [c]	IR02MW126A	1,000	28
				IR02MW373A	1,300	28
				IR03MW226A	824	28
				IR03MWO-1	3,240	28
	Lead	14.4	HGAL [c]	IR02MW373A	35.2	14.4
				IR03MW218A	23.4	14.4
				IR03MW226A	613	14.4
				IR03MWO-1	65	14.4
	Mercury	0.60	HGAL [c]	IR03MW226A	0.8	0.60
				IR03MWO-1	1.2	0.60
	Nickel	96.5	HGAL [c]	IR02MWB-2	1,720	96.5
				IR02MWB-5	3,430	96.5
				IR02MW373A	1,460	96.5
				IR03MWO-1	1,140	96.5
	Zinc	81	CTR	IR02MW126A	2,320	81
				IR02MW373A	9,970	81
				IR03MW226A	1,180	81
				IR03MWO-1	2,400	81
PCBs and Pesticides	Aroclor-1254	0.03	CTR	IR02MW372A	35	0.06
				IR02MWB-3	40	0.03
				IR02MW146A	0.24	0.03
				IR03MW225A	1.2	0.03

Table 3-5. Surface Water Quality Criteria and Groundwater Trigger Levels *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analytical Group	COEC	Surface Water Quality Criteria for Aquatic Wildlife (µg/L)	Basis for Surface Water Quality Criteria [a]	Wells Recommended for Further Monitoring and Evaluation	Maximum Reported Concentration (µg/L)	Calculated Trigger Level (µg/L) [b]
PCBs and Pesticides *(continued)*	Aroclor-1260	0.03	CTR	IR03MW218A1	35	0.03
				IR03MW225A	40	0.03
				IR03MW226A	0.24	0.03
				IR03MWO-1	1.2	0.03
	4,4'-DDE	0.001	CTR / NRWQC [d]	IR02MW372A	1.2	0.002
	Alpha-Chlordane	0.004	CTR	IR02MW372A	0.03	0.008
Petroleum Hydrocarbons	TPH (Total)	1,400	HPS Petroluem Screening Criteria [e]	IR02MW173A	6,900	4,839
				IR03MW218A1	83,000	3,216
				IR03MW218A2	19,900	3,216
				IR03MW225A	12,000	3,216
				IR03MW226A	17,670	3,216
				IR03MW369A	13,500	1,400
				IR03MW370A	27,560	1,467
				IR03MW371A	10,890	2,092
				IR03MWO-1	560,000	12,604

Notes:

a = Derivation of the surface water quality criteria is detailed in Appendix A (Tables A-1 and A-2).

b = Calculated trigger levels correspond to attenuation factors assigned based on nomographs developed specifically for HPS groundwater (see Attachment A1).

c = Surface water criteria have been adjusted upward (relative to the CTR criteria) to account for ambient conditions.

d = Per EPA's NRWQC, the California Toxics Rule criteria for DDT should be applied to all DDT metabolites (i.e., DDD and DDE)

e = Total TPH aquatic criteria are derived from the "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California" (Shaw Environmental, Inc., 2007); the trigger levels are assigned as a function of distance from shoreline.

µg/L = micrograms per liter

COEC = chemical of ecological concern

CTR = California Toxics Rule (Title 40, Code of Federal Regulations, Section 131.38; May 18, 2000)

DDD = dichlorodiphenyldichloroethane

DDE = dichlorodiphenyldichloroethene

DDT = dichlorodiphenyltrichloroethane

EPA = U.S. Environmental Protection Agency

HGALs = Hunters Point groundwater ambient levels

HPS = Hunters Point Shipyard

NRWQC = National Recommended Ambient Water Quality Criteria (EPA, 2006)

PCBs = polychlorinated biphenyls

TPH = total petroleum hydrocarbons

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
No Action	Not Applicable	Not Applicable	No Action	Retained Required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restricts use of parcel through environmental restrictive covenants that will run with the land; allows only designated land use in accordance with the proposed redevelopment plan (EPA, 2000a); includes criteria during and after future development to ensure mitigated exposure conditions are maintained, such as covers, barriers, or other engineering controls (Navy and DTSC, 2000).	Retained Easily implemented and effective; usually required to restrict activity based on land use.
	Administrative Mechanisms	Land Use Plans and Soil and Groundwater Management Procedures and Policies	Manage and prevent exposure to humans during future site activities.	Eliminated Covenants to Restrict Use of Property and Deed Restrictions are sufficient to enforce land use and activity restrictions.
Engineering Controls	Physical Barriers	Fencing, Barriers, and Signs	Restrict land use where there is exposure to potentially contaminated soil using fencing, barriers, and posting signs (EPA, 2000a).	Retained Easily implemented and effective; usually required to restrict activity based on land use. Not applicable for use in open space areas.
Monitoring	Soil Gas Monitoring	Periodic Soil Gas Monitoring	Collect and analyze soil gas samples periodically to evaluate the potential for vapor intrusion.	Retained Easily implemented; required to evaluate effectiveness of other process options; low cost.

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Removal[1]	Excavation and Off-Site Treatment/ Disposal	Conventional Excavation and Disposal at Licensed Treatment/Disposal Facility (e.g., RCRA, non-RCRA, and LLRW)	Excavate soil containing chemicals using conventional mechanical equipment; limit to depths of less than 10 feet bgs. Transport and dispose of soils at a permitted treatment and disposal facility.	Retained for some COCs Effective for non-ubiquitous metals and PAHs; easily and quickly implemented; permanent remedy; and moderate cost. Eliminated for ubiquitous metals Not implementable or cost-effective for entire redevelopment blocks
Treatment[1]	Physical/ Chemical Treatment	Soil Vapor Extraction (with or without thermally enhanced recovery)	Extract VOCs from unsaturated zone with vacuum pumps; extraction performance can be enhanced with active volatilization of VOCs in groundwater (EPA, 1997b). May be used with thermal enhancement (e.g., six-phase heating or steam injection) to enhance volatilization of chemicals.	Retained for some COCs Effective in treating VOCs; effectiveness enhanced when implemented with active volatilization
		Mechano-Chemical Destruction	Treat chemicals with a proprietary reagent in a high-intensity ball mill; includes pretreatment (drying/sieving) and solidification/stabilization of treated soil. Offgas treatment required.	Eliminated High risks to workers associated with on-site treatment, high cost, stringent regulatory requirements.
		Thermal Treatment: Thermal Desorption or Incineration	Volatilize chemicals in soil. Thermal desorption raises temperature to levels just below oxidation (destruction) temperatures. Incineration raises temperature to combustion temperatures (FRTR, 2005).	Eliminated Effective for organic chemicals; however, not effective for metals. Can volatize metals, creating additional environmental concerns from potential air emissions. High cost, stringent regulatory requirements

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	Physical/ Chemical Treatment *(cont.)*	Soil Washing	Remove chemicals in soil using an aqueous-based wash solution. Usually combined with mechanical screening methods to remove debris.	Eliminated Limited effectiveness with hydrophobic compounds such as PCBs and PAHs; high O&M cost.
		Solidification/Stabilization	Reduce chemical mobility through physical or chemical reaction with stabilizing agents (EPA, 1998b).	Eliminated Limited effectiveness for treatment of PAHs.
		Solvated Electron Process	Treat soil by first mixing with liquid ammonia to form a soil/ammonia slurry, adding elemental calcium or sodium to the slurry; then separate ammonia from soil as a liquid until most of the ammonia is removed; and finally as a vapor by warming the soil (FRTR, 2005).	Eliminated Not applicable for metals; highly exothermic reaction with health and safety concerns; not cost-effective for small volumes of PAHs.
		Chemical Oxidation	Convert inorganic chemicals to nonhazardous compounds using an oxidizing agent (EPA 1998a). Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate	Eliminated Low effectiveness for treatment of low-level VOCs in soils; high cost. Also, difficult to effectively deliver to nonaqueous phase (e.g., soil and NAPL).
	Biological Treatment	Phytoremediation	Use plants to remediate contamination in soil. Phytoremediation can be used for various chemicals, including metals, solvents, PAHs, pesticides, petroleum hydrocarbons, and explosives.	Eliminated Low implementability and high cost per unit area

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	Biological Treatment *(cont.)*	Bioremediation	Reduce chemicals in soil by metabolizing organic chemicals with biological amendments (FRTR, 2005)	Eliminated Not effective for metals; not efficient for small volumes of soils containing low-level PAHs.
Containment[1]	Covers	Soil Covers	Place soil cover over contaminated soil; prevents direct contact with contaminated soil.	Retained for areas that are not paved or do not require paving to achieve planned land uses. Effective for metals and PAHs; easily and quickly implemented; moderate cost per unit area.
		Asphalt or Concrete Covers	Place an asphalt or concrete cover over contaminated soil; prevents direct contact with contaminated soil.	Retained for areas that are paved or require paving to achieve planned land uses. Effective for metals and PAHs; moderate cost per unit area.
		Engineered Alternative Caps	Place a soil cover with a geomembrane liner that is made of an impermeable, synthetic material; prevents direct contact with contaminated soil and minimizes migration of contamination. Can also include engineered soil caps using clay instead of synthetic material.	Retained for areas with elevated concentrations of mobile chemicals that are not paved or do not require paving to achieve planned land uses. Effective; easy to moderate implementability.
		Maintained Landscaping	Maintain a vegetative cover over soil over contaminated areas to eliminate the direct exposure pathway.	Eliminated Not considered applicable to bare soil areas at Parcel E with organic chemical concentrations exceeding RBCs. Would not be an effective method for eliminating exposure.

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Containment[1] *(cont.)*	Shoreline Armoring[2]	Protective Revetments[2]	Install an erosion control structure consisting of riprap, large armor units, gabions, articulating concrete mats, or engineered concrete structures along the shoreline.	Retained for detailed evaluation. Rock revetment successfully implemented along HPS shoreline in the past.
		Seawalls[2]	Install a massive concrete structure with its weight providing its stability. Prevents inland flooding from major storm events accompanied by large, powerful waves.	Eliminated High implementation cost. However, maintenance of existing seawalls may be incorporated as part of a shoreline protection alternative.
		Bulkheads[2]	Install vertical retaining walls to hold or prevent soil from sliding seaward. Reduces land erosion and loss to the sea; does not mitigate coastal flooding or wave damage.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
	Shoreline Stabilization (Structural)[2]	Breakwaters[2]	Install rock structure offshore or adjacent to headlands with crest above MHHW. Protects shore from large, powerful waves from major storm events.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Groins[2]	Install narrow rock or timber structure(s) perpendicular to shoreline. Reduces erosion associated with longshore currents.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Containment[1] *(cont.)*	Shoreline Stabilization (Structural)[2] *(cont.)*	Nearshore Sills[2]	Install narrow rock structure(s) parallel to shoreline with crest at or below MHHW. Rock may be substituted with natural material (such as oyster shells) and be combined with vegetation to reduce erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Offshore Reefs[2]	Install rock structure offshore with crest at or below MHHW. Rock may be substituted with natural material (such as oyster shells) and be combined with vegetation to reduce erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
	Shoreline Stabilization (Nonstructural)[2]	Aquatic Vegetation (submerged or intertidal)[2]	Plant aquatic vegetation either offshore or within intertidal zone. Reduces erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Sand Fill (or other clean, imported soil type meeting design objectives)[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. May be combined with aquatic vegetation offshore and within intertidal zone to reduce erosion from wave action.	Eliminated as stand-alone option[3] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Natural Shoreline Materials with Offshore Reef[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock structure offshore[4], with crest at or below MHHW to reduce wave energy, and plant aquatic vegetation to reduce erosion potential.	Retained for detailed evaluation. Assumes that offshore reef and aquatic vegetation could be developed in a manner that adequately controls erosion potential in intertidal shoreline zone.

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Containment[1] *(cont.)*	Shoreline Stabilization (Hybrid)[2]	Natural Shoreline Materials with Underlying Rock Armor[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock armoring layer under soil if wave action causes erosion of soil.	Retained for detailed evaluation. Stabilization options successfully implemented following removal action at Metal Debris Reef in 2007.
	Shoreline Nourishment[2]	Berms or Dunes[2]	Place additional sand (in a berm or dune) at higher tidal elevations to protect onshore property and provide stabilizing soil source following storm-related erosion.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs. Difficult to implement at narrow Parcel E shoreline (substantial excavation would be required).
		Feeder Beach[2]	Construct a wider beach to protect onshore property and provide stabilizing soil source following storm-related erosion.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs. Difficult to implement at narrow Parcel E shoreline (substantial excavation would be required).

Table 3-6. Screening of GRAs and Process Options for Soil and Shoreline Sediment at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes: Shaded process options are eliminated for further evaluation as a remedial alternative. Eliminated technologies are not presented in text.

1. GRA applies to soil only.
2. Shoreline protection technologies and process options are evaluated in Appendix D.
3. Eliminated as stand-alone stabilization option but may be incorporated with hybrid stabilization option.
4. Offshore reef consisting of rocks is identified as a representative structural element for this hybrid stabilization option; however, alternative structural elements may be proposed that meet the design objectives and provide equal (or superior) performance relative to effectiveness, implementability, and cost. Alternative structural elements may use natural materials (such as oyster shells) or may involve placing the structure closer to the shore (such as a nearshore sill). See Table 3-9 for a more detailed evaluation of this option.

bgs = below ground surface
DTSC = Department of Toxic Substances Control
EPA = U.S. Environmental Protection Agency
FRTR = Federal Remediation Technologies Roundtable
GRAs = general response actions
HPS = Hunters Point Shipyard
IR = Installation Restoration
LLRW = low-level radioactive waste
MHHW = mean higher high water
NAPL = non-aqueous-phase liquid
Navy = Department of the Navy
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
PAHs = polycylic aromatic hydrocarbons
PCBs = polychlorinated biphenyls
RAOs = remedial action objectives
RBCs = risk-based concentrations
RCRA = Resource Conservation and Recovery Act
VOCs = volatile organic compounds

Sources:

Atlantic States Marine Fisheries Commission, 2010. "Living Shorelines: Impacts of Erosion Control Strategies on Coastal Habitats." Habitat Management Series #10. J.C. Thomas-Blate, Editor. February. Available Online at: <http://www.asmfc.org/publications/habitat/hms10LivingShorelines.pdf>.

EPA. 1997a. "Best Management Practices (BMPs) for Soils Treatment Technologies." EPA 530-R-97-007. May.

EPA. 1997b. "Analysis of Selected Enhancements for Soil Vapor Extraction." EPA 542-R-97-007. September.

EPA. 1998a. "Evaluation of Subsurface Engineered Barriers at Waste Sites." EPA 542-R-98_005. August.

EPA. 2000a. The Office of Solid Waste and Emergency Response Publication on Land Use Controls. Available Online at: <http://www.epa.gov/oerrpage/superfund/action/ic/guide/index.htm>.

FRTR. 2005. Federal Remediation Technologies Roundtable Website. Accessed in January 2008. Available Online at: <http://www.frtr.gov>.

U.S. Army Corps of Engineers, 2006. "Coastal Engineering Manual." April.

Table 3-7. Screening of GRAs and Process Options for Groundwater
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
No Action	Not Applicable	Not Applicable	No Action	Retained Required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restricts the use of the parcel using environmental restrictive covenants on the land. Includes criteria during and after future development to ensure mitigated exposure conditions are maintained, such as vapor barriers or other engineering controls (Navy and DTSC, 2000). Also restricts subsurface intrusive activities that might result in or aid the movement of contaminated groundwater.	Retained Easily implemented and effective; prevents exposure to COCs and COECs.
	Administrative Mechanisms	Land Use Plans and Soil and Groundwater Management Procedures and Policies	Manage and prevent exposure to humans during future site activities.	Eliminated Covenants to Restrict Use of Property and Deed Restrictions are sufficient to enforce land use and activity restrictions.
Engineering Controls	Physical Barriers	Security Features and Signs	Prohibits activities that could spread groundwater contamination by requiring locked well caps and secured utility access covers, and identifying and securing any additional conduit where humans or wildlife could potentially be exposed to groundwater. Requires posted signs and locked doors to prohibit occupancy of buildings or other enclosures where unacceptable risk exists from the vapor intrusion pathway.	Retained Easily implemented and effective; prevents exposure to COCs and COECs.
	Vapor Barrier	Sub-Slab Depressurization	Install blowers and vapor collection points below a building to maintain a negative pressure gradient and prevent vapor intrusion.	Retained for new construction Effective and low-cost method to minimize vapor intrusion only.

Table 3-7. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Engineering Controls *(cont.)*	Vapor Barrier *(cont.)*	Sub-Slab Depressurization	Install blowers and vapor collection points below a building to maintain a negative pressure gradient and prevent vapor intrusion.	Eliminated for existing buildings Extensive investigation into conditions under the building would be necessary to ensure the systems cover the entire foundation and utility conduits or other preferential pathways are not present
		Epoxy Coating	Seal the floor of a building with an epoxy-based sealant, providing a physical barrier to vapor migration into buildings.	Eliminated as a stand-alone technology. May be used in conjunction with sub-slab depressurization to improve effectiveness.
		Raised-Floor System	Install a new floor above the building slab foundation and a depressurization system between the floors to maintain a negative pressure gradient and prevent vapor intrusion.	Eliminated High cost; reduces the functionality of the structure.
Monitoring	Groundwater Monitoring	Periodic Groundwater Monitoring	Collect and analyze groundwater samples periodically to monitor aquifer hydraulics and chemistry and variations in groundwater contamination. Chemicals are identified for detection monitoring and evaluation monitoring programs.	Retained Easily implemented; required to evaluate effectiveness of other process options; low cost.
Treatment	Passive	Monitored Natural Attenuation	Allow chemicals to naturally attenuate via biodegradation, dispersion, dilution, or adsorption. Requires monitoring to assess recovery rates and success.	Retained for use as a component of remedial alternatives Periodic monitoring is easily implemented; low cost.

Table 3-7. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	In-Situ Physical Treatment	Air Sparging with SVE	Inject air into the bottom of a saturated zone to strip VOCs from groundwater. Extract VOCs from the unsaturated zone with SVE.	Retained Easily implemented in conjunction with SVE; improves effectiveness of SVE at reducing VOC mass in groundwater.
		Pneumatic/ Hydraulic Fracturing	Inject air and water under pressure into soil to enhance permeability by developing cracks in low-permeability and consolidated sediments to increase removal efficiency. Used as part of injection processes (e.g., in-situ bioremediation, ZVI).	Retained Effective at enhancing distribution of reagents; demonstrated to be implementable in treatment studies at HPS; low cost.
	In-Situ Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to groundwater in areas where chlorinated solvents are present to enhance biodegradation of chlorinated VOCs. Amendments include electron donors, electron receptors, nutrients, and microorganisms, if necessary. Requires monitoring to assess program (FRTR, 2005).	Retained Effective for VOCs at moderate to low concentrations; easily implemented; moderate cost; no O&M costs; requires monitoring, but treatment should reduce long-term monitoring effort.
		Phytoremediation	Allow plants to uptake water (including dissolved chemicals in water) and release it to the atmosphere through transpiration. Plant uptake is used to remove, transfer, stabilize, and destroy inorganic and organic chemicals in groundwater; requires monitoring to assess remedial progress. Note that phytoremediation may also be used to provide hydraulic control by uptake of contaminated groundwater (known as phytohydraulics).	Eliminated Effective for organic COCs and COECs at low concentrations; may not be implementable with planned reuse; moderate implementation cost; moderate to low O&M cost; requires monitoring; lengthy treatment period likely

Table 3-7. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	In-Situ Biological Treatment *(cont.)*	Biosparging	Add oxygen and nutrients to the injected air stream to enhance air sparging; enhances growth of naturally occurring microbes and accelerates bioremediation.	Eliminated Low effectiveness (unlikely to meet RAOs within a reasonable time frame). Other more effective oxidation processes are available.
	In-Situ Chemical Groundwater Treatment	Chemical Reduction: ZVI Injection	Inject ZVI into an aquifer to encourage enhanced reductive dechlorination of chlorinated VOCs.	Retained Highly effective for VOCs; most efficient at high concentrations; implementable as a fast-reacting remedy; moderate to high success in pilot tests at HPS; high implementation costs with low O&M costs; requires monitoring, but treatment should reduce long-term monitoring effort.
		In-Situ Chemical Oxidation	Inject chemical oxidants into the vadose zone and groundwater to oxidize site chemicals, leaving water and carbon dioxide. Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate.	Eliminated Not effective for low-level VOC contamination in groundwater; challenges posed by heterogeneous fill (preferential flowpaths), and availability of other relevant and effective technologies

Table 3-7. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Treatment *(cont.)*	In-Situ Chemical Groundwater Treatment *(cont.)*	Electrokinetic Separation	Induce acidic (low pH) conditions through electronic current, creating an acid front at the anode and a base front (high pH) at the cathode. Acidic conditions mobilize metals for transport and collection at the cathode. Requires monitoring to assess remedial progress (Ground-Water Remediation Technology Analysis Center, 1997).	Eliminated Highly effective for metals but less effective for VOCs; requires subsequent disposal of collected COCs and COECs that may need additional treatment prior to disposal; reactions may form undesirable byproducts; high implementation and O&M cost.
		Ozone Sparging with SVE	Inject ozone into the aquifer to mobilize and react with VOCs into unsaturated vadose zone soil and create a highly oxygenized environment; oxygenized groundwater chemically degrades VOCs (EPA, 1998b).	Eliminated Possibility that ozone may follow preferential pathways or accumulate under or in buildings.
		Permeable Reactive Barriers	Install passive or reactive treatment walls across the flow path of a contaminant plume, allowing the plume groundwater to passively move through walls while prohibiting movement of chemicals by using agents such as zero-valent metals, chelators (ligands selected for their specificity for a metal), sorbents, microbes, or others. The chemicals will either degrade or be retained in a concentrated form by the barrier material; requires monitoring to assess remedial effectiveness.	Eliminated High level of effort to implement; only treats water that moves through the wall, not the source area; may have slow results based on groundwater gradients at HPS; ineffective where preferential pathways exist; implementation may conflict with planned reuse; limited field data concerning the longevity of wall reactivity or loss or permeability through precipitation (EPA, 2000b); would not reduce the vapor intrusion pathway risk; high implementation and O&M cost.

Table 3-7. Screening of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Comments
Removal	Extract and Dispose	Pump and Treat	Remove groundwater from the subsurface for ex-situ treatment. Treatment of extracted groundwater would be required or discharge to the POTW.	Eliminated Not effective for low-level contamination in groundwater; challenges posed by heterogeneous fill (preferential flow paths), and availability of other relevant and effective technologies.
		Surfactant Enhanced In-Situ Flushing	Inject surfactants or cosolvents into the source area to enhance groundwater pump-and-treat process and solubilize DNAPL. Accomplish dissolved-phase capture through a series of extraction wells.	Eliminated Difficult to implement; risk of mobilizing NAPL beyond site boundary.
Containment	Physical and Hydraulic Barriers	Slurry or Sheet-Pile Wall (with groundwater extraction wells, if necessary)	Install slurry or sheet-pile walls below ground to contain, capture, or redirect groundwater flow. Can be used to decrease the groundwater flow gradient and consequently increase the residence time during which chemical concentrations would be reduced through physical, chemical, and biological processes. Where needed, groundwater extraction wells might be used behind a wall to further mitigate migration (e.g., at a landfill where landfill leachate poses an unacceptable risk to downgradient receptors).	Retained Effective in containing chemicals in groundwater; implemented successfully at HPS in the past, low to moderate cost.

Table 3-7. Screening of GRAs and Process Options for Groundwater *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes: Shaded process options are eliminated for further evaluation as a remedial alternative.

COCs = chemicals of concern
COECs = chemicals of ecological concern
DNAPL = dense nonaqueous-phase liquid
EPA = U.S. Environmental Protection Agency
FRTR = Federal Remediation Technologies Roundtable
FS = Feasibility Study
GRAs = general response actions
HPS = Hunters Point Shipyard
IR = Installation Restoration
NAPL = nonaqueous-phase liquid
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
POTW = publicly owned treatment works
RAOs = remediation action objectives
SVE = soil vapor extraction
TtEMI = Tetra Tech EM Inc.
VOCs = volatile organic compounds
ZVI = zero-valent iron

Sources:

EPA. 1998b. "Field Applications of In Situ Remediation Technologies: Chemical Oxidation." EPA 542-R-98_008. September.

EPA. 2000a. The Office of Solid Waste and Emergency Response Publication on Land Use Controls. Available Online at: <http://www.epa.gov/oerrpage/superfund/action/ic/guide/index.htm>.

EPA. 2000b. "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study." EPA/540/R-00/002. Washington, D.C. July. Available Online at: <http://www.epa.gov/superfund/resources/remedy/costest.htm>.

FRTR. 2005. Federal Remediation Technologies Roundtable Website. Accessed in January 2008. Available Online at: <http://www.frtr.gov>.

Ground-Water Remediation Technology Analysis Center. 1997. "Electrokinetics." July.

Navy and DTSC, 2000. "Memorandum of Agreement Between the United States Department of the Navy and the California [Environmental Protection Agency] Department of Toxic Substances Control." Signed March 10.

Table 3-8. Screening of GRAs and Process Options for NAPL at IR-03
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
NAPL PROCESS OPTIONS				
No Action	None	None	No further response actions.	Retained No action as required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restrictions placed on the use of land or activities that may take place in a given area. Complete description provided in Tables 3-5 and 3-6.	Retained Easily implemented and effective; prevents exposure to COCs and COECs.
	Administrative Mechanisms	Land Use Plans and Soil and Groundwater Management Procedures and Policies	Manage and prevent exposure to humans during future site activities.	Eliminated Covenants to Restrict Use of Property and Deed Restrictions are sufficient to enforce land use and activity restrictions.
Engineering Controls	Physical Barriers	Security Features and Signs	Prohibits activities that could spread groundwater contamination by requiring locked well caps and secured utility access covers, and identifying and securing any additional conduit where potential humans and wildlife could be exposed to groundwater.	Retained Easily implemented and effective; prevents exposure to COCs and COECs; low cost.
Monitoring	Groundwater Monitoring	Periodic Groundwater Monitoring	Collect and analyze groundwater samples periodically to monitor variations in aquifer chemistry and hydraulics and changes in groundwater contamination.	Retained Easily implemented; effective for all COCs; low cost.
Removal	Physical Extraction	Liquid-Phase Pumping	Recover NAPL to the maximum extent practicable through either traditional pumping techniques.	Retained Potential high effectiveness when combined with thermal treatment.
		Dual-Phase Extraction	Use vacuum pumps to remove various combinations of contaminated groundwater; separate phase petroleum product and hydrocarbon vapor from the subsurface. Extracted liquids and vapor are collected and treated.	Retained Potential high effectiveness when combined with thermal treatment.

Table 3-8. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
NAPL PROCESS OPTIONS *(continued)*				
Removal *(cont.)*	Physical Extraction *(cont.)*	Thermally Enhanced Extraction by Hot Water Circulation, Electrical Resistive Heating, Thermal Conductive Heating, or Steam Injection	Use hot water circulation, electrical resistive heating, thermal conductive heating, or steam injection to decrease viscosity in NAPL, mobilizing it for extraction. May need to be implemented in conjunction with containment action (to retain heat within treatment zone and prevent off-site migration of NAPL).	Retained Significantly improves effectiveness in recovering viscous NAPL source areas using standard extraction techniques. Extraction not feasible without enhancement; moderate capital cost; moderate to high operational cost due to power consumption. Capital cost can be partially offset if equipment is used for thermal treatment upon completion of NAPL extraction.
		Treatment and Off-Site Disposal of Extracted NAPL/ Groundwater	Treat extracted NAPL, groundwater, and vapor prior to disposal. Depending on the POTW facility pretreatment requirements and other potential regulatory issues, extracted groundwater can be conveyed and discharged to a POTW facility.	Retained for further evaluation as a component of remedial alternatives. High effectiveness and implementability.
		Excavation	Remove contaminated material with heavy equipment. Excavated soil can be stockpiled on site for treatment or transported to a permitted off-site treatment and disposal facility.	Retained for consideration of ex-situ treatment or off-site disposal scenarios.
		Off-Site Disposal of Excavated NAPL/ Soil	Collect and transport soil to an appropriate treatment, storage, or disposal facility. Disposal of soil would involve constructing on-site staging area from which soil would be transferred to trucks and transported to an off-site facility.	Retained Highly effective; off-site disposal could be used for (1) disposal of small volumes of process residuals or (2) sitewide cleanup of soil from IR-03.

Table 3-8. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
			NAPL PROCESS OPTIONS *(continued)*	
Containment	Covering and Capping	Soil Cover or Engineered Alternative Cap	Isolate contaminated soil and buried debris from potential humans or wildlife at the site using a soil cover or engineered alternative cap.	Retained Easily implemented; a low-permeability geosynthetic clay cap was installed over the surface of IR-03 in 1997; effective in eliminating exposure; low to moderate cost.
	Hydraulic Barriers	Slurry or Sheet-Pile Wall	Install slurry or sheet-pile walls below the ground to contain, capture, or redirect groundwater flow in the vicinity of IR-03.	Retained Effective in containing NAPL and groundwater contaminants. Easy to moderate implementability; may be difficult to implement close to shoreline because large debris is present; moderate to high cost.
In-Situ Treatment	Solidification/ Stabilization	In-Situ Mixing	Mix one or more reagents directly into contaminated soil/NAPL with mechanical equipment. Reagents may include stabilizing agents (such as cement or bentonite) and reactive agents (such as a chemical oxidant).	Retained Effective in stabilizing NAPL if homogeneous mixing is achieved; may be difficult to implement close to shoreline because large debris is present. Moderate to high capital cost; low O&M cost.
		Ex-Situ Mixing	Excavate contaminated soil and NAPL, transport to on-site location, and spread in layers. Mix a binding reagent into soil/NAPL with mechanical equipment and transport/place stabilized material in excavation.	Retained Effective in stabilizing NAPL with homogeneous mixing process; implementation may be limited by available on-site area. High capital cost; low O&M cost.

Table 3-8. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
NAPL PROCESS OPTIONS *(continued)*				
In-Situ Treatment	Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to subsurface to enhance biodegradation of NAPL. Amendments include electron donors/receptors, nutrients, and microorganisms.	Eliminated as stand-alone option for NAPL treatment, but may be considered to address associated groundwater contamination. Thick, viscous nature of NAPL would limit effectiveness of in-situ biodegradation and chemical oxidation.
	Chemical Treatment	In-Situ Chemical Oxidation	Inject chemical oxidants into subsurface to oxidize NAPL. Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate.	
ADDITIONAL OPTIONS TO ADDRESS ASSOCIATED GROUNDWATER				
In-Situ Treatment	Thermal Treatment	Thermal Treatment by Electrical Resistive Heating, Thermal Conductive Heating, or Steam Injection	Use electrical resistive heating, thermal conductive heating, or steam injection to vaporize VOCs and SVOCs in groundwater. The vaporized chemicals are subsequently captured using vacuum extraction (e.g., SVE). May need to be implemented in conjunction with containment action (to retain heat within treatment zone and prevent off-site migration of NAPL).	Retained Easily implemented as a follow-up step to thermally-enhanced extraction; effective at treating organic compounds in groundwater, short treatment duration; high operational cost due to power consumption.
	Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to groundwater to enhance biodegradation of organic chemicals. Amendments include electron donors, electron receptors, nutrients, and microorganisms, if necessary. Requires monitoring to assess program.	Retained Effective at moderate to low concentrations; easily implemented at moderate cost; no O&M cost; requires monitoring, but treatment should reduce long-term monitoring effort.
	Passive	Monitored Natural Attenuation	Allow chemicals to attenuate naturally via biodegradation, dispersion, dilution, or adsorption. Requires monitoring to assess reduction rates.	Retained Periodic monitoring is easily implemented; low cost.

Table 3-8. Screening of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Conclusion
ADDITIONAL OPTIONS TO ADDRESS ASSOCIATED GROUNDWATER *(continued)*				
In-Situ Treatment	Chemical Treatment	Treatment Barrier	Integrate reactive components into a hydraulic barrier to mediate contaminant destruction using "funnel and gate" approach.	Eliminated Low effectiveness and high cost due to long treatment period.
		In-Situ Chemical Oxidation	Inject chemical oxidants into vadose zone and groundwater to oxidize site chemicals to water and carbon dioxide. Typical oxidants include hydrogen peroxide, potassium permanganate, and sodium persulfate.	Eliminated Low effectiveness due to difficulty achieving contact of injected agent with low-level, widespread residual contamination. Pilot tests using chemical oxidation with permanganate at Parcel C were found to be difficult to implement because of unanticipated preferential flow paths.

Notes: Shaded process options are eliminated for further evaluation as a remedial alternative.
COCs = chemicals of concern
COECs = chemicals of ecological concern
DPE = dual-phase extraction
IR = Installation Restoration
NAPL = nonaqueous-phase liquid
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
POTW = publicly owned treatment works
SVE = soil vapor extraction
VOCs = volatile organic compounds

Table 3-9. Detailed Evaluation of GRAs and Process Options for Soil and Shoreline Sediment
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Effectiveness	Implementability	Cost	Comments
No Action	Not Applicable	Not Applicable	No Action	Does not achieve RAOs.	Not acceptable to local government or public.	None	Retained Required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restricts use of parcel through environmental restrictive covenants that will run with the land; allows only designated land use in accordance with the proposed redevelopment plan (EPA, 2000a); includes criteria during and after future development to ensure mitigated exposure conditions are maintained, such as covers, barriers, or other engineering controls (Navy and DTSC, 2000).	Ineffective in reducing contamination. Effective at limiting or preventing exposure of humans to contamination, especially when used in combination with other options. Does not prevent exposure of wildlife.	Easily implemented. Requires legal documents and authority to enforce restrictions.	Low	Retained Easily implemented and effective, usually required to restrict activity based on land use.
Engineering Controls	Physical Barriers	Fencing, Barriers, and Signs	Restrict land use where there is exposure to potentially contaminated soil using fencing, barriers, and posting signs.	Effectively prevents exposure of humans to contamination, especially when used in combination with other options. Does not reduce volume or toxicity of contamination (EPA, 2000a). Conflicts with land use of open space areas.	Easily implemented. Requires legal documents and authority to enforce restrictions.	Low	Retained Easily implemented and effective; usually required to restrict activity based on land use. Not applicable for use in open space areas.
Monitoring	Soil Gas Monitoring	Periodic Soil Gas Monitoring	Collect and analyze soil gas samples periodically to evaluate the potential for vapor intrusion.	Does not achieve RAOs; does not reduce the toxicity or volume of contamination. However, it would be effective as a means of monitoring effectiveness of groundwater remediation actions.	Easily implemented.	Moderate	Retained Easily implemented; required to evaluate effectiveness of other process options; moderate cost.
Removal[1]	Excavation and Off-Site Treatment/ Disposal	Conventional Excavation and Disposal at Licensed Treatment/ Disposal Facility (e.g., RCRA, non-RCRA, LLRW)	Excavate soil containing chemicals using conventional mechanical equipment; limit to depths of less than 10 feet bgs. Transport and dispose of soils at a permitted treatment and disposal facility.	Effectively removes contamination and prevents long-term exposure to contamination. May expose workers and environment to chemicals during implementation. Uses conventional construction methods and is a proven technology. Does not reduce total amount of contamination.	Easily implemented. Requires appropriate permits and waste characterization. Groundwater inflow control for excavations below the water table, radiological screening, and required large volumes of clean backfill material could reduce implementability.	Moderate to high, depending on characterization and off-site disposal of large volumes of material.	Retained for some COCs Effective for non-ubiquitous metals and PAHs; easily implemented, permanent remedy; and moderate to high cost.
Treatment[1]	Physical/ Chemical Treatment	Soil Vapor Extraction (with or without thermally enhanced recovery)	Extract VOCs from unsaturated zone with vacuum pumps; extraction performance can be enhanced with active volatilization of VOCs in groundwater (EPA, 1997b). May be used with thermal enhancement (e.g., six-phase heating or steam injection) to enhance volatilization of chemicals.	Effective in reducing the toxicity, mobility, and volume of contaminated material. EPA presumptive remedy for VOCs in unsaturated zone. Pilot tests at Building 406 indicated SVE is effective for reducing mass of VOCs in soil.	Moderately implementable. Off-gas treatment likely required by regulatory agencies for soil vapor. Must meet local and state requirements for off-gas release and related factors.	Moderate	Retained for some COCs Effective in treating VOCs; effectiveness enhanced when implemented with active volatilization

Table 3-9. Detailed Evaluation of GRAs and Process Options for Soil and Shoreline Sediment *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Effectiveness	Implementability	Cost	Comments
Containment[1]	Covers	Soil Covers	Place soil cover over contaminated soil; prevents direct contact with contaminated soil.	Effectively prevents direct exposure of humans to contamination. It is possible this remedy could begin to fail over time, but monitoring, regular maintenance, and other safeguards would minimize this potential risk and thereby improve effectiveness. Institutional controls would be needed with each containment option to protect the remedy	Easily implemented. Planned land use prohibits the placement of a soil cover over the entire site; could be used in conjunction with asphalt covers.	Moderate	Retained for areas that are not paved or do not require paving to achieve planned land uses. Effective for metals and PAHs; easily and quickly implemented; moderate cost per area.
		Asphalt or Concrete Covers	Place an asphalt or concrete cover over contaminated soil; prevents direct contact with contaminated soil.	Effectively prevents direct exposure of humans to contamination. It is possible this remedy could weather and crack over time, but monitoring, regular maintenance, and other safeguards would minimize this potential risk and thereby improve effectiveness. Institutional controls would be needed with each containment option to protect the remedy	Easily implemented. Planned land use prohibits the placement of an asphalt cover over the entire site; could be used in conjunction with soil covers.	Moderate	Retained for areas that are paved or require paving to achieve planned land uses Effective for metals and PAHs; moderate cost per area.
		Engineered Alternative Caps	Place a soil cover with a geomembrane liner that is made of an impermeable, synthetic material; prevents direct contact with contaminated soil and minimizes migration of contamination. Can also include engineered soil caps using clay instead of synthetic material.	Effectively prevents direct exposure of humans to contamination. An engineered alternative cap would incorporate a low-permeability layer that would minimize water infiltration to the contaminated zone. It is possible this remedy could begin to fail over time, but monitoring, regular maintenance, and other safeguards would minimize this potential risk and thereby improve effectiveness. A clay cap swells and fills any voids or holes when saturated. Institutional controls would be needed with each containment option to protect the remedy	Technology required to implement engineered alternative caps are readily available and implementable. An engineered alternative cap would be characterized by low to moderate degree of implementability because of the need to promote adequate surface drainage by excavating certain amounts of soil and debris at the site or placing sub-cap fill material in other areas, and the likelihood that the liner would need to be replaced in the future.	Moderate	Retained for areas with elevated concentrations of mobile chemicals that are not paved or do not require paving to achieve planned land uses. Effective; easy to moderate implementability. .

Table 3-9. Detailed Evaluation of GRAs and Process Options for Soil and Shoreline Sediment *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Effectiveness	Implementability	Cost	Comments
Containment[1]	Shoreline Armoring[2]	Rock Revetment[2]	Install an erosion control structure consisting of riprap, large armor units, gabions, articulating concrete mats, or engineered concrete structures along the shoreline.	Provides a robust containment structure to control shoreline erosion Short-term effects could be managed through proper construction techniques Inhibits pedestrian access and limits shoreline recreation Not visually appealing	Readily implementable Would comply with ARARs Minor long-term O&M	Moderate	Viable protection option for steep and narrow shoreline areas. Successfully implemented at similar shoreline area at HPS Parcel B (IR Site 07). Revetment design may be adjusted to incorporate localized, low-profile areas where soil and vegetation could be placed (for aesthetic considerations).
	Shoreline Stabilization (Hybrid)[2]	Natural Shoreline Materials with Offshore Reef[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock structure offshore[3], with crest at or below MHHW to reduce wave energy, and plant aquatic vegetation to reduce erosion potential.	Uncertain effectiveness in reducing the offshore wave energy and controlling erosion Construction of offshore reef would impact existing aquatic habitat Limits access for shoreline recreation Provides habitat for aquatic wildlife Visually appealing	Construction of offshore reef requires specialized labor and equipment Construction of offshore reef may not comply with ARARs Potentially significant long-term O&M	High	Not a viable protection option because of (1) uncertain effectiveness in controlling erosion potential in intertidal shoreline zone, and (2) significant implementation issues related to constructing the offshore reef.
		Natural Shoreline Materials with Underlying Rock Armor[2]	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock armoring layer under soil if wave action causes erosion of soil.	Provides a robust protective structure to prevent unacceptable shoreline erosion Short-term effects could be managed through proper construction techniques Does not inhibit pedestrian access or limit shoreline recreation Visually appealing	Readily implementable Would comply with ARARs Potentially significant long-term O&M	High	Viable protection option for gradually sloped and wide shoreline areas. Stabilization option successfully implemented following removal action at Metal Debris Reef in 2007.

Notes: Only processes and technologies retained for further consideration are included in this table.

1 GRA applies to soil only.

2. Shoreline protection technologies and process options are evaluated in Appendix D.

3. Offshore reef consisting of rocks is identified as a representative structural element for this hybrid stabilization option; however, alternative structural elements may be proposed that meet the design objectives and provide equal (or superior) performance relative to effectiveness, implementability, and cost. Alternative structural elements may use natural materials (such as oyster shells) or may involve placing the structure closer to the shore (such as a near-shore sill). This option was determined to not be a viable protection option for reasons unrelated to the material type and offshore location of the reef.

ARARs = applicable or relevant and appropriate requirements
bgs = below ground surface
DTSC = Department of Toxic Substances Control
EPA = U.S. Environmental Protection Agency
GRAs = general response actions
HPS = Hunters Point Shipyard
LLRW = low-level radioactive waste
MHHW = mean higher high water
Navy = Department of the Navy
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
PAHs = polycylic aromatic hydrocarbons
RAOs = remedial action objectives
RCRA = Resource Conservation and Recovery Act
SVE = soil vapor extraction
VOCs = volatile organic compounds

Sources:

EPA. 1997b. "Analysis of Selected Enhancements for Soil Vapor Extraction." EPA 542-R-97-007. September.

EPA. 2000a. The Office of Solid Waste and Emergency Response Publication on Land Use Controls. Available Online at: <http://www.epa.gov/oerrpage/superfund/action/ic/guide/index.htm>.

Navy and DTSC. 2000. "Memorandum of Agreement Between the United States Department of the Navy and the California Department of Toxic Substances Control." Use of model "Covenant to Restrict Use of Property" at installations being closed and transferred by the Navy.

Table 3-10. Detailed Evaluation of GRAs and Process Options for Groundwater
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Effectiveness	Implementability	Cost	Comments
No Action	Not Applicable	Not Applicable	No Action	Does not achieve RAOs.	Not acceptable to local government or public.	None	Retained Required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restricts use of parcel through environmental restrictive covenants that will run with the land; allows only designated land use in accordance with the proposed redevelopment plan (EPA, 2000a); includes criteria during and after future development to restrict extraction of groundwater, installation of new groundwater wells, and restrict subsurface intrusive activities that might result in or aid the movement of contaminated groundwater.	Ineffective in reducing contamination. Effective at limiting or preventing exposure of humans to contamination, especially when used in combination with other options. Does not prevent exposure of marine organisms.	Easily implemented. Requires legal documents and authority to enforce restrictions.	Low	Retained Easily implemented and effective; usually required to restrict activity based on land use.
Engineering Controls	Physical Barriers	Security Features and Signs	Prohibits activities that could spread groundwater contamination by requiring locked well caps and secured utility access covers, and identifying and securing any additional conduit where humans or wildlife could potentially be exposed to groundwater. Requires posted signs and locked doors to prohibit occupancy of buildings or other enclosures where unacceptable risk exists from the vapor intrusion pathway.	Effective at preventing exposure of humans to contamination, especially when used in combination with other options. Does not prevent exposure of marine organisms; does not reduce toxicity or volume of contamination.	Easily implemented. Maintenance and implementation of engineering controls during future land use are controlled through land use restrictions (below).	Low	Retained Easily implemented and effective; prevents exposure to COCs and COECs.
	Vapor Barrier	Sub-Slab Depressurization	Install blowers and vapor collection points below a building to maintain a negative pressure gradient and prevent vapor intrusion.	Effective at preventing vapor intrusion when properly installed and operated with new construction.	Easily implementable as part of new construction. However, for existing construction, extensive investigation into conditions under the building would be necessary to ensure the systems are covering the entire foundation and to evaluate utility conduits and other preferential pathways.	Low for new construction.	Retained for new construction Effective and low-cost method to minimize vapor intrusion only.

Table 3-10. Detailed Evaluation of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Effectiveness	Implementability	Cost	Comments
Monitoring	Groundwater Monitoring	Periodic Groundwater Monitoring	Collect and analyze groundwater samples periodically to monitor aquifer hydraulics and chemistry and variations in groundwater contamination. Chemicals are identified for detection monitoring and evaluation monitoring programs.	Does not achieve RAOs; does not reduce the toxicity or volume of contamination. However, it would be effective as a means of monitoring effectiveness of groundwater remediation actions.	Easily implemented.	Moderate	Retained Easily implemented; required to evaluate effectiveness of other process options; moderate cost.
Treatment	Passive	Monitored Natural Attenuation	Allow chemicals to naturally attenuate via biodegradation, dispersion, dilution, or adsorption. Requires monitoring to assess recovery rates and success.	Effective as a polishing step following in-situ treatment at source areas. Not likely to be effective without remediation at source areas. Would reduce toxicity and volume of chemicals over time.	Readily implementable; however, this option usually requires modeling and evaluation of chemical degradation rates and pathways, identifying plume behavior, and predicting chemical concentrations at downgradient receptor points.	Low capital cost. O&M costs could be high depending on frequency and duration of monitoring period.	Retained for use as a component of remedial alternatives Periodic monitoring can be readily implemented; low capital cost.
	In-Situ Physical Treatment	Air Sparging with SVE	Inject air into the bottom of a saturated zone to strip VOCs from groundwater. Extract VOCs from the unsaturated zone with SVE.	Would require pilot testing to verify effectiveness. Stratification of fill material could be an issue. Vapors must be extracted and treated. May cause aerobic subsurface conditions that could limit the natural degradation of chemicals. Generally more applicable to the lighter gasoline constituents, because they readily transfer from the dissolved to the gaseous phase.	Easily implementable. An extended timeframe could be required to meet RAOs. Would require implementation of associated vapor extraction and treatment system.	Moderate capital cost. Moderate O&M cost assuming effectiveness in a reasonable timeframe (i.e., approximately 5 years).	Retained Easily implemented in conjunction with SVE; improves effectiveness of SVE at reducing VOC mass in groundwater.
		Pneumatic/Hydraulic Fracturing	Inject air and water under pressure into soil to enhance permeability by developing cracks in low-permeability and consolidated sediments to increase removal efficiency. Used as part of injection processes (e.g., in situ bioremediation, ZVI).	Fracturing of the subsurface to increase permeability, enhances the distribution of treatment solutions.	Implementability demonstrated by treatability studies at Parcel C.	Low. Injection equipment required by retained technologies.	Retained Effective at enhancing distribution of reagents; low cost.
	In-Situ Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to groundwater in areas where chlorinated solvents are present to enhance biodegradation of chlorinated VOCs. Amendments include electron donors, electron receptors, nutrients, and microorganisms, if necessary. Requires monitoring to assess program (FRTR, 2005).	Effective for reduction of volume, mobility, and toxicity of some fuel hydrocarbons and VOCs. Not effective for extremely high concentrations.	Easily implemented.	Moderate capital cost. Extensive contamination at Parcel E drive costs a little higher, than they would be at a site with a less complex contaminant distribution. Low O&M cost. No removal or handling of groundwater costs.	Retained Effective for VOCs at moderate to low concentrations; easily implemented; moderate cost; low O&M costs; requires monitoring, but treatment should reduce long-term monitoring effort.

Table 3-10. Detailed Evaluation of GRAs and Process Options for Groundwater *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology Type	Process Option	Description	Effectiveness	Implementability	Cost	Comments
Treatment *(continued)*	In-Situ Chemical Groundwater Treatment	Chemical Reduction: ZVI Injection	Inject ZVI into an aquifer to encourage enhanced reductive dechlorination of chlorinated VOCs.	Effective for reduction of volume, mobility, and toxicity of VOCs. Proven technology. Treatability study of ZVI injection at Parcel C resulted in mass reduction of about 99.2 percent of chlorinated VOCs within the treatment zone. Effective, if reducing agent is delivered successfully in tight soil.	Easily implementable.	Moderate to high capital cost. Low O&M cost, .	Retained Highly effective for VOCs; most efficient at high concentrations; implementable as a fast-reacting remedy; moderate to high success in pilot tests at HPS; high implementation costs with low O&M costs; requires monitoring, but treatment should reduce long-term monitoring effort.
Containment	Physical and Hydraulic Barriers	Slurry or Sheet-Pile Wall (with groundwater extraction wells, if necessary)	Install slurry or sheet-pile walls below ground to contain, capture, or redirect groundwater flow. Can be used to decrease the groundwater flow gradient and consequently increase the residence time during which chemical concentrations would be reduced through physical, chemical, and biological processes. Where needed, groundwater extraction wells might be used behind a wall to further mitigate migration (e.g., at a landfill where landfill leachate poses an unacceptable risk to downgradient receptors).	Vertical barriers can effectively control migration of contaminated groundwater. The effectiveness of steel sheet-pile walls may be affected by corrosion; these effects can be mitigated through installation and use of a cathodic protection system. Vertical barriers do not reduce exposure from the vapor intrusion pathway.	Installing a new slurry or sheet-pile wall in Parcel E would be challenging to implement due to subsurface conditions; however, pre-design investigations to identify subsurface obstructions in advance would increase implementability.	Moderate to high.	Retained Effective in containing chemicals in groundwater; implemented successfully at HPS in the past, moderate to high cost.

Notes: Only processes and technologies retained for further consideration are included in this table.

FRTR = Federal Remediation Technologies Roundtable
GRAs = general response actions
HPS = Hunters Point Shipyard
IR = Installation Restoration
NAPL = nonaqueous-phase liquid
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
RAOs = remediation action objectives
Shaw = Shaw Environmental, Inc.
SVE = soil vapor extraction
VOCs = volatile organic compounds
ZVI = zero-valent iron

Sources:

FRTR. 2005. Federal Remediation Technologies Roundtable Website. Accessed in January 2008. Available Online at: <http://www.frtr.gov>.

Shaw and others. 2005. "In Situ Anaerobic and Aerobic Bioremediation of a Mixed Chlorinated Organic Plume at the Hunters Point Shipyard." D. Leigh, B. Porter, W. Schaal, G. Christensen, G.P. Brooks. *In Situ and On Site Bioremediation. The 8th International Symposium*. Baltimore, Maryland. June.

Table 3-11. Detailed Evaluation of GRAs and Process Options for NAPL at IR-03
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Effectiveness	Implementability	Cost	Conclusion
NAPL PROCESS OPTIONS							
No action	None	None	No further response actions.	Ineffective in reducing contamination. Would not prevent public access or exposure to site contaminants.	No action required.	No direct costs.	Retained No action as required by NCP.
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions	Restricts use of parcel through environmental restrictive covenants that will run with the land; allows only designated land use in accordance with the proposed redevelopment plan (EPA, 2000a); includes criteria during and after future development to restrict extraction of groundwater, installation of new groundwater wells, and restrict subsurface intrusive activities that might result in or aid the movement of contaminated groundwater.	Ineffective in reducing contamination. Effective at limiting or preventing exposure of humans to contamination, especially when used in combination with other options. Does not prevent exposure of aquatic wildlife.	Easily implemented. Requires legal documents and authority to enforce restrictions.	Low	Retained Easily implemented and effective; usually required to restrict activity based on land use.
Engineering Controls	Physical Barriers	Security Features and Signs	Prohibits activities that could spread groundwater contamination by requiring locked well caps and secured utility access covers, and identifying and securing any additional conduit where potential humans and wildlife could be exposed to groundwater and NAPL.	Effective at preventing exposure of humans to contamination, especially when used in combination with other options. Does not prevent exposure of marine organisms; does not reduce toxicity or volume of contamination.	Easily implemented. Maintenance and implementation of engineering controls during future land use are controlled through land use restrictions (below).	Low	Retained Easily implemented and effective; prevents exposure to COCs and COECs; low cost.
Monitoring	Groundwater Monitoring	Periodic Groundwater Monitoring	Collect and analyze groundwater samples periodically to monitor variations in aquifer chemistry and hydraulics and changes in groundwater contamination.	As a stand-alone technology, groundwater sampling and analysis would not be effective at reducing the mass, volume, or toxicity of groundwater contamination. However, it is an effective means of monitoring the effectiveness of groundwater remediation actions.	Readily implementable as demonstrated by previous and current monitoring programs.	Low capital cost. Moderate annual O&M cost.	Retained Easily implemented; effective for all COCs; low cost.
Removal	Physical Extraction	Liquid-Phase Pumping	Recover NAPL to the maximum extent practicable through either traditional pumping techniques.	Prior efforts to remove NAPL through pumping were largely unsuccessful due to the high viscosity of the NAPL material. Combining this approach with thermal treatment may increase the effectiveness of this technology but could create vapors not captured by the pumping.	Extraction by traditional pumping is implementable, but may result in large volumes of groundwater requiring treatment.	Moderate capital and O&M costs. The need to treat excessive amounts of groundwater could result in high O&M costs. Combining this approach with thermal treatment significantly increases the cost.	Eliminated Potentially effective only when combined with thermal treatment, but liquid-phase pumping would not effectively capture vapors created during heating process.

Table 3-11. Detailed Evaluation of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Effectiveness	Implementability	Cost	Conclusion
				NAPL PROCESS OPTIONS *(continued)*			
Removal *(cont.)*	Physical Extraction *(cont.)*	Dual-Phase Extraction	Use vacuum pumps to remove various combinations of contaminated groundwater, separate phase petroleum product, and hydrocarbon vapor from the subsurface. Extracted liquids and vapor are collected and treated.	DPE can be effective in removing NAPL from the subsurface, and can also stimulate biodegradation of petroleum constituents in the unsaturated zone by increasing the supply of oxygen. Combining this approach with thermal treatment may increase the effectiveness of this technology.	Extraction by DPE is implementable, but may result in large volumes of groundwater and vapor requiring treatment.	Moderate capital and O&M costs. The need to treat excessive amounts of groundwater and vapor could result in high O&M costs. Combining this approach with thermal treatment significantly increases the cost.	Retained Potentially effective when combined with thermal treatment.
		Thermally Enhanced Extraction by Hot Water Injection, Electrical Resistive Heating, Thermal Conductive Heating, or Steam Injection	Use hot water injection, electrical resistive heating, thermal conductive heating, or steam injection to decrease viscosity of NAPL, potentially increasing its mobility for removal (via extraction).	Thermally enhanced extraction is a proven technology used in the treatment of NAPL. The site-specific conditions at IR-03 (most notably the thick viscous product) may limit the effectiveness of this technology. Bench-scale or pilot-scale studies would be needed to better understand its potential effectiveness.	Implementation would be moderately difficult because of specialized equipment and significant power demand required for these options. Bench-scale or pilot-scale studies would be needed to better understand the implementability of these technologies.	High. These technologies are generally considered to be capital- and energy-intensive.	Retained May improve effectiveness in recovering viscous NAPL source areas using standard extraction techniques. Bench-scale or pilot-scale studies would be needed to better understand its effectiveness and implementability. Moderate capital cost; moderate to high operational cost due to energy consumption.
		Treatment and Off-Site Disposal of Extracted NAPL/ Groundwater	Treat extracted NAPL, groundwater, and vapor prior to disposal. Depending on the POTW facility pretreatment requirements and other potential regulatory issues, extracted groundwater can be conveyed and discharged to a POTW facility.	Filtration, precipitation, and adsorption could effectively remove some of the groundwater chemicals present at IR-03. Discharge to a POTW facility is an effective means of disposing untreated groundwater. A permit fee would likely be required from the local POTW facility for discharge of the extracted water.	These treatment technologies are commonly used in groundwater treatment and would be readily implementable. Filtration and precipitation would create a sludge material containing the chemicals, which would need to be disposed of in an off-site disposal facility. Adsorption would also generate spent activated carbon media, which would need to be either regenerated or disposed. Discharge to a POTW facility would be feasible if concentrations in the waste stream from extracted groundwater are below RCRA criteria, and if a connection to a POTW facility that is capable of treating COCs at IR-03 is identified nearby.	These ex-situ technologies would have relatively high annual O&M costs. In addition, groundwater extraction for hydraulic containment could be required for a long duration, making this option less cost-effective compared with other options. Conveyance structures would need to be constructed and administrative requirements would need to be met for a discharge to a POTW facility. Capital and O&M costs would be low to moderate.	Retained High effectiveness and implementability.

Table 3-11. Detailed Evaluation of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Effectiveness	Implementability	Cost	Conclusion
				NAPL PROCESS OPTIONS *(continued)*			
Removal *(cont.)*	Physical Extraction *(cont.)*	Excavation	Remove contaminated material with heavy equipment. Excavated soil could be stockpiled on site for treatment, or transported to a permitted off-site treatment and disposal facility.	Excavation would be applicable to the complete range of chemical groups, with no particular target group. However, excavation must be performed in conjunction with either off-site disposal or ex-situ treatment to prevent exposure to humans and wildlife.	Implementability would be limited by (1) the generation of fugitive emissions during operations and (2) depth and composition of the media requiring excavation. Excavations below the water table would be less implementable than shallower excavations due to the added complexities of dewatering and water treatment.	Excavation costs would include equipment and labor. Additional costs could include on-site storage facilities and soil characterization. Overall capital costs would be high.	Retained Effective if used in combination with ex-situ treatment or off-site disposal options.
		Off-Site Disposal of Excavated NAPL/ Soil	Collect and transport soil to an appropriate treatment, storage, or disposal facility. Disposal of soil would involve constructing on-site staging area from which soil would be transferred to trucks and transported to an off-site facility.	Off-site disposal would be applicable to the complete range of chemical groups, with no particular target group. The effectiveness would be moderate, as excavation will be performed in conjunction with off-site disposal, where the effectiveness of the facility to prevent exposure to humans and wildlife cannot be directly controlled or monitored.	Excavation and off-site disposal are commonly used in soil treatment and would be readily implementable for small to moderate volumes. Soil saturated with either water or NAPL would require processing (phase separation or stabilization) prior to off-site disposal. May be difficult to implement for large treatment volumes because of limited on-site area available for material staging and characterization.	Costs for off-site disposal could range from moderate to very high, depending on the volume of soil required for disposal and its chemical characteristics.	Retained Highly effective; off-site disposal could be used for disposal of small volumes of process residuals or areas with extensive NAPL. May not be practical for large treatment volumes because of implementation challenges (limited on-site area for staging) and high capital cost; these constraints may be less significant if ex-situ treatment volume is minimized.
Treatment	Solidification/ Stabilization	In-Situ Mixing	Mix one or more reagents directly into the contaminated soil/NAPL with mechanical equipment. Reagents include stabilizing agents (such as cement or bentonite), and reactive agents (such as chemical oxidants).	Effectiveness relies on homogenous mixing of reagents with the contaminated soil and NAPL; homogeneous mixing may be difficult to achieve in shoreline areas containing large debris. Bench-scale or pilot-scale studies would be required to identify the appropriate reagent(s) to solidify and stabilize the contaminated soil and NAPL. If designed and implemented appropriately, technology would be capable of preventing migration of NAPL to San Francisco Bay (in accordance with the RAOs).	Mechanical equipment for in-situ mixing is readily available. Mixing process would require controls (including capture, treatment, and disposal) for air and liquid residuals; these controls may be moderately difficult to implement given the range of organic, inorganic, and radiological contaminants at the site. Mixing process may be difficult to implement in shoreline areas containing large debris. Administrative implementability may be challenging if technology is not implemented in combination with other technologies that seek to remove the NAPL source to the extent practicable (consistent with Water Board guidance for closure of low-risk fuel sites in the San Francisco Bay Region [Water Board, 1996]).	Capital costs for in-situ mixing would be moderate to high, depending on the treatment volume. O&M costs would be low because minimal long-term management of groundwater would be needed for the stabilized waste (which would have a low hydraulic conductivity).	Retained Capable of reliably achieving RAOs with readily available equipment. Bench-scale or pilot-scale studies would be needed to identify the appropriate reagent(s). Moderate to high capital cost; low O&M costs.

Table 3-11. Detailed Evaluation of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Effectiveness	Implementability	Cost	Conclusion
				NAPL PROCESS OPTIONS *(continued)*			
Treatment *(cont.)*	Solidification/ Stabilization *(cont.)*	Ex-Situ Mixing	Excavate contaminated soil and NAPL, transport to on-site location, and spread in layers. Mix a binding reagent into the soil/NAPL with mechanical equipment and transport/place stabilized material in excavation.	Ex-situ mixing would be effective because homogenous mixing could be controlled and monitored. Bench-scale or pilot-scale studies would be required to identify the appropriate reagent(s) to solidify and stabilize the contaminated soil and NAPL. If designed and implemented appropriately, technology would be capable of preventing migration of NAPL to San Francisco Bay (in accordance with the RAOs).	Mechanical equipment for excavation and ex-situ mixing is readily available. Mixing process would require controls for liquid residuals; these controls may be moderately difficult to implement given the range of organic, inorganic, and radiological contaminants at the site. Air emissions would require monitoring but could not be effectively captured and treated. May be difficult to implement for large treatment volumes because of limited on-site area available for material processing. Administrative implementability may be challenging if technology is not implemented in combination with other technologies that seek to remove the NAPL source to the extent practicable.	Capital costs for ex-situ solidification and stabilization would be high because of the labor intensive process of excavation, transportation, mixing, and backfilling. High costs could be moderated if ex-situ treatment volume is minimized. O&M costs would be low because minimal long-term management of groundwater would be needed for the stabilized waste (which would have a low hydraulic conductivity).	Retained Capable of reliably achieving RAOs with readily available equipment. Bench-scale or pilot-scale studies would be needed to identify the appropriate reagent(s). May not be practical for large treatment volumes because of implementation challenges (limited on-site area for mixing) and high capital cost; these constraints may be less significant if ex-situ treatment volume is minimized.
Containment	Covering and Capping	Soil Cover or Engineered Alternative Cap	Isolate contaminated soil and buried debris from potential humans or wildlife at the site using a soil cover or engineered alternative cap. An engineered alternative cap would incorporate a low-permeability layer that would minimize water infiltration to the contaminated zone.	Cover/cap of suitable thickness would be effective to prevent direct exposure to underlying contaminated soil or debris. Monitoring, regular maintenance, and institutional controls would be performed to ensure its effectiveness.	Technology required to implement soil covers and engineered alternative caps are readily available and easily implementable.	Low to moderate capital and O&M costs	Retained Easily implemented; a low-permeability geosynthetic clay cap was installed over the surface of IR-03 in 1997; effective in eliminating exposure; low to moderate cost.
	Hydraulic Barriers	Slurry or Sheet-Pile Wall	Install slurry or sheet-pile walls below the ground to contain, capture, or redirect groundwater flow in the vicinity of IR-03.	Vertical barriers can effectively control migration of NAPL and associated contaminated groundwater. Hydraulic gradient between the wall would need to be monitored and managed to remain within acceptable limits; water management could include extraction and treatment, or installation of an upgradient flow diversion structure. A sheet-pile wall was installed (in 1998) along the southern edge of the former oil reclamation ponds; the existing wall does not have cathodic protection, and would not be an effective component of a future remedial action.	Installing a new slurry or sheet-pile wall at this site would be challenging to implement due to the subsurface conditions at IR-03 and short distance from the shoreline; however, pre-design investigations to identify subsurface obstructions in advance could improve implementation.	Moderate to High	Retained Effective in containing NAPL and groundwater contaminants. May be difficult to implement close to shoreline and may require pre-design investigations; moderate to high cost.

Table 3-11. Detailed Evaluation of GRAs and Process Options for NAPL at IR-03 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Effectiveness	Implementability	Cost	Conclusion
ADDITIONAL OPTIONS TO ADDRESS GROUNDWATER ASSOCIATED WITH NAPL							
In-Situ Treatment	Thermal Treatment	Thermal Treatment by Electrical Resistive Heating, Thermal Conductive Heating, or Steam Injection	Use electrical resistive heating, thermal conductive heating, or steam injection to vaporize VOCs and SVOCs in groundwater. The vaporized chemicals are subsequently captured using vacuum extraction (e.g., SVE).	Potentially effective but site-specific treatability studies would be necessary to determine the viability of ERH, TCH, and steam injection to cost-effectively achieve the necessary temperatures to vaporize VOCs and SVOCs in groundwater (following NAPL removal). Heat loss through high groundwater flow velocities would need to be controlled through some form of containment (slurry wall, etc.).	Implementation would be moderately difficult because of specialized equipment and significant power demand required for these options. Bench-scale or pilot-scale studies would be needed to better understand the implementability of these technologies. Implementation challenges also include the effective capture and treatment of potentially high volumes of vapor.	High. These technologies are generally considered to be capital- and energy-intensive. Additional capital cost of heating to temperatures capable of volatilizing chemicals would be moderate if implemented in conjunction with thermally-enhanced NAPL extraction.	Retained Potentially effective at treating organic compounds in groundwater. Bench-scale or pilot-scale studies would be needed to better understand its effectiveness and implementability. Moderate capital cost; moderate to high operational cost due to energy consumption.
	Biological Treatment	Anaerobic and Aerobic Bioremediation	Introduce amendments to groundwater in areas where chlorinated solvents are present to enhance biodegradation of chlorinated VOCs. Amendments include electron donors, electron receptors, nutrients, and microorganisms, if necessary. Requires monitoring to assess program (FRTR, 2005).	Potentially effective for treating residual fuel hydrocarbons and VOCs following NAPL source removal/treatment.	Easily implemented.	Moderate capital cost. Low O&M cost.	Retained Potentially effective for treating residual fuel hydrocarbons and VOCs following NAPL source removal/treatment; easily implemented at moderate cost..
	Passive	Monitored Natural Attenuation	Allow chemicals to naturally attenuate via biodegradation, dispersion, dilution, or adsorption. Requires monitoring to assess recovery rates and success.	Effective as a polishing step following in-situ treatment at high concentration areas. Not likely to be effective without remediation of high concentration areas.	Readily implementable; option would requires evaluation of chemical degradation rates and pathways.	Low capital cost. Low O&M costs.	Retained Effective as a polishing step; readily implementable and low cost.

Notes:

COCs = chemicals of concern
DPE = dual-phase extraction
ERH = electrical resistive heating
IR = Installation Restoration
ISCO = in-situ chemical oxidation
NAPL = nonaqueous-phase liquid
Navy = Department of the Navy
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
O&M = operation and maintenance
POTW = publicly owned treatment works
RAOs = remedial action objectives
RCRA = Resource Conservation and Recovery Act
SVE = soil vapor extraction
SVOCs = semivolatile organic compounds
TCH = thermal conductive heating
VOCs = volatile organic compounds
Water Board = San Francisco Regional Water Quality Control Board

Sources:

FRTR. 2005. Federal Remediation Technologies Roundtable Website. Accessed in January 2008. Available Online at: <http://www.frtr.gov>.

Shaw Environmental, Inc. and others. 2005. "In Situ Anaerobic and Aerobic Bioremediation of a Mixed Chlorinated Organic Plume at the Hunters Point Shipyard." D. Leigh, B. Porter, W. Schaal, G. Christensen, G.P. Brooks. *In Situ and On Site Bioremediation. The 8th International Symposium*. Baltimore, Maryland. June.

San Francisco Regional Water Quality Control Board (Water Board), 1996, "Regional Board Supplemental Instruction to State Water Board, December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites." January 5.

Table 3-12. Performance Standards for Covers
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cover Type	Conceptual Design[1]	Proposed Locations (Redevelopment Blocks)[1]	Narrative Performance Standards[1,2]	Pertinent ARARs[1,3]
Soil Covers	Placement of 2-foot-thick soil cover to prevent direct contact with contaminated soil. Full coverage of redevelopment block is required due to the presence of ubiquitous metals that pose a risk to humans.	EOS-1, EOS-2, EOS-3, EOS-4, EOS-5A, EOS-5B, and EOS-5C[4]	• Prevent human exposure to contaminated soil. • Maintain to minimize breakage, erosion, or deterioration. • Integrate with shoreline protection features, as appropriate.	• Final cover requirement to accommodate lateral and vertical shear forces generated by the maximum credible earthquake at Cal. Code Regs. tit. 22, § 66264.310(a)(5). • Final cover maintenance requirements and final cover run-on and runoff controls contained in Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4). • Survey benchmark maintenance required in Cal. Code Regs. tit. 22, § 66264.310(b)(5). • Permanent monument requirements at Cal. Code Regs. tit. 27, § 20950(d) • Erosion and related damage prevention requirements at Cal. Code Regs. tit. 27, § 21090(c)(4) • Aerial photographic survey, or alternative survey, requirements at Cal. Code Regs. tit. 27, § 21090(e)(1) and (e)(3) • Final cover and alternative final cover standards at Cal. Code Regs. tit. 27, § 21140(a) and (b) • Final slope requirements at Cal. Code Regs. tit. 27, § 21145(a) • Drainage and erosion control system requirements at Cal. Code Regs. tit. 27, § 21150(a)

Table 3-12. Performance Standards for Covers *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cover Type	Conceptual Design[1]	Proposed Locations (Redevelopment Blocks)[1]	Narrative Performance Standards[1,2]	Pertinent ARARs[1,3]
Asphalt or Concrete Covers	Placement of new asphalt cover[5] or repair of existing asphalt/concrete covers[6] to prevent direct contact with contaminated soil. Full coverage of redevelopment block is required due to the presence of ubiquitous metals that pose a risk to humans.	MU-1, MU-2, and MU-3	• Prevent human exposure to contaminated soil. • Maintain to minimize breakage, erosion, or deterioration. • Integrate with shoreline protection features, as appropriate.	• Final cover requirement to accommodate lateral and vertical shear forces generated by the maximum credible earthquake at Cal. Code Regs. tit. 22, § 66264.310(a)(5). • Final cover maintenance requirements and final cover run-on and runoff controls contained in Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4). • Survey benchmark maintenance required in Cal. Code Regs. tit. 22, § 66264.310(b)(5). • Permanent monument requirements at Cal. Code Regs. tit. 27, § 20950(d) • Erosion and related damage prevention requirements at Cal. Code Regs. tit. 27, § 21090(c)(4) • Aerial photographic survey, or alternative survey, requirements at Cal. Code Regs. tit. 27, § 21090(e)(1) and (e)(3) • Final cover and alternative final cover standards at Cal. Code Regs. tit. 27, § 21140(a) and (b) • Final slope requirements at Cal. Code Regs. tit. 27, § 21145(a) • Drainage and erosion control system requirements at Cal. Code Regs. tit. 27, § 21150(a)

Table 3-12. Performance Standards for Covers *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cover Type	Conceptual Design[1]	Proposed Locations (Redevelopment Blocks)[1]	Narrative Performance Standards[1,2]	Pertinent ARARs[1,3]
Engineered Alternative Caps	Place a soil cover with a geomembrane liner that is made of an impermeable, synthetic material to prevent direct contact with contaminated soil and minimize migration of contamination.	Portions of EOS-1 (IR-02 Northwest) and EOS-3 (IR-03)	• Prevent human exposure to contaminated soil. • Promote positive drainage to minimize erosion and prevent standing water. • Maintain to minimize breakage, erosion, or deterioration. • Integrate with shoreline protection features, as appropriate. • Minimize infiltration.	• Final cover requirement to accommodate lateral and vertical shear forces generated by the maximum credible earthquake at Cal. Code Regs. tit. 22, § 66264.310(a)(5). • Final cover maintenance requirements and final cover run-on and runoff controls contained in Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4). • Survey benchmark maintenance required in Cal. Code Regs. tit. 22, § 66264.310(b)(5). • Permanent monument requirements at Cal. Code Regs. tit. 27, § 20950(d) • Final cover design, grading, and maintenance requirements at Cal. Code Regs. tit. 27, § 21090(b)(1) • Erosion and related damage prevention requirements at Cal. Code Regs. tit. 27, § 21090(c)(4) • Aerial photographic survey, or alternative survey, requirements at Cal. Code Regs. tit. 27, § 21090(e)(1) and (e)(3) • Final cover and alternative final cover standards at Cal. Code Regs. tit. 27, § 21140(a) and (b) • Final slope requirements at Cal. Code Regs. tit. 27, § 21145(a) • Drainage and erosion control system requirements at Cal. Code Regs. tit. 27, § 21150(a)

Table 3-12. Performance Standards for Covers *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cover Type	Conceptual Design[1]	Proposed Locations (Redevelopment Blocks)[1]	Narrative Performance Standards[1,2]	Pertinent ARARs[1,3]
Engineered Alternative Caps *(cont.)*	*(see above)*	*(see above)*	*(see above)*	• Compaction requirements prior to cover installation at Cal. Code Regs. tit. 22, § 66264.228(e)(1). • Post-closure water entry requirement to prevent the downward entry of water throughout a period of at least 100 years at Cal. Code Regs. tit. 22, § 66264.310(a)(1). • Leachate collection and removal requirements at Cal. Code Regs. tit. 22, § 66264.310(b)(2) and Cal. Code Regs. tit. 27, § 21160(a) and (c), if needed based on results of groundwater monitoring. • Capping permeability requirements at Cal. Code Regs. tit. 27, §§ 20320 (c) and (d). • Erosion control requirements at Cal. Code Regs. tit. 27, §§ 20365(c) and (d) and 21090(c)(4). • Post-closure maintenance period shall extend as long as the wastes pose a threat to water quality at Cal. Code Regs. tit. 27, §§ 20950(a), and no less than 30 years per Cal. Code Regs. tit. 27, § 21180(a). • Foundation layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(1). • Erosion-resistant layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(3). • Final grading requirements at Cal. Code Regs. tit. 27, § 21142(a).

Table 3-12. Performance Standards for Covers *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes:

1. Conceptual design and proposed locations would be refined, as appropriate, in the RD; however, the identified performance standards and pertinent ARARs would not change.
2. Narrative performance standards are based on identified RAOs and ARARs.
3. Pertinent ARARs relate to design standards for covers. All ARARs for covers are identified in Section 3.2.3 and evaluated in Appendix B.
4. Portions of EOS-1 and EOS-3 to be covered by engineered alternative cap to minimize infiltration (at areas within IR-02 Northwest and IR-03)
5. New asphalt covers be at least 6-inches thick (consisting of a minimum of 4-inches of aggregate base material and 2-inches of asphalt paving)
6. Existing asphalt and concrete covers will be inspected during the RD and appropriate repairs will be identified in the design basis report.

ARARs = applicable or relevant and appropriate requirements

Cal. Code Regs. = California Code of Regulations

IR = Installation Restoration

RAO = remedial action objectives

RD = remedial design

tit. = Title

§ = Section

Section 4. Development and Description of Remedial Alternatives

This section presents remedial alternatives developed for soil and shoreline sediment, groundwater, and NAPL at Parcel E based on the technologies and process options retained in Section 3. The NCP states that development and evaluation of remedial alternatives will reflect the scope and complexity of the response actions under consideration concerning the environmental issues defined at the site. The number and types of alternatives to be analyzed were identified by considering the scope and characteristics of environmental issues at Parcel E.

4.1. DEVELOPMENT OF REMEDIAL ALTERNATIVES

Technologies and process options were developed and screened as described in Section 3. The retained process options were combined into remedial alternatives to meet RAOs and to satisfy ARARs. The remedial alternatives were derived using experience and engineering judgment to formulate process options into the most plausible site-specific response actions. The alternatives developed for further analysis for soil and shoreline sediment, groundwater, and NAPL are presented in the following sections.

4.2. DESCRIPTION OF SOIL AND SHORELINE SEDIMENT REMEDIAL ALTERNATIVES

Soil and shoreline sediment at Parcel E present a potential unacceptable risk to human health under the planned reuse scenario evaluated in the HHRA. Shoreline sediment also poses an unacceptable risk to wildlife (see Section 2.5).

Removal of ubiquitous metals and other chemicals in soil at concentrations exceeding PRGs could involve excavating very large quantities of soil (i.e., over 1,000,000 cubic yards) from Parcel E . As discussed in Section 3.3.2.1.5, such an excavation scenario is not considered a practical cleanup option for Parcel E because of the potentially poor short-term effectiveness, implementation challenges, and high cost. Because excavation of ubiquitous metals at Parcel E is not feasible, other process options must be identified that can prevent exposure of humans and wildlife to ubiquitous metals concentrations in soil that exceed PRGs. Institutional controls and covers can be implemented throughout Parcel E, as described in Sections 3.3.2.1.2 and 3.3.2.1.7, to effectively prevent exposure of humans and wildlife to COCs in soil at concentrations exceeding PRGs. If institutional controls and covers are implemented throughout Parcel E, then excavation would not be required to prevent exposure to relatively low concentrations of COCs exceeding PRGs (with an associated risk that falls within the risk management range [i.e., 10-4 to 10-6] specified in the NCP). Rather, excavation would focus on removing higher concentrations of COCs that pose a more substantial

risk to humans and wildlife. As a result, excavation options focus on removing (1) COCs at concentrations significantly exceeding PRGs (by either 5 or 10 times) and (2) COCs indicative of a source to groundwater contamination that may pose a risk to humans or wildlife. This FS Report identifies the following two location types where COCs are present in soil at concentrations significantly exceeding PRGs:

- Tier 1 locations: locations containing COCs at concentrations equal to or greater than 10 times the PRGs (the Tier 1 action levels)
- Tier 2 locations: locations containing COCs at concentrations greater than 5 times the PRGs (the Tier 2 action levels) but less than 10 times the PRGs

As discussed in Section 3.1.1.3, RBCs for soil were calculated based on a target cancer risk level of 1E-06 and target noncancer HI of 1, consistent with the exposure pathways and assumptions used in the HHRA to assess risks (Barajas & Associates, Inc., 2008b). The PRGs for COCs in soil were then selected based on a comparison of the RBC for each COC, the laboratory PQL based on standard EPA analytical methods, and the HPAL for metals. For metals, the RBC was compared with the HPAL and, if the HPAL exceeded the RBC, the HPAL was selected. For organic chemicals, the RBC was selected, unless it was less than the laboratory PQL. In that case, the laboratory PQL would be selected. It should be noted that most of the PRGs are based upon the RBCs.

Accordingly, removal of Tier 1 and Tier 2 locations would target the soil locations that present the most substantial risk to humans. The removal of COCs exceeding concentrations of 5 to 10 times the PRGs would reduce remaining incremental risks to within the risk management range (10-4 to 10-6) specified in the NCP. As an example, the proposed removal of Aroclor-1260 concentrations in redevelopment blocks with proposed mixed-use reuse would equate to the following risk levels:

- The residential RBC for Aroclor-1260 (1.0 mg/kg) equates to cancer risk of 1E-06
- Removal of Aroclor-1260 at Tier 2 locations (exceeding the Tier 2 action level of 5 mg/kg) would equate to a risk of 5E-06
- Removal of Arcolor-1260 at Tier 1 locations (exceeding the Tier 1 action level of 10 mg/kg) would equate to a risk of 1E-05

As discussed in Section 3.3.2.1.5, the volume of contaminated soil and the range of chemicals in soil at concentrations exceeding PRGs require consideration of a relatively wide range of potential response actions. In contrast, volume and type of soil gas and shoreline sediment contamination can be addressed by a narrower range of potential response actions, and do not require an evaluation of individual remedial alternatives for soil gas and shoreline sediment. Accordingly, the remedial alternatives for soil also incorporate appropriate actions to address contaminated soil gas and shoreline sediment.

IR-03 is the primary location where COCs in soil are indicative of a source to groundwater contamination that may pose a risk to humans or wildlife. Remedial alternatives for IR-03 are presented in Section 4.3. In addition, areas with total TPH in soil at concentrations exceeding the established source criterion (3,500 mg/kg; Shaw, 2007) may result in groundwater contamination that affects wildlife in the bay. Removal of total TPH exceeding 3,500 mg/kg, where commingled with CERCLA-regulated chemicals, is evaluated under the excavation alternatives described in this section; many locations with only total TPH contamination are being addressed separately by the TPH corrective action program.

Four remedial alternatives were developed for soil and shoreline sediment:

- Alternative S-1: No Action
- Alternative S-2: Covers, Institutional Controls, and Shoreline Protection
- Alternative S-3: Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, Institutional Controls, and Shoreline Protection
- Alternative S-4: Excavation and Off-site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection

With the exception of Alternative S-1, all of these alternatives are designed to address potential unacceptable risk associated with the planned reuse for each redevelopment block, as identified in the human health and ecological risk assessments and as updated based on the amended redevelopment plan (SFRA, 2010c). These alternatives are described in the following sections, which include notes on the major design assumptions that were used to estimate costs and discussion of action-specific ARARs unique to each alternative. Although not included in the titles, each of the action alternatives (S-2, S-3, and S-4) includes engineering controls and monitoring. Appendix E presents the estimates of alternative costs. Table 4-1 presents the components of each alternative for soil and shoreline sediment. Table 4-2 presents the applicability of each alternative's components to each redevelopment block.

4.2.1. Alternative S-1: No Action

Under Alternative S-1, no response action would be taken. Soil and shoreline sediment would be left in place as is, without implementing any institutional controls, containment, removal, treatment, or other mitigating actions. The no-action alternative is retained throughout the evaluation process as required by the NCP to provide a baseline for comparison with other alternatives.

4.2.2. Alternative S-2: Covers, Institutional Controls, and Shoreline Protection

Alternative S-2 uses covers, institutional controls, and shoreline protection, as well as engineering controls and monitoring to meet ARARs and RAOs. This alternative provides physical barriers to eliminate the exposure pathways to soil and shoreline sediment at Parcel E. Based on the ubiquitous nature of metals and some organic chemicals exceeding remedial goals at Parcel E, the cover alternative would be applied throughout redevelopment blocks with soil that contains COCs that pose a potential unacceptable risk

(based on currently planned land uses). Existing covers, such as concrete building foundations and asphalt parking lots, following appropriate rehabilitation, are considered adequate for this alternative. New covers are considered for construction only in areas where there are no existing covers. This alternative includes conservative assumptions for maintenance, upgrades, or repairs to the existing covers; the extent of these actions will be assessed in the RD and implemented for this alternative as necessary. In addition, the Navy would construct shoreline protection features to prevent contaminated shoreline sediment and soil from entering San Francisco Bay, and to integrate with the surface covers for onshore soil.

4.2.2.1. Covers

Redevelopment blocks with soil that contains COCs that pose a potential unacceptable risk would be covered to allow for currently planned land uses. The exact nature and specifications for covers can vary from block to block, but all covers must meet the performance standard of preventing exposure to soil.

Covers would be achieved in two ways:

- **Use of Existing Covers:** Existing asphalt and concrete surfaces and buildings would be considered existing covers. These covers may include existing building foundations, roads, parking lots, and maintained landscaping. The existing covers may require rehabilitation, such as sealing with a 1-inch-thick asphalt layer or repairing cracks. Asphalt and concrete covers may not be appropriate depending on future land use; for example, open spaces would not be appropriate locations for asphalt or concrete covers. Existing asphalt covers would be inspected regularly and maintained as necessary. For cost-estimating purposes, it is assumed that an asphalt cover would require maintenance (consisting of sealing with a 1-inch-thick asphalt layer) once every 10 years.
- **New Covers**: Where new covers are needed, areas would be covered with a durable material that would minimize breakage, erosion, or deterioration and prevent the exposure of underlying soil. Standard construction practices for roads, sidewalks, and buildings would likely be adequate to meet this performance standard. Examples of other acceptable covers include a minimum 2 inches of asphalt over 6 inches of aggregate base material, or a minimum 2 feet of clean imported soil. The cover would include a low-permeability HDPE geomembrane to minimize infiltration to enhance the groundwater remedy in portions of IR-02 Northwest where groundwater concentrations may pose a risk to aquatic wildlife in the bay and there are corresponding soil sources of contamination in the unsaturated zone. The HDPE geomembrane would be combined with a soil foundation layer and a vegetative cover. All covers must achieve a full coverage of the entire redevelopment block. The asphalt covers would be inspected and maintained consistent with the RD and OMP. Soil covers would require maintained landscaping on top of the cover. Backfill for soil covers would be sampled and analyzed to ensure that all chemical concentrations are below PRGs, and that the backfill contains less than 0.25 percent asbestos as required for clean backfill over soils that may contain asbestos (see Appendix E). The soil cover may overlay existing grades. Appropriate covers for the open space reuse blocks would depend on the details of redevelopment; for purposes of costing it is assumed as 2 feet of clean soil cover. Asphalt covers are proposed for three localized areas of IR-52 (Railroad Right-of-Way) where chemical concentrations exceed industrial PRGs.

It is estimated from Figure 3-3 of the Revised RI Report (Barajas and Associates, Inc., 2008b) that approximately 58.4 acres would be covered with a 2-foot soil cover, 26.2 acres would be covered with new asphalt (including 1.3 acres in IR-52), and 41.9 acres of existing asphalt and concrete surfaces (including buildings) would be used and repaired, as necessary. In addition, 7.5 acres would be covered with an HDPE geomembrane (with associated foundation and vegetative soil layers) placed above the portion of IR-02 Northwest in EOS-1. Figure 4-1 illustrates the areas assumed for various cover types. The estimated cover areas are listed in the cost tables in Appendix E. Actual extent of cover types will be identified in the RD.

4.2.2.2. Institutional Controls

Institutional controls, consisting primarily of restrictive covenants identifying specific land use and activity restrictions (as described in detail in Section 3.3.2.1.2), would be implemented parcel-wide for all of the redevelopment blocks to prevent potential exposure to unacceptable risks posed by COCs in soil and shoreline sediment (see ARIC identified on Figure 3-1). Activity restrictions would be implemented through the LUC RD, which, as described in Section 3.3.2.1.2, would be reviewed and approved by the FFA signatories and CDPH, referenced in the applicable restrictive covenants. The LUC RD will specify roles and responsibilities for implementing, monitoring, and enforcing the institutional controls.

4.2.2.3. Shoreline Protection

Contaminated shoreline sediment would be addressed through shoreline protection. Shoreline protection is part of Alternative S-2, as well as Alternatives S-3 and S-4, to control erosion from tidal and wave action from San Francisco Bay, thereby preventing migration of and exposure to shoreline sediments containing COCs exceeding RAOs. Shoreline protection includes excavation of shoreline material and installation of protective features. Based on the evaluation presented in Appendix D, the following shoreline protection options will be incorporated into Alternatives S-2, S-3, and S-4:

- Armoring (rock revetment) will be installed in the steep and narrow shoreline areas. Steep and narrow areas of the intertidal shoreline zone are predominately narrow (most of the area is 50 feet wide or less) with predominately steep slopes (1V:3H).
- Hybrid stabilization using natural shoreline materials with underlying rock armor will be installed in the gradually sloped and wide shoreline areas. Gradually sloped and wide areas of the intertidal shoreline zone are predominately wide (most of the area is greater than 50 feet wide) with predominately gradual slopes (less than 1V:3H, with many portions close to 1V:10H).

The conceptual designs of these two shoreline protection options are detailed in Appendix D. Specifically, Figure D-2 identifies the shoreline areas where each option would be implemented, and Figures D-3 and D-5 present conceptual cross sections of the rock revetment and hybrid stabilization options, respectively. As shown on Figures D-3 and D-5, the shoreline protection will include features (such as earthen berms) that

can be extended up to +11 feet msl to protect against a future rise in sea level. This height is anticipated to be adequate to prevent overtopping based on the following information:

- Mean higher high tide level is +3.61 feet msl
- Currently assumed 100-year sea level risk is 3 feet, which takes into account potential future global climate change (Church et al., 2001; Meehl et al., 2007)
- An offshore study performed in 2001 indicated that the maximum significant wave height offshore of Parcel E was 67 centimeters (2.3 feet) (Battelle Memorial Institute and Woods Hole Group, 2001)
- The ratio of wave runup to wave height can be 150 percent (per Parcel B Technical Memorandum in Support of a ROD Amendment (TMSRA) [ChaduxTt, 2007]).

Construction of the shoreline protection would involve excavating the top 2.5 feet of shoreline material and disposing of excavated material at an off-site permitted disposal facility. As shown on Figures D-3 and D-5 in Appendix D, additional excavation would be required where the existing slopes exceed the design slopes (1V:3H for the rock revetment option, and 1V:10H for the hybrid stabilization option). The volume of additional excavation would be minimized because the selected options (rock revetment in steep and narrow shoreline areas and hybrid stabilization in gradually sloped and wide shoreline areas) would not require extensive modification of the existing slopes. The shoreline areas would be backfilled with a minimum 2.5-foot-thick layer of clean imported fill (see Figures D-3 and D-5 in Appendix D) along the entire Parcel E shoreline to maintain the integrity of the restored surfaces following remediation and to integrate with the proposed surface covers for onshore soil. Filter fabric would be placed at the bottom of the excavation to demarcate the underlying contaminated soil from the clean backfill. Additional geotechnical stabilization measures (such as a geosynthetic reinforcement material) may be required to ensure stability of the slope; such engineering design details will be presented in the RD if this alternative is selected.

Consistent with the NCP, conceptual designs developed for shoreline protection may be refined during the RD (following remedy selection in the ROD). Refinements to conceptual designs may be prompted by additional site information or stakeholder input, and may include changes to the alignment of or construction materials used in the shoreline protection option. However, the refined design must continue to satisfy the RAOs identified in Section 3.1.2.

4.2.2.4. Radiological Control Procedures

The potential presence of radionuclides must be assessed prior to and during any intrusive activities because the HRA (NAVSEA, 2004) identified portions of Parcel E as “radiologically impacted.” Intrusive activities contemplated under Alternative S-2 would include (1) surface preparation prior to installing covers, and (2) shoreline excavation prior to installing shoreline protection features. Radiological control procedures are required to protect the health and safety of site workers and the

general public, and to comply with regulatory requirements and principles governing work at radiologically impacted sites. The radiological control procedures required for intrusive activities performed within radiologically impacted sites would include (1) screening and sampling to identify areas with elevated radioactivity and (2) excavating and characterizing radioactive material. Radioactive material, including any identified mixed waste, would be properly stored on site pending disposal by an authorized contractor certified under the Navy's Low-level Radioactive Waste Disposal Program. As discussed in Section 1.1, a radiological addendum to the FS Report is being prepared to develop alternatives to address the radiologically impacted sites identified in the HRA, which would supplement the soil and groundwater alternatives identified in this FS report. A draft final version of the radiological addendum to the FS Report was submitted in 2011 (ERRG and RSRS, 2011) and includes additional information on the actions required at the radiologically impacted sites at Parcel E.

4.2.2.5. Closure of Fuel Lines (IR-47)

A buried fuel line (IR-47) extends from the Parcel D-1 and E boundary (near Berth 29) to the former AST S-505 and former oil reclamation ponds (Figure 4-1). The fuel line is being addressed under the CERCLA program because Triple A is suspected of having used the line to transport waste oil (San Francisco District Attorney, 1986), and previous investigations of the fuel lines in Parcels C and D found that product was still present in fuel lines. Excavation would be performed to remove approximately 2,827 linear feet of fuel lines from Parcel E.

The following general procedures are planned for the fuel line closure, consistent with those implemented during previous actions in Parcels C, D-1, and G:

- Geophysical mapping of pipelines
- Sampling and analysis of pipe contents for metals, VOCs, SVOCs, chlorinated pesticides, PCBs, and TPH
- Pressure testing of pipeline to identify segments with possible historic leaks and to confirm suitability for pressure wash
- Evaluation of data to identify pipe segments with potential to impact soil and groundwater
- Cleaning of intact pipeline sections
- Removal of suspect pipeline sections with additional excavation and confirmatory sampling to address contamination

Detailed excavation and confirmation sampling plans will be developed in the RD if this alternative is selected.

4.2.2.6. Closure of Steam Lines (IR-45)

Parcel E contains an underground steam line system (IR-45) that was previously used to deliver steam to heat buildings and ships docked at the facility. The steam line system is contained in concrete utilidors with access points every 200 to 400 feet. Within the utilidors are steam pipes, covered in asbestos pipe lagging insulation, condensate return lines, and pump return lines. It is suspected that between 1976 and 1986, sections of the abandoned steam lines were used to transfer waste oil to AST S-505, formerly located in IR-02 Southeast (San Francisco District Attorney, 1986). Additional investigation would be required to determine whether individual steam lines within Parcel E had been used to transfer waste oil and, if so, whether they had leaked into the concrete utilidors. If steam lines were contaminated with waste oil, they would be removed and properly disposed of off site. Uncontaminated steam lines at Parcel E would be abandoned in place.

Approximately 53,640 linear feet of steam lines are located at Parcel E (Figure 2-1). Based on previous steam line investigations and removals at Parcels C, D-1, and G, it is estimated that approximately 10 percent of the lines are contaminated and would require removal. The following general procedures would be followed for the steam line investigation and closure, consistent with those implemented during previous actions in Parcels C, D-1, and G:

- Geophysical mapping of pipelines
- Asbestos abatement of protective wrap and pipe insulation
- Inspection and tightness testing of steam lines, with excavation to expose steam lines as needed
- Sampling and analysis of fluids or, if none, wipe sampling to identify pipe segments with potential impact to soil and groundwater; analyze for metals, VOCs, SVOCs, pesticides, PCBs, and TPH
- Pressure testing of pipeline segments where waste oil and contaminants were found
- Removal of pipeline segment that fail pressure test, and removal of residual fluids
- Pressure washing of remaining pipeline segments and confirmatory wipe samples
- Utilidor cleaning and inspection with excavation

Detailed excavation and confirmation sampling plans will be developed in the RD if this alternative is selected.

4.2.2.7. Engineering Controls and Monitoring

Alternative S-2 includes engineering controls and monitoring as described below.

Engineering Controls

Alternative S-2 would require signs and, where appropriate, fencing to restrict access to contaminated soil and shoreline sediment prior to redevelopment. Fencing would be used during implementation of remedial actions (such as during construction of the soil covers). The OMP would identify procedures for any necessary sampling and analysis requirements, worker health and safety requirements, and any necessary site-specific construction and/or use approvals that may be required. In addition, the institutional controls described in Section 3.3.2.1.2 would generally require that construction of new buildings or reuse of existing buildings in an ARIC for VOC vapors would incorporate vapor barriers or other vapor control systems to prevent the exposure of occupants to VOCs in soil gas or groundwater. Such interim engineering controls, if used, would be required until remediation goals were met or as long as soil vapor concentrations exist that may pose an unacceptable risk through vapor intrusion. In addition, groundwater alternatives would be paired with Alternative S-2 to prevent uncontrolled releases of VOCs from groundwater.

Monitoring

As discussed in Section 2.3.3.2, the Navy initiated a basewide soil gas investigation in 2010. The soil gas investigation is being performed in two phases, with the work in Parcel E slated for implementation during the second phase in 2011. The soil gas investigation will evaluate the potential risk associated with vapor intrusion and determine the extent to which further monitoring, remediation, or institutional controls are required to mitigate vapor intrusion risk.

4.2.3. Alternative S-3: Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, Institutional Controls, and Shoreline Protection

Alternative S-3 includes excavation of Tier 1 locations with off-site disposal of contaminated soil at a permitted disposal facility. This alternative also provides for the covers, institutional controls, and shoreline protection discussed in Alternative S-2. Tier 1 locations are defined, for the purposes of this FS Report, as locations containing COCs at concentrations greater than 10 times the PRGs (the Tier 1 action levels). Alternative S-3 provides a permanent remedy to remove Tier 1 locations where excavation is feasible. Remaining low-risk contaminated soil is addressed by covers and institutional controls. The covers under this alternative would be used to prevent exposure to potential unacceptable risk posed by other COCs in soil (such as ubiquitous metals at concentrations above PRGs).

4.2.3.1. Excavation

Radiological Control Procedures

Radiological control procedures for Alternative S-3 would be required for excavated areas as described for Alternative S-2.

Excavation of Contaminated Material

As previously discussed, limited excavation is evaluated in this FS Report, because (1) ubiquitous metals and other chemicals at concentrations above PRGs may be present over large portions of Parcel E; (2) excavation targeting such chemicals could involve excavating very large quantities of soil (i.e., over 1,000,000 cubic yards) from Parcel E; and (3) the potentially poor short-term effectiveness, implementation challenges, and high cost of such an action do not offset its long-term effectiveness. This alternative assumes that individual Tier 1 locations would be excavated to meet the Tier 1 action levels equivalent to 10 times the corresponding PRGs. A focused excavation of Tier 1 locations would reduce COC concentrations so that remaining incremental risk is within the risk management range (10-4 to 10-6) specified in the NCP. In addition, excavation would be performed in areas with COCs indicative of a source to groundwater contamination that may pose a risk to humans or wildlife. Specifically, excavation depths would be extended deeper than the exposure depths prescribed in the RAOs in areas (such as IR-02 Northwest) where residual soil concentrations are present at concentrations that may pose a risk to aquatic wildlife in the bay. Source removal activities evaluated under this alternative may be supplemented with additional containment measures (low permeability surface covers identified under Alternative S-2, and groundwater containment structures identified under Alternative GW-3A). The preliminary excavation design uses the following technical assumptions:

- The minimum size of an excavation at a Tier 1 location would be 1,600 square feet (40 by 40) and would be centered around the sample location of concern
- Larger excavations at Tier 1 locations would be performed in areas where multiple sample locations of concern are tightly grouped (within 10 to 20 feet)
- Excavation depths would extend at least 2 feet below the depth of the sample location of concern, or to groundwater, assumed to be approximately 10 feet bgs

Soil excavations of Tier 1 locations adjacent to IR-03 are also intended to remove NAPL to the extent practical. The preliminary excavation design is presented on Figures 4-2 through 4-9; this design will be further developed and detailed in the RD if this alternative is selected. The lateral and vertical extent of Tier 1 locations would be refined through pre-excavation characterization to be performed during the RD. This characterization effort would be guided by specific data quality objectives (DQOs) to better delineate contamination at Tier 1 locations. All material excavated under Alternative S-3 would be characterized and disposed of off site at an appropriately permitted off-site disposal facility. Material excavated from IR-02 and IR-03 would also be screened for radiologically impacted material and MPPEH, which would be segregated, handled, and disposed of in accordance with procedures established during past removal actions. Any industrial debris (such as drums and associated liquid wastes) would be properly characterized and disposed of off site.

Table 4-3 lists the locations, depths, and volumes selected for excavation under Alternative S-3. The adequacy of the excavation process in removing contamination at Tier 1 locations would be verified through post-excavation confirmation sampling and, if necessary, additional excavation. The post-excavation confirmation sampling procedures would be developed during the RD and would include specific DQOs to facilitate proper implementation. After receipt of acceptable post-excavation confirmation sampling results, excavations would be backfilled with clean soil meeting stringent chemical and radiological acceptance criteria. Other areas that may contain COCs at concentrations less than 10 times the PRGs would be left in place, and remaining incremental risk (within the risk management range) would be addressed through installation of a cover and implementation of institutional controls. Excavation areas would be covered in the same manner as the rest of the redevelopment block once excavation was complete.

Removal of Steam and Fuel Lines

Steam and fuel lines would be investigated and removed as described for Alternative S-2.

4.2.3.2. Covers

Covers would be installed as described for Alternative S-2, with the only difference being that no covers would be required in IR-52 because, following removal of Tier 1 locations, the remaining incremental risks will be within the risk management range (10-4 to 10-6) specified in the NCP. In addition, institutional controls, consisting primarily of restrictive covenants identifying specific land use and activity restrictions (as described in detail in Section 3.3.2.1.2), would be implemented at IR-52 to prevent potential exposure to unacceptable risks posed by COCs in soil.

4.2.3.3. Institutional Controls

The institutional controls would be implemented parcel-wide, as discussed for Alternative S-2, and more fully described in an LUC RD document.

4.2.3.4. Shoreline Protection

Shoreline protection for Alternative S-3 would be consistent with the areas and procedures outlined in Alternative S-2.

4.2.3.5. Engineering Controls and Monitoring

The engineering controls and monitoring would be the same as Alternative S-2.

4.2.4. Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection

Alternative S-4 includes excavation of Tier 1 and Tier 2 locations where PRGs are exceeded with off-site disposal at a permitted disposal facility. This alternative also provides for the covers, institutional controls, and shoreline protection discussed in Alternative S-2. In addition, this alternative includes SVE as a source reduction measure for the Building 406 TCE plume. Soil containing COCs at concentrations greater than or equal to 5 times the PRGs (but less than 10 times the PRGs) would be excavated where feasible to reduce the concentrations of these COCs in the environment. For the purposes of this FS Report, such locations are defined as Tier 2 locations. Tier 2 locations are distinct from the Tier 1 locations; which, as defined in Section 4.2.3, are locations with COCs at concentrations greater than or equal to 10 times the PRGs.

Alternative S-4 provides a permanent remedy to remove Tier 1 and Tier 2 locations where excavation is feasible. Remaining low-risk contaminated soil would be addressed by covers and institutional controls. The covers under this alternative would be used to prevent exposure to potential unacceptable risk posed by other COCs in soil (such as ubiquitous metals at concentrations above PRGs).

4.2.4.1. Excavation

Radiological Control Procedures

Radiological control procedures for Alternative S-4 would be provided for excavated areas as described for Alternative S-2.

Excavation of Contaminated Material

This FS Report assumes that Tier 1 and Tier 2 locations would be excavated to meet the Tier 2 action levels equivalent to 5 times the corresponding PRGs. Similar to Alternative S-3, excavation would also be performed in areas with COCs indicative of a source to groundwater contamination that may pose a risk to humans or wildlife. Specifically, excavation depths would be extended deeper than the exposure depths prescribed in the RAOs in areas (such as IR-02 Northwest) where residual soil concentrations are present at concentrations that may pose a risk to aquatic wildlife in the bay. Source removal activities evaluated under this alternative may be supplemented with additional containment measures (low permeability surface covers identified under Alternative S-2, and groundwater containment structures identified under Alternative GW-3A). The preliminary excavation design uses the following technical assumptions:

- The minimum excavation size at a Tier 2 location would be 400 square feet (20 feet by 20 feet) and would be centered around the sample location of concern
- The minimum size of an excavation at a Tier 1 location would be 1,600 square feet (40 by 40) and would be centered around the sample location of concern
- Larger excavations at Tier 1 or Tier 2 locations would be performed in areas where multiple sample locations of concern are tightly grouped (within 10 to 20 feet)
- Excavation depths would extend at least 2 feet below the depth of the sample location of concern, or to groundwater, assumed to be approximately 10 feet bgs

Soil excavations of Tier 1 and Tier 2 locations adjacent to IR-03 are also intended to remove NAPL to the extent practical. The preliminary excavation design is presented on Figures 4-2 through 4-9; this design will be further developed and detailed in the RD if this alternative is selected. The lateral and vertical extent of Tier 1 and Tier 2 locations would be refined through pre-excavation characterization to be performed during the RD. This characterization effort would be guided by specific DQOs to better delineate contamination at Tier 1 and 2 locations. All material excavated under Alternative S-4 would be characterized and disposed of off site at an appropriately permitted off-site disposal facility. Material excavated from IR-02 and IR-03 would also be screened for of radiologically impacted material and MPPEH, which would be segregated, handled, and disposed of in accordance with procedures established during past removal actions. Any industrial debris (such as drums and associated liquid wastes) would be properly characterized and disposed of off site.

Table 4-3 lists the locations, depths, and volumes selected for excavations under Alternative S-4. The adequacy of the excavation process in removing contamination at Tier 1 and 2 locations would be verified through post-excavation confirmation sampling and, if necessary, additional excavation. The post-excavation confirmation sampling procedures would be developed during the RD and would include specific DQOs to facilitate proper implementation. After receipt of acceptable post-excavation confirmation sampling results, excavations would be backfilled with clean soil meeting stringent chemical and radiological acceptance criteria. All other areas that may contain COCs less than 5 times the PRGs would be left in place, and remaining incremental risk (within the risk management range) would be addressed through installation of a cover and implementation of institutional controls. Excavation areas would be covered in the same manner as the rest of the redevelopment block after excavation operations were complete.

Removal of Steam and Fuel Lines

Steam and fuel lines would be investigated and removed as described for Alternative S-2.

4.2.4.2. Covers

Covers would be installed as described for Alternative S-2, with the only difference being that no covers would be required in IR-52 because, following removal of Tier 1 locations, the remaining incremental risks will be within the risk management range (10-4 to 10-6) specified in the NCP. In addition, institutional controls, consisting primarily of restrictive covenants identifying specific land use and activity restrictions (as described in detail in Section 3.3.2.1.2), would be implemented at IR-52 to prevent potential exposure to unacceptable risks posed by COCs in soil.

4.2.4.3. SVE

SVE would be used in Alternative S-4 as a source reduction measure to address VOC-contaminated soil. The targeted area for SVE is the Building 406 TCE plume, which is further discussed in Section 4.3. As discussed in Section 2.1.3.4, an SVE treatability study was performed at Building 406, and results of the study concluded that SVE was effectively removing VOCs from vadose zone soil (IT Corporation, 2002). Soil vapor data collected as part of the 2009 and 2010 GWTS identified elevated concentrations of VOCs at several locations under Building 406 (Shaw, 2011). The data suggest that residual VOCs remain in the vadose zone at concentrations warranting removal by SVE. Additional investigation, to be performed during the RD and guided by specific DQOs, would better define the areas requiring removal by SVE.

The SVE system would include 32 extraction wells evenly distributed throughout the estimated extent of the plume. The number of SVE extraction wells is based upon the average radius of influence of 30 feet, as observed during the previous system operation near Building 406 (IT Corporation, 2002). If this alternative is selected, the spacing of the SVE wells and the operational characteristics of SVE system would be refined during development of the RD through field testing and an SVE pilot-scale study.

4.2.4.4. Institutional Controls

The institutional controls for this alternative would be implemented sitewide, as described for Alternatives S-2 and S-3, and would be more fully described in an LUC RD document.

4.2.4.5. Shoreline Protection

Shoreline protection for Alternative S-4 would be consistent with the areas and procedures outlined in Alternative S-2.

4.2.4.6. Engineering Controls and Monitoring

The engineering controls and monitoring would be the same as in Alternatives S-2 and S-3.

4.3. DESCRIPTION OF GROUNDWATER REMEDIAL ALTERNATIVES

Groundwater in the A- and B-aquifers at Parcel E was identified for further evaluation in the FS due to potential risk to human health (see Revised RI Report [Barajas & Associates, Inc., 2008b] and Section 3 of this FS Report). VOCs were identified as COCs that require a response action. In addition to VOCs, the aquatic evaluation (Appendix A) identified several metals, pesticides, PCBs, and total TPH as COECs that pose a potential risk to aquatic wildlife in the San Francisco Bay.

Five remedial alternatives were developed for groundwater:

- Alternative GW-1: No Action
- Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring
- Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls
- Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and Institutional Controls
- Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, Monitored Natural Attenuation, and Institutional Controls

These alternatives are described in the following sections. Although not always mentioned in the titles, each of the action alternatives (GW-2 through GW-4) include engineering controls and monitoring. Table 4-4 presents the major components of each alternative. Table 4-5 shows the applicability of the alternatives to each plume.

4.3.1. Alternative GW-1: No Action

Under Alternative GW-1, there would be no response action. Groundwater would be left as is without implementing any institutional controls, containment, removal, treatment, monitoring, or other mitigating actions. The no-action alternative is retained throughout the evaluation process as required by the NCP to provide a baseline for comparison with other alternatives.

4.3.2. Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring

Alternative GW-2 would meet RAOs by controlling the exposure pathways that cause human health risk. Ecological risk would be addressed by groundwater monitoring and evaluation of trigger levels. This alternative does not intend to restore affected groundwater for beneficial uses. The following paragraphs describe this alternative.

Alternative GW-2 consists of institutional controls and long-term groundwater monitoring. Institutional controls would be implemented in areas where humans could be exposed to COCs at concentrations that pose a health risk. Long-term groundwater monitoring would serve a two-fold purpose. It would

(1) provide awareness of the size and behavior of COC plumes, helping to ensure that contaminants do not migrate beyond controlled areas; and (2) provide baseline information on the size and behavior of COEC plumes to be used in preventing contaminant discharge to San Francisco Bay.

4.3.2.1. Institutional Controls

Institutional controls, consisting primarily of restrictive covenants identifying specific land use and activity restrictions (as described in detail in Section 3.3.2.1.2), would be implemented across redevelopment blocks where potential exposure to COCs in groundwater via the vapor intrusion or domestic use pathways pose unacceptable risk to humans. Activity restrictions would include prohibitions on installing groundwater wells for domestic use. Land use restrictions would include the requirement that construction and occupancy of new buildings or reuse of existing buildings in an ARIC for VOC vapors would incorporate vapor barriers or other vapor control systems to prevent the exposure of occupants to VOCs in groundwater. When construction of enclosed structures or reuse of an existing building is proposed in an ARIC for VOC vapors (Figure 3-1) the design of the vapor control system built into foundations must be approved by the FFA signatories. In addition, enclosed structures within the ARIC for VOC vapors at Parcel E shall not be occupied until the Owner has requested and obtained FFA signatory approval (through approval of a Remedial Action Completion Report or similar document) that any necessary engineering controls or design alternatives have been properly constructed and are operating successfully. The ARIC for VOC vapors at Parcel E (Figure 3-1) will be reevaluated as soon as practical based on the ongoing soil vapor investigation. As discussed in Section 2.3.3.2, the investigation at Parcel E is scheduled for 2014. Based on the HHRA results from the Revised RI Report (Barajas & Associates, Inc., 2008b) all redevelopment blocks, except for the railroad right-of-way (where no identified groundwater plumes were identified), would currently be subject to institutional controls for groundwater. Institutional controls for groundwater would remain in place for as long as chemical concentrations in underlying groundwater exceeded remediation goals or soil vapor concentrations were found to pose an unacceptable risk through vapor intrusion. Further explanation of institutional controls is provided in Section 3.3.2.1.2. If Alternative GW-2 was selected, institutional controls would be described in greater detail in a LUC RD document. Under conditions defined in the LUC RD, areas where vapor controls would apply may be modified to exclude areas where soil gas concentrations do not pose risk to human health.

4.3.2.2. Long-Term Groundwater Monitoring

Long-term groundwater monitoring would involve periodic groundwater sampling and analysis for (at a minimum) all of the COCs and COECs identified in Section 3.1.3. It would provide the means to monitor the protectiveness of the remedy over time and evaluate the need for further action in the future. Groundwater monitoring results would be used to assess the migration of COCs and COECs to verify that human health and aquatic life in San Francisco Bay are adequately protected.

The long-term monitoring program would monitor the concentrations of COCs in A-aquifer and B-aquifer groundwater over time. Initially, all COCs would be monitored at the locations where the HHRA (presented in the Revised RI Report) identified unacceptable risk (Barajas & Associates, Inc., 2008b). Groundwater monitoring would continue until remediation goals are met or until the plumes are stable.

The aquatic evaluation in Appendix A evaluated the potential for COECs to discharge from groundwater to San Francisco Bay at concentrations that could adversely affect aquatic organisms. This evaluation involved screening-level comparison of surface water quality criteria with detected concentrations in groundwater at Parcel E and includes a point-by-point evaluation of the analytical history where concentrations in groundwater exceeded the surface water quality criteria[4]. The surface water quality screening was followed by a trigger-level evaluation, which determined, on a well-by-well basis, which chemicals exist in groundwater at concentrations that may not attenuate to acceptable levels during migration to the bay. The evaluation in Appendix A concluded that five metals (arsenic, copper, lead, nickel, and zinc), two PCBs (Aroclor-1254 and Aroclor-1260), two pesticides (alpha-chlordane and 4,4'-DDE), and total TPH at certain nearshore and inland locations in the A-aquifer could affect aquatic organisms in the bay. No chemicals were identified to be of concern in the B-aquifer at Parcel E. The wells where location-specific trigger levels were exceeded are included in the proposed groundwater monitoring program presented in Appendix C. If this alternative is selected, the monitoring approach presented in Appendix C will be further developed during preparation of the RD.

The general objectives for groundwater monitoring for Alternative GW-2 include:

- Monitoring for the migration of COCs and COECs into previously uncontaminated areas and toward the bay
- Monitoring for changes in concentrations within plumes
- Monitoring concentrations in and near individual wells where the HHRA identified unacceptable risk
- Monitoring to verify the results of the trigger-level attenuation models (Appendix A)

In total, 50 wells (including 42 existing wells and 8 proposed wells) are proposed for monitoring under Alternative GW-2. Most of these wells would be inside COC and COEC plumes (i.e., where groundwater exhibits chemical concentrations exceeding PRGs). The remainder of the wells would be located outside the COC and COEC plumes (upgradient, downgradient, or cross-gradient with respect to groundwater flow) to evaluate chemical migration. For the purpose of the cost estimate, eight wells were added to the existing network of Parcel E monitoring wells to improve spatial coverage at all plume areas; these would be new wells that do not currently exist at Parcel E. The conceptual groundwater monitoring approach in

4 This evaluation should not be interpreted to state or imply that surface water ARARs such as the California Toxics Rule are ARARs for in situ groundwater. Surface water ARARs apply to surface waters only.

Appendix C and Figure 4-10 present the locations of the existing and proposed wells for monitoring the plume areas.

For cost-estimating purposes, it is assumed that monitoring would occur for 30 years. Groundwater would be monitored quarterly for the first 2 years, semiannually for the next 2 years, and annually thereafter. Appendix C provides more information on the rationale behind the proposed monitoring approach and the details of the monitoring program. Aspects of the long-term groundwater monitoring program (such as wells to be monitored, chemicals to be analyzed for, laboratory analytical methods, sample collection procedures, and quality control requirements) would be refined during preparation of the RD, if an alternative including long-term monitoring is selected. The analysis in the RD would include data evaluated for this FS Report and newer data (including data from newly installed wells).

The RD evaluation may include:

- Changes to the chemicals to be monitored for at each well
- Changes to the frequency of monitoring for each well
- Adding or removing wells from the proposed monitoring network
- Developing a methodology for monitoring the groundwater/surface water interface for future implementation
- Developing a methodology for adjusting HPS-wide attenuation factors based on site-specific information, allowing for refinement of the trigger levels assigned at each well in the future
- Evaluating a selected remediation alternative for groundwater treatment

The results of these evaluations will be described in the RD and presented to the regulatory agencies for review.

Results derived from the long-term groundwater monitoring program would be used during 5-year reviews to assess the adequacy of the monitoring program, adjust the data collection and analysis requirements, and evaluate the need for additional response actions.

4.3.2.3. Engineering Controls

Engineering controls applicable to groundwater are included in those described for soil and shoreline sediment (see Section 4.2.2.7).

4.3.2.4. Radiological Control Procedures

As with the soil alternatives, radiological control procedures must be implemented under the groundwater alternatives in areas designated as “radiologically impacted.” Intrusive activities contemplated under Alternative GW-2 would include decommissioning and installing monitoring wells.

A summary of the radiological control procedures to be implemented are as follows:

- Soil identified as radioactive waste will be packaged in low-level radioactive waste (LLRW) containers and stored in an appropriate LLRW storage area. The waste will be maintained under an appropriate radioactive materials license until disposed of via the Navy LLRW Disposal Program.
- After installing or collecting samples from wells in radiologically impacted areas, personnel, tools, materials, or equipment will be screened prior to leaving the work area.
- If radioactive contamination in excess of the designated site-specific release criteria is identified, decontamination will be performed in accordance with procedures developed by a qualified radiological contractor, approved by the Navy's Radiological Affairs Support Office, and reviewed by the regulatory agencies.
- If generated, equipment and materials with radioactive contamination cannot be decontaminated, rather they will be packaged and stored on site. The waste will be maintained under an appropriate radioactive materials license until disposed of via the Navy LLRW Disposal Program.

4.3.3. Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-3A consists of four retained process options: (1) groundwater containment, (2) ISB (both anaerobic and aerobic), (3) MNA, and (4) institutional controls. This alternative addresses plumes in nearshore areas using groundwater containment and addresses organic chemicals through anaerobic and aerobic ISB. Groundwater would be monitored during the bioremediation and natural attenuation phases of this alternative.

Institutional controls for this alternative would be similar to those discussed for Alternative GW-2. Institutional controls would be implemented prior to active remediation and would remain in effect for as long as COC and COEC concentrations exceed their remediation goals. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document if this alternative is selected.

The following description of remedial activities is not intended to identify a sequence to be followed during implementation. If this alternative is selected, the RD would refine the implementation approaches, and develop optimization strategies to allow for appropriate adjustments based on site conditions.

Figure 4-11 shows the implementation areas for the process options included in this alternative. This area includes the extent of the containment structure (slurry wall or sheet-pile wall) to retard migration of groundwater plumes in IR-02 Northwest. Figure 4-11 also shows the areas of contaminated groundwater targeted for treatment by anaerobic and aerobic ISB and post-remediation attenuation monitoring by MNA. Remediation endpoints for ISB are intermediate goals that mark the end of active remediation and

the beginning of MNA. Remediation endpoints would be developed by the Navy and regulatory agencies as part of the RD if this alternative is selected.

Prior to or during the development of the RD, source zone characterization would be conducted to refine the extent of the contaminated areas requiring remediation, as follows:

- Plume delineations would be refined through groundwater sampling
- Passive soil gas sampling would be used to map the horizontal distribution of VOCs
- Membrane interface probe technology would be used in select areas to estimate the vertical extent of contamination
- Samples would be collected from all wells in the monitoring program to establish a baseline prior to implementation

The results of these investigations would be used to guide the following:

- Installation of new monitoring wells planned for this alternative
- Determination of the length of the groundwater containment structure
- Selection of the locations where ISB chemicals should be injected into the subsurface to optimally interact with chemicals in groundwater

Outside of IR-03 and three sites being evaluated under the TPH corrective action program (see Section 2.3.1), no other Parcel E sites have reported NAPL. Therefore, treatment or removal of NAPL is not a part of this alternative and is not included in the cost estimate.

4.3.3.1. Groundwater Containment

In this alternative, groundwater containment would be implemented to control migration of contamination to downgradient surface water receptors. This technique includes any method whereby a low-permeability cut-off wall, such as a slurry or sheet-pile wall, is installed to redirect groundwater flow in the vicinity of a site. Two technologies were deemed feasible as groundwater containment options: a slurry wall and a sheet-pile wall. For cost-estimating purposes, the slurry wall technology was selected. Slurry walls usually consist of soil mixed with bentonite and cement. The slurry wall is intended to contain potentially contaminated groundwater and is not intended to treat potentially contaminated groundwater.

The alternative assumes a wall would be installed downgradient of the IR-02 Northwest metals and PCB plumes in conjunction with a low-permeability cap at the IR-02 Northwest and Central removal action area. The presence of the wall would decrease the groundwater flow gradient and consequently increase the residence time during which chemical concentrations would be reduced through physical, chemical, and biological processes. The presence of the wall would lead to hydraulic head build up behind it, which

would dissipate by lateral movement of groundwater around the wall. In addition, the hydraulic head build up behind the wall would be lower during high tides, when bay waters move inland through the tidal mixing zone. Overall, the combination of capping and downgradient slurry wall is anticipated to sufficiently prevent discharge of groundwater contamination at concentrations that may affect wildlife in the bay (to be verified by future groundwater monitoring).

The conceptual design for the groundwater containment system is shown on Figure 4-11. The location of the nearshore slurry wall would be along the northeast shoreline of Parcel E. The wall would be constructed within 100 feet of the bay and it would cover a distance of approximately 1,070 feet. The proposed alignment of the nearshore slurry wall, which will be further evaluated in the RD, would capture the three identified groundwater plumes in IR-02 Northwest and Central, as well as the shoreline sections in between the groundwater plumes. This conservative alignment was selected based on the area's past use as a disposal area for industrial waste (Barajas & Associates, Inc., 2008b) and the extent of residual soil contamination (Figure 4-2).

Installation of the slurry wall would require trenching 10 to 15 feet below the groundwater table to key the barrier into the Bay Mud aquitard. The slurry wall could be installed in saturated conditions without dewatering. Bentonite-amended soil would be used to construct the slurry wall. Installation of the slurry wall could be complicated by the likely presence of large irregular subsurface obstacles (such as rocks or boulders). If this alternative is selected, the RD should account for this through contingency planning; for example, performing pre-design studies to identify subsurface obstacles, and planning for potential realignment of the wall if large obstacles are encountered.

4.3.3.2. ISB

ISB would be implemented to remediate plumes of organic chemicals using aerobic and anaerobic ISB remediation methods, as discussed below.

Aerobic ISB

Aerobic ISB would be used at plumes where the prominent COC are aromatic in nature, specifically benzene at Parcel E. It would work by stimulating oxygen-respiring microorganisms that are able to use the targeted COCs as a food source. Saturating the aquifer with oxygen would create favorable conditions for such microorganisms. Several methods are available for delivering oxygen to the subsurface, including oxygen sparging and oxygen release compound (ORC). The method of oxygen delivery could significantly influence the efficiency of aerobic bioremediation. Both of the aforementioned options are promising and would be examined (among others) more closely during development of the RD if this alternative is selected. For cost-estimating purposes for this alternative, ORC was chosen as the representative process option for aerobic bioremediation.

Under this alternative, the ORC would be delivered via direct injection. The ORC is injected into the formation under pressure through an injection tool that targets specific vertical intervals of a borehole. The system would be capable of generating sufficient pressure to fracture the formation. As a result, hydraulic fracturing could be conducted in any injection interval. Substrate would be injected into the saturated zone of the A-aquifer within the lateral extent shown on Figure 4-11. Approximately 0.4 acres would be planned for aerobic treatment, not including the area contained within IR-03.

Once injected, ORC hydrolyzes to maintain a steady concentration of dissolved oxygen in the aquifer for approximately 1 to 2 years. The ORC dosage was modeled conservatively using maximum plume concentrations, so it is anticipated that only a single treatment would be required to achieve target endpoints (to be developed by the Navy and regulatory agencies during the RD). Based on maximum observed concentrations and half-lives of the target COCs, it is estimated that aerobic bioremediation would meet the intermediate remediation endpoints in about 2 years (based on professional judgment and past experience). ISB performance monitoring would continue until intermediate remediation endpoints were met and no rebound was observed even after depletion of amendments. In the costing assumptions for this alternative, this duration was assumed to be 2 years.

Quarterly progress monitoring would be performed during the aerobic phase (the 2-year active remediation period). For cost-estimating purposes, an additional four wells were added to the monitoring well network in the area of aerobic ISB implementation (benzene plume) shown on Figure 4-11. These wells would also be monitored during the MNA phase, which is described in more detail later in this section.

Anaerobic ISB

Anaerobic ISB would be used for all plumes where the COC are associated with chlorinated solvents. Anaerobic ISB is typically used to target chlorinated alkenes (such as TCE) and alkanes (such as 1,2-DCA) by stimulating dechlorinating microorganisms. Reductive dechlorination is the mechanism by which chlorinated compounds are biodegraded into less harmful constituents such as ethene and ethane. Anaerobic conditions would be produced by introducing a substrate (or food source). The substrate would fuel aerobic microorganisms and cause them to quickly deplete available oxygen. Anaerobic microorganisms would then multiply in the anoxic environment and destroy the targeted chemicals through a variety of mechanisms, including direct metabolism, cometabolism, and halorespiration.

Hydrogen is a key component in anaerobic contaminant degradation during reductive dechlorination. Hydrogen release compound (HRC) is an electron donor that, when hydrated, is specifically designed to produce a controlled release of lactic acid. The resulting lactic acid is critical for the production of hydrogen to fuel anaerobic biodegradation processes in groundwater. Therefore, HRC acts as a reducing agent and a hydrogen-producing agent.

Some aromatic compounds (such as benzene) may also be destroyed by anaerobic degradation processes because they can be used by microorganisms as a food source. In addition, some metals (such as zinc) would be precipitated as sulfides (produced by the reduction of sulfate in groundwater).

The method for substrate injection would be similar to that for ORC injection in aerobic ISB, described above. Substrate would be injected into the saturated zone of the A-aquifer within the lateral extents shown on Figure 4-11. Once in the subsurface, HRC resides within the soil matrix fueling reductive dechlorination and promoting reducing aquifer conditions for periods of up to 24 months or longer through the controlled release of lactic acid and subsequent hydrogen production. The HRC dosages used to produce the cost estimates were modeled conservatively using maximum plume concentrations, so it is anticipated that only a single treatment would be required to achieve target endpoints at each plume (to be developed by the Navy and regulatory agencies during the RD). Based on maximum observed concentrations and half-lives of the target COCs, it is estimated that anaerobic bioremediation would meet the intermediate remediation endpoints in about 2 years (based on professional judgment and past experience). ISB performance monitoring would continue until intermediate remediation endpoints were met and no rebound was observed even after depletion of amendments. For cost-estimating purposes for this alternative, this duration was assumed to be 2 years. Approximately 2.6 acres is planned for anaerobic treatment.

Quarterly progress monitoring would be conducted during the anaerobic phase (the 2-year active remediation period). For the purpose of estimating cost, the monitoring well network, in the areas of anaerobic ISB implementation (Building 406 TCE plume, IR-12 PCE plume, IR-04 TCE plume, and IR-56 TCE plume) was assumed to include an additional 16 wells (in addition the monitoring wells in this area). These wells would also be monitored as part during the MNA phase, which is described in more detail later in this section.

4.3.3.3. MNA

MNA would follow implementation of ISB. MNA would continue for as long as COC concentrations exceed their remediation goals or until a vapor intrusion risk evaluation determines that no unacceptable risk to future users exists. MNA is distinguished from long-term monitoring in that MNA measures and evaluates the natural processes that reduce chemical concentrations to acceptable levels (e.g., dilution, volatilization, biodegradation, adsorption, and chemical reactions with native soils); long-term monitoring is conducted to measure changes in chemical concentrations including byproducts (daughter compounds) of degradation (see Sections 3.3.2.2.4 and 3.3.2.2.5). Where MNA is implemented, MNA parameters are monitored for in addition to the COC and COEC monitoring prescribed by the long-term monitoring program. MNA parameters are collected to demonstrate that long-term biological degradation is occurring. If degradation is not demonstrated through site data, the use of biological activity enhancers (such as electron acceptors, nutrients, and electron donors) may be required to enhance the MNA process.

For the purpose of the cost estimate, it was assumed that the active bioremediation period would last for 2 years. After that time, MNA would begin and sampling would continue at all wells used to conduct performance monitoring of the ISB, semiannually for the first 2 years and annually thereafter (for 26 years). During the third year of MNA, a 5-year review of the monitoring program would be conducted. It is assumed that following the review, the monitoring program for these plumes would be reduced by the number of wells added to monitor the performance of the ISB. Proof-period monitoring in the final 2 years of MNA (years 30 and 31) would include all wells used in the baseline monitoring event. The details of the groundwater monitoring approach for MNA are discussed further in Appendix C.

4.3.3.4. Engineering Controls

Engineering controls applicable to groundwater are included in those described for soil and shoreline sediment (see Section 4.2.2.7).

4.3.3.5. Radiological Controls

Intrusive activities contemplated under Alternative GW-3A would include soil excavation to install a slurry wall, installing injection wells, and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative GW-3A would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.3.1 and 4.3.2.4).

4.3.3.6. Long-Term Monitoring

Long-term monitoring would be conducted to measure changes in chemical concentrations in groundwater. Long-term monitoring applicable to Alternative GW-3A is the same as that described for Alternative GW-2 (see Section 4.3.2 and Appendix C).

4.3.3.7. Alternative GW-3A Considerations

The following considerations apply for Alternative GW-3A:

- Plume conditions may continue to change over time as a result of the continued effects of treatability studies and natural processes. Delineation of areas requiring treatment may require revision.
- Injection of substrate or other amendments under pressure could fracture the formation and consequently enhance permeability. This is the only type of permeability enhancement planned. The benefit of a dedicated permeability enhancement event may be explored during the RD if this alternative is selected.
- The Building 406 TCE Plume, where the plume source is most extensive relative to other plumes at the site, has the highest probability of experiencing post-bioremediation rebound. If rebound occurs, repeated implementations of anaerobic substrate injections could be considered, but may not be the most time- and cost-effective approach for remediating the plume. Additional ISB treatments at this plume were not included in the cost estimate for this alternative because the

modeling does not demonstrate the need for additional treatments. During development of the RD, additional source delineation may help determine if additional injection treatments are warranted. Alternative GW-3B and GW-4 offer other solutions for addressing this particular plume using alternative technologies. These alternatives are described Sections 4.3.4 and 4.3.5.

- Mobilization of metals was not factored into the estimation of bioremediation durations. Some metals, such as arsenic and manganese, may become more soluble under reducing conditions produced by anaerobic bioremediation. However, these metals are expected to stabilize when the aquifer's redox potential returns to background levels. This stabilization was observed during a GWTS at Parcel C (Shaw, 2005). COECs such as zinc would be immobilized because of the reduction of dissolved sulfates to sulfide during anaerobic bioremediation. If determined necessary during the RD, metals could be further immobilized by the use of special substrates. Special substrates with sulfur-containing compounds would react with dissolved metals to form stable, insoluble complexes.

4.3.4. Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-3B consists of five retained process options: (1) groundwater containment, (2) anaerobic and aerobic ISB, (3) in-situ chemical reduction using ZVI, (4) MNA, and (5) institutional controls. This alternative attempts to more efficiently achieve remediation compared with Alternative GW-3A by using ZVI to address the VOC concentrations at the Building 406 TCE plume, which contains the highest and most laterally extensive VOC concentrations at Parcel E. Because the risk of post-bioremediation rebound is highest at this plume, the cost and duration to remediate this plume could increase significantly. This would occur if a single ISB implementation does not have the treatment capacity to fully address the contaminant source at this plume and additional substrate injections are required. For this reason, a more aggressive treatment technology was incorporated into Alternative GW-3B to address the Building 406 TCE plume. Otherwise, this alternative is identical to Alternative GW-3A. As with Alternative GW-3A, groundwater would be monitored during the in-situ treatment and natural attenuation phases of this alternative and institutional controls would be applied.

Figure 4-12 shows the area of contaminated groundwater and the targeted treatment area for ZVI, in addition to ISB, as described in Alternative GW-3A. Remediation endpoints are intermediate goals that mark the end of active remediation and the beginning of MNA. Remediation endpoints would be developed by the Navy and regulatory agencies during the RD if this alternative is selected.

Prior to or during the RD, source-zone characterization would be conducted to refine the extent of the most contaminated areas as described in Alternative GW-3A, using soil gas sampling and analysis, and resulting in installation of new monitoring wells needed for this alternative. Samples would be collected from all wells in the monitoring program to establish a baseline before implementing ISB. As described for Alternative GW-3A, groundwater containment using a slurry wall is included in this alternative, and

would be combined with a low-permeability cover at the IR-02 Northwest and Central removal action area (as described in Section 4.3.3.1).

The following description of remedial activities is not intended to identify a sequence to be followed during implementation. The RD and associated work plan(s) would allow for dynamic decision-making in the field. Final decisions on the extent of use of these technologies may be made during the RD.

4.3.4.1. Groundwater Containment

Groundwater containment in Alternative GW-3B is the same as that described in Alternative GW-3A. The containment system includes a downgradient slurry wall at IR-02 Northwest metals and PCB plumes in conjunction with a low-permeability cap at the IR-02 Northwest and Central removal action area.

4.3.4.2. ISB

ISB would be implemented as described in Alternative GW-3A and shown on Figure 4-12. At Building 406, however, ISB would be replaced with ZVI treatment.

4.3.4.3. ZVI Reduction

ZVI reduction would be performed within and downgradient from the plume at Building 406 to quickly and cost-effectively remediate organic groundwater contamination. ZVI is typically used to target chlorinated ethenes and ethanes in parts of the plumes with the highest concentrations. ZVI has been successfully implemented at HPS in the past (TtEMI, 2003b; ITSI, 2005).

As discussed in Section 2.1.3.4.2, another GWTS using ZVI was conducted at Parcel E in 2009 and 2010 (Shaw, 2011). The approach and cost assumptions developed for this alternative are consistent with usage rates at other HPS sites. Assumptions are presented in Appendix E. If this alternative is selected, the GWTS and RD will define the parameters needed for final planning and costing of ZVI.

4.3.4.4. Monitored Natural Attenuation

MNA would continue for as long as COC concentrations exceed their remediation goals or until a vapor intrusion risk evaluation concludes that an unacceptable risk to future users no longer exists. If degradation is not demonstrated through site data, the use of biological activity enhancers (such as electron acceptors, nutrients, and electron donors) may be required to enhance the MNA process. For the purpose of the cost estimate, it was assumed that the active ZVI treatment period would last for 1 year. After that time, MNA would begin and sampling would continue at all wells used to conduct performance monitoring of the ZVI treatment; semiannually for the first 3 years and annually thereafter (for 26 years). During the fourth year of MNA, a 5-year review of the monitoring program would be conducted. It is assumed that following that review, the monitoring program for the Building 406 TCE plume will be reduced by the number of wells added to monitor the performance of the ZVI treatment. Proof-period

monitoring in the final 2 years of MNA (years 30 and 31) would include all wells used in the baseline monitoring event. The details of the groundwater monitoring approach for MNA are discussed further in Appendix C.

4.3.4.5. Institutional Controls

Institutional controls applicable to groundwater are included in those described for soil and shoreline sediment (see Section 4.2.2.7).

4.3.4.6. Engineering Controls

Engineering controls applicable to groundwater are included those described for soil and shoreline sediment (see Section 4.2.2.7).

4.3.4.7. Radiological Controls

Intrusive activities contemplated under Alternative GW-3B would include soil excavation to install a slurry wall, installing injection wells, and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative GW-3B would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.3.1 and 4.3.2.4).

4.3.4.8. Long-Term Monitoring

Groundwater monitoring to observe the progress of remediation would begin a few months after the ZVI injection event. For the purpose of estimating cost, it is assumed that remediation monitoring would proceed quarterly for 1 year following ZVI treatment. For purposes of costing, eight wells were added to this plume for ZVI performance monitoring and natural attenuation monitoring; these would be new wells that do not currently exist at Parcel E.

Beyond the monitoring requirements unique to ZVI treatment, long-term monitoring will be conducted as described for Alternative GW-2 (see Section 4.3.2 and Appendix C).

4.3.4.9. Alternative GW-3B Considerations

The following considerations apply for Alternative GW-3B:

- Plume conditions may continue to change over time as a result of the continued effects of treatability studies and natural processes. Delineation of areas requiring treatment may require revision.
- Injection of substrate or other amendments under pressure could fracture the formation and consequently enhance permeability. This is the only type of permeability enhancement planned. The benefit of a dedicated permeability enhancement event may be explored during the RD if this alternative is selected.

4.3.5. Alternative GW-4: Groundwater Containment, Air Sparging, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-4 consists of five retained process options: (1) groundwater containment, (2), air sparging, (3) ISB, (4) MNA, and (5) institutional controls. As with Alternative GW-3B, this alternative provides a more aggressive treatment technology to address the Building 406 TCE plume. Air sparging as considered to address this plume because it would be relatively easy to implement if containment and SVE are implemented at this location under a soil alternative. This alternative could integrate soil and groundwater remediation at Building 406. This alternative would only be implemented if the SVE alternative for soil (Alternative S-4) is selected for implementation. Following is a description of the air sparging process option. Figure 4-13 shows the configuration of the elements for Alternative GW-4.

4.3.5.1. Groundwater Containment

Groundwater containment in Alternative GW-4 is the same as that described for Alternatives GW-3A and GW-3B. The containment system includes a downgradient slurry wall at IR-02 Northwest metals and PCB plumes in conjunction with a low-permeability cap at the IR-02 Northwest and Central removal action area.

4.3.5.2. Air Sparging

Air sparging is included as part of this groundwater alternative to address the synergistic use of the soil SVE alternative by stripping VOCs from groundwater (see Alternative S-4). Air sparging would be added to the SVE to strip VOC contamination from groundwater and enhance the SVE effectiveness. The targeted area for SVE and air sparging is the Building 406 TCE plume, as shown on Figure 4-13.

Because greater lateral dispersion of the air is likely in fine-grained soil and can result in lateral displacement of the groundwater and contaminants, it was assumed that one sparge well per extraction well pair would be adequate to transfer VOCs from groundwater to soil gas without necessitating active groundwater control at the periphery of the plume. The air sparging system was assumed to require 16 sparge wells (to complement 32 extraction wells installed under Alternative S-4). A sparge well spacing of 50 feet was assumed to align the sparge wells with the SVE spacing assigned in Alternative S-4. If this alternative is selected, this spacing would be refined during development of the RD through field testing and performance of an SVE and air sparging pilot-scale study.

Only the incremental capital cost to install the sparge wells and equipment was included in Alternative GW-4 to complement implementation of SVE covered under Alternative S-4. It was assumed that the operational period for the system would be 3 years. The field studies performed in advance of implementing such an alternative would help predict this duration more accurately.

4.3.5.3. ISB

ISB would be implemented as described in Alternative GW-3A and shown on Figure 4-11. At Building 406, however, it would be replaced with air sparging treatment to complement SVE, if implemented under soil Alternative S-4.

4.3.5.4. MNA

MNA would continue for as long as COC concentrations exceed their remediation goals or until a vapor intrusion risk evaluation concludes that an unacceptable risk to future users no longer exists. If degradation is not demonstrated through site data, the use of biological activity enhancers (such as electron acceptors, nutrients, and electron donors) may be required to enhance the MNA process. For the purpose of the cost estimate, it was assumed that the active SVE and air sparging treatment period would last for 3 years. After that time, MNA would begin and sampling would continue at all wells used to conduct performance monitoring of the SVE and air sparging system, semiannually for the first year and annually thereafter (for 26 years). During the second year of MNA, a 5-year review of the monitoring program would be conducted. It is assumed that following the review, the monitoring program for the Building 406 TCE plume will be reduced by the number of wells added to monitor the performance of the SVE and air sparging system. Proof-period monitoring in the final 2 years of MNA (years 30 and 31) would include all wells used in the baseline monitoring event. The details of the groundwater monitoring approach for MNA are discussed further in Appendix C.

4.3.5.5. Institutional Controls

Institutional controls applicable to groundwater are included in those described for soil and shoreline sediment (see Section 4.2.2.7).

4.3.5.6. Engineering Controls

Engineering controls applicable to groundwater are included in those described for soil and shoreline sediment (see Section 4.2.2.7).

4.3.5.7. Radiological Controls

Intrusive activities contemplated under Alternative GW-4 would include soil excavation to installing a slurry wall, installing injection wells, installing air sparging points, and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative GW-4 would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.3.1 and 4.3.2.4).

4.3.5.8. Long-Term Monitoring

Groundwater monitoring to observe the progress of remediation would begin after the SVE and air sparging system is operational. For the purpose of estimating cost, it is assumed that remediation

monitoring would occur quarterly the first 2 years the SVE and air sparging system is operated and semiannually during the third year of operation. For purposes of costing, eight wells were added to this plume for SVE and air sparging performance monitoring and natural attenuation monitoring; these would be new wells that do not currently exist at Parcel E. Long-term monitoring otherwise will be conducted as described for Alternative GW-2 (see Section 4.3.2 and Appendix C).

4.3.5.9. Alternative GW-4 Considerations

The following considerations apply for Alternative GW-4:

- Plume conditions may continue to change over time as a result of the continued effects of treatability studies and natural processes. Delineation of areas requiring treatment may require revision.
- The presence of heterogeneous fill material could pose challenges in effectively removing and treating VOCs from groundwater through air sparging.
- Injection of air under high pressure would increase VOC emissions that would be need to be captured by SVE wells. The presence of heterogeneous fill material could pose challenges in adequately capturing VOC emissions from the unsaturated zone.

4.4. DESCRIPTION OF NAPL REMEDIAL ALTERNATIVES FOR IR-03

IR-03, the former oil reclamation ponds, contains NAPL that is highly viscous, present over a large area, and may be over 10 feet thick in some locations (Barajas & Associates, Inc., 2008b). The site contains metals, VOCs, SVOCs, PCBs, and TPH in soil and groundwater at concentrations that pose a risk to humans and wildlife. As discussed in Section 2.3.1, the Navy performed additional characterization of NAPL at IR-03 in September and October 2011, along with a subsequent bench-scale treatability study, in accordance with a work plan that was approved by the regulatory agencies (ITSI, 2011). The Navy is preparing a report, concurrent with the final version of this FS Report, summarizing the results of the additional characterization and the bench-scale treatability study. The Navy expects that the additional characterization and bench-scale testing will help refine the NAPL remediation approach at IR-03. For example, the additional characterization will refine the nature and extent of NAPL at IR-03, and thereby help refine the approach for future source removal and treatment. In addition, the bench-scale testing will provide information regarding the effectiveness of thermally-enhanced NAPL extraction; preliminary results indicate that the site conditions at IR-03 may not be conducive to performing thermally-enhanced NAPL extraction in a cost-effective manner. Once the findings of the study are reviewed, the Navy will consult with the regulatory agencies to determine whether additional characterization or a pilot-scale treatability study is necessary to refine the remediation approach at IR-03.

The Navy believes that there is adequate information to develop and evaluate, in accordance with the NCP, an appropriate range of remedial alternatives to address NAPL and associated groundwater and soil

at IR-03. However, because the complex site conditions result in some uncertainty regarding the effectiveness and implementability of certain remediation technologies, the remedial alternatives incorporate a broad range of removal and treatment technologies that could be used in combination to cost-effectively achieve the NAPL RAOs identified in Section 3.1.4.

Seven remedial alternatives were developed for NAPL, as shown in Table 4-6 and listed below.

- Alternative N-1: No Action
- Alternative N-2: Source Containment, Long-Term Monitoring, and Institutional Controls
- Alternative N-3: Source Removal or Treatment, Containment, Monitored Natural Attenuation, and Institutional Controls
- Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls
- Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, Monitored Natural Attenuation, and Institutional Controls
- Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls
- Alternative N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls

These alternatives are described in the following sections and are summarized in Table 4-6. It should be noted that, although not mentioned in the titles, each of the action alternatives (N-2 through N-6) includes engineering controls and monitoring. The cost estimates for the NAPL alternatives are based on several technical assumptions that are described below. These assumptions result in relatively conservative cost estimates that are adequate to support a comparative evaluation relative to the NCP criterion.

First, for the NAPL alternatives including a source removal or treatment component, the cost estimates assume those activities are limited to the area within the IR-03 site boundary, where the distribution of NAPL is believed to be the most extensive. NAPL associated with the former oil reclamation ponds is present outside the IR-03 boundary and the cost estimates for Alternatives S-3 and S-4 assume these areas will be addressed by excavation and off-site disposal. During development of the RD, the source removal area targeted by the NAPL alternatives may be increased or decreased based on additional characterization results, and would be balanced by a corresponding decrease or increase in excavation and off-site disposal under the soil alternatives.

Second, for the NAPL alternatives addressing IR-03 groundwater contamination, the cost estimates assume groundwater containment and in-situ treatment are limited to the area within the IR-03 site boundary, where COC concentrations are known to be highest. Portions of the IR-03 plume containing TPH and recalcitrant COCs are present beyond the IR-03 boundary. The cost estimates for Alternatives S-3 and S-4 assume these

areas would be addressed by source removal (excavation and off-site disposal) (see Figure 4-4), and the cost estimates for Alternatives N-3 through N-6 assumes these areas would be addressed by MNA. During development of the RD, the containment and in-situ treatment area targeted by the NAPL alternatives may be increased or decreased based on additional characterization results, and would be balanced by a corresponding decrease or increase in excavation and off-site disposal under the soil alternatives.

Third, for the NAPL alternatives including a source removal or treatment component, the cost estimates assume that thermally-enhanced NAPL extraction will be used as the primary remediation technology. As previously discussed, the Navy is currently evaluating bench-scale test results regarding thermally-enhanced NAPL extraction. Once the findings of the study are reviewed, the Navy will consult with the regulatory agencies to determine whether a pilot-scale treatability study is necessary to further evaluate the viability of thermally-enhanced NAPL extraction at IR-03. In the absence of further information, this FS Report retains thermally-enhanced NAPL extraction as the primary remediation technology for source removal at IR-03. This technology represents an upper bound of the level of effort (and corresponding cost) for NAPL source removal. The NAPL alternatives provide flexibility to incorporate other remediation technologies to remove or treat the NAPL source in a cost-effective manner; however, potential changes in the remediation approach would not affect the prescribed accuracy of the cost estimates, as specified in EPA guidance (+50/-30 percent) (EPA, 2000).

4.4.1. Alternative N-1: No Action

Under Alternative N-1, there would be no response action. NAPL would be left as is, without implementing any institutional controls, containment, removal, treatment, monitoring, or other mitigating actions. The no-action alternative is retained throughout the evaluation process as required by the NCP to provide a baseline for comparison with other alternatives.

4.4.2. Alternative N-2: Source Containment, Monitoring, and Institutional Controls

Alternative N-2 consists of source containment, followed by long-term groundwater monitoring and institutional controls. Source containment would be achieved by (1) limiting infiltration and direct exposure with an engineered cover, and (2) isolating the NAPL source and contaminated groundwater with a vertical subsurface barrier. Long-term groundwater monitoring would provide information on the size and behavior of COC plumes to be used in preventing contaminant discharge to San Francisco Bay. Institutional controls, consisting primarily of restrictive covenants identifying specific land use and activity restrictions (as described in Section 3.3.2.1.2), would be implemented to prevent exposure to potential unacceptable risks posed by COCs in soil and groundwater. The institutional controls would be a combination of those presented Alternative S-2 and those for Alternative GW-2. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document.

The following description of remedial activities proposed under this alternative is not intended to identify a sequence to be followed during implementation. If this alternative is selected, the RD would refine the implementation approaches, and develop optimization strategies to allow for appropriate adjustments based on site conditions.

4.4.2.1. Source Containment

Groundwater Containment

Similar to Alternative GW-3A, groundwater containment would be achieved by installing a low-permeability cut-off wall, such as a slurry or sheet-pile wall, to limit horizontal groundwater flow through IR-03. For cost-estimating purposes, the slurry wall technology was selected. The conceptual design for the groundwater containment system is shown on Figure 4-14. The location of the nearshore slurry wall would encircle the IR-03 site boundary and would extend into other adjoining areas with significant NAPL. The wall would be constructed within 30 feet of San Francisco Bay and its perimeter would be approximately 885 feet, enclosing a 52,691-square-foot area.

Installation of the slurry wall would require trenching to a depth of 10 to 15 feet below the groundwater table to key the barrier into the Bay Mud aquitard. The slurry wall could be installed in saturated conditions without dewatering. Bentonite-amended soil would be used to construct the slurry wall. Installation of the slurry wall could be complicated by the likely presence of large irregular subsurface obstacles (such as rocks, boulders, and debris). The RD should account for this through contingency planning; for example, performing pre-design studies to identify subsurface obstacles, and planning for potential realignment of the wall if large obstacles are encountered.

The proposed groundwater containment system (Figure 4-14) would only provide containment for groundwater contamination within the IR-03 boundary (contained within the slurry wall). Groundwater contamination outside the IR-03 boundary would be addressed as described in Section 4.4.

Covers

IR-03 is equipped with an engineered cover consisting of GCL covered with a layer of topsoil. During RD, the existing cover would be evaluated to determine whether it could meet the low-permeability performance standards for IR-03. For cost-estimating purposes, this alternative assumes that the existing cover would be replaced.

4.4.2.2. Long-Term Groundwater Monitoring

Groundwater monitoring would be performed consistent with the approach presented for Alternative GW-2. Groundwater monitoring would continue for as long as COC concentrations exceed their remediation goals. About 5 years after the end of remediation, the number of wells to be monitored would be reduced to a third of the total. For cost-estimating purposes, it is assumed that monitoring

would proceed until the end of year 30. Proof-period monitoring in years 29 and 30 would include all wells used in the baseline monitoring event. The groundwater monitoring plan is discussed conceptually in Appendix C.

4.4.2.3. Institutional Controls

Institutional controls for Alternative N-2 are the same as those for the Alternatives S-2 and GW-2.

4.4.2.4. Radiological Control Procedures

As with the soil and groundwater alternatives, radiological control procedures must be implemented under the IR-03 NAPL alternatives in areas designated as "radiologically impacted." Intrusive activities contemplated under Alternative N-2 would include excavation and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative N-2 would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.2.4 and 4.3.2.4).

4.4.2.5. Considerations for Alternative N-2

The following considerations apply for Alternative N-2:

- Plume conditions may continue to change over time as a result of the continued effects of treatability studies and natural processes. Delineation of areas requiring treatment may require revision.
- Installation of the slurry wall could be complicated by the likely presence of large irregular subsurface obstacles (such as rocks, boulders, and debris) and by proximity to the shoreline.
- The potential presence of NAPL adjacent to the shoreline or well beyond the IR-03 site boundary may exist.

4.4.3. Alternative N-3: Source Removal or Treatment, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-3 consists of a combination of source removal or treatment, containment, MNA, and institutional controls. The NAPL source would be removed or treated using multiple process options including excavation with off-site disposal, in-situ stabilization, and thermally-enhanced extraction with off-site disposal. These actions would remove or treat the NAPL source to extent practical, but residual concentrations of chemicals posing a risk to humans and wildlife are expected to remain in the subsurface based on the nature and extent of NAPL contamination. The migration of these chemicals would be controlled through the containment portion of this remedial alternative. Remediation of any residual contamination would occur through MNA.

Figure 4-15 shows the configuration of the elements for Alternative N-3 which, as previously described, assumes that thermally-enhanced NAPL extraction will be used as the primary remediation technology to

provide an upper bound of the level of effort (and corresponding cost) for NAPL source removal. The vertical containment barrier would serve an essential role in improving the effectiveness of the thermal enhancement process. The high-permeability fill material at IR-03 suggests that a containment structure (vertical containment barrier) would significantly reduce heat loss to the surrounding area, therefore improving the efficiency of NAPL removal by thermal enhancement.

The institutional controls would be a combination of those presented Alternative S-2 and those for Alternative GW-2. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document if this alternative is selected.

The following description of remedial activities proposed under this alternative is not intended to identify a sequence to be followed during implementation. If this alternative is selected, the RD would refine the implementation approaches and develop optimization strategies to allow for appropriate adjustments based on site conditions.

4.4.3.1. Source Removal or Treatment

The Navy's evaluation of removal and treatment options for IR-03, as detailed in Sections 3.3.2.3.5 and 3.3.2.3.6 (and summarized in Table 3-11), identified several viable process options including excavation with off-site disposal, in-situ stabilization, and thermally-enhanced extraction with off-site disposal. Each of these options offers some advantages for addressing the NAPL source at IR-03, but the performance of each of these options may also be constrained by several disadvantages related to site-specific conditions. Table 4-7 summarizes the projected performance of the retained process options for the NAPL source at IR-03. Consistent with this evaluation, Alternative N-3 incorporates a range of removal and treatment options to cost-effectively address the NAPL source at IR-03.

As previously discussed, the Navy is currently evaluating bench-scale test results regarding thermally-enhanced NAPL extraction. Once the findings of the study are reviewed, the Navy will consult with the regulatory agencies to determine whether a pilot-scale treatability study is necessary to further evaluate the viability of thermally-enhanced NAPL extraction at IR-03. In the absence of further information, this FS Report retains thermally-enhanced NAPL extraction as the primary remediation technology for source removal at IR-03. This technology represents an upper bound of the level of effort (and corresponding cost) for NAPL source removal. Alternative N-3 provides flexibility to incorporate other remediation technologies to remove or treat the NAPL source in a cost-effective manner; however, potential changes in the remediation approach would not affect the prescribed accuracy of the cost estimates, as specified in EPA guidance (+50/-30 percent) (EPA, 2000).

The cost estimate for Alternative N-3 assumes that the NAPL source at IR-03 would be extracted using (1) thermally-enhanced techniques to lower the viscosity of the NAPL and increase its mobility, and

(2) dual-phase (groundwater/soil vapor) extraction to recover NAPL from the subsurface. It should be reiterated that although the NAPL source at IR-03 extends beyond the IR-03 site boundary, the source removal portion of this alternative focuses on the area within the IR-03 site boundary, where the NAPL distribution is believed to be the most extensive. NAPL outside the IR-03 site boundary (i.e. outside the slurry wall) will be addressed by the excavation and off-site disposal proposed under soil Alternatives S-3 and S-4 (see Figure 4-4). The proposed source removal approaches within and beyond IR-03 boundary would be adjusted in the RD.

As discussed above, the RD would develop optimization strategies to allow for appropriate adjustments based on site conditions. Figure 4-16 presents a preliminary decision tree to guide the optimization process associated with thermally-enhanced NAPL extraction.

Alternative N-3 assumes the use of electrical-resistive heating (ERH) to reduce NAPL viscosity with heat, rendering the NAPL more mobile for extraction through an extraction well and pumping system. ERH was selected as a representative thermal enhancement technology for the purposes of estimating cost for this FS, although other technologies such as hot water injection, thermal resistive heating, or steam injection could be used to achieve the same remediation endpoint. Selection of the specific thermal enhancement technology to be used for this alternative would occur during development of the RD through bench-scale and field-scale testing.

For this FS, it was assumed that a dual-phase extraction system would be implemented and that, once the NAPL's viscosity is reduced, it would be extracted via the dual-phase extraction wells. Groundwater extracted with the NAPL would be separated out using an oil-water separator. The water generated would be treated using a treatment technology, such as GAC adsorption, and discharged to the sanitary sewer. Recovered NAPL would be disposed of off site.

Vapor collected by the extraction wells would be condensed, nonaqueous phases separated, and the aqueous phase treated using GAC adsorption and disposed of off site. Nonaqueous material recovered from the vapor would be treated using a catalytic oxidizer.

For cost-estimating purposes, it is assumed that ERH would be implemented over a 2-acre area, using an array of an estimated 429 electrodes configured with dual-phase vapor extraction vents. Prior to implementing any thermal technology, investigations (such as bench-scale and field-scale testing) would be performed to select an appropriate heating technology and to support development of an effective implementation approach and sequence. Depending on the results of bench-scale and field-scale testing, determinations would be made with respect to how implementation of the thermal enhancement technology should be phased to achieve the desired remediation endpoint in the most cost-effective and efficient manner. It is likely that all 429 electrodes would not need to be operated simultaneously, or for equivalent durations, to achieve the desired degree of NAPL removal. Isolated areas of heavy NAPL

contamination would require longer treatment durations, while areas of low-level contamination might be remediated in significantly shorter time periods. For cost-estimating purposes, it was assumed that all the electrodes would operate for one quarter of the treatment duration, then one quarter of the electrodes would be shut off during each subsequent equivalent treatment duration. It was also assumed that all dual-phase extraction wells across the entire treatment area would be operated throughout the entire treatment duration to prevent recontamination of areas already treated.

4.4.3.2. Source Containment

Groundwater Containment

Similar to Alternative N-2, groundwater containment would be achieved by isolating contaminated groundwater using a vertical subsurface-barrier remedial technology. In this scenario, a slurry wall would be used. The slurry wall would extend from the ground surface to the Bay Mud and encircle the area where NAPL is present in the subsurface. Groundwater containment dramatically improves the performance of thermally-enhanced removal processes by isolating the mass of groundwater, NAPL, and soil being heated and preventing excessive heat loss through groundwater movement.

Covers

This alternative includes replacing the existing GCL and topsoil cover, with a new cover, as outlined for Alternative S-2.

4.4.3.3. Monitored Natural Attenuation

MNA for Alternative N-3 would be performed in the areas outlined for monitoring under Alternative N-2. MNA sampling would be implemented following NAPL source removal. MNA would involve monitoring for a suite of parameters to track the natural degradation of groundwater contamination, in addition to the COC and COEC monitoring described for Alternative N-2. MNA would continue for as long as COC concentrations exceed their remediation goals. If degradation is not demonstrated through site data, the use of biological activity enhancers (such as electron acceptors, nutrients, and electron donors) may be required to enhance the MNA process. For the purposes of the cost estimate, it was assumed that the active NAPL removal period would last for 1 year. After that time, MNA would begin and sampling would continue at all wells used to conduct performance monitoring of the ERH treatment, semiannually for the first 3 years and annually thereafter (for 26 years). During the fourth year of MNA, a 5-year review of the monitoring program would be performed. The MNA monitoring frequency may be reduced at that time, if warranted. Proof-period monitoring in the final 2 years of MNA (years 30 and 31) would include all wells used in the baseline monitoring event. The details of the groundwater monitoring approach for MNA are discussed further in Appendix C.

4.4.3.4. Institutional Controls

Institutional controls would eliminate exposure pathways, through restricting access to contamination. The institutional controls would be a combination of those presented Alternative S-2 and those for Alternative GW-2. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document if this alternative is selected.

4.4.3.5. Long-Term Monitoring

Long-term monitoring will be conducted, as described for Alternative N-2, to delineate the plume and monitor concentrations of chemicals and degradation products in groundwater. The long-term monitoring approach is provided in Appendix C.

4.4.3.6. Radiological Controls

Intrusive activities contemplated under Alternative N-3 would include soil excavation; installing injection, heating, and extraction wells; and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative N-3 would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.2.4 and 4.3.2.4).

4.4.3.7. Considerations for Alternative N-3

The following considerations apply for Alternative N-3:

- Plume conditions may continue to change over time as a result of treatment and natural processes. Delineation of areas requiring MNA and long-term groundwater monitoring may require revision.
- Installation of the slurry wall (or implementation of in-situ mixing) could be complicated by the likely presence of large irregular subsurface obstacles (such as rocks, boulders, and debris) and by proximity to the shoreline.
- The site conditions at IR-03 pose challenges to cost-effectively address the NAPL source. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be further studied (through bench-scale or pilot-scale testing) and refined during the RD.

4.4.4. Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-4A consists of a combination of source removal or treatment, followed by groundwater treatment (by aerobic ISB), containment, MNA, and institutional controls. Alternative N-4A is the same as Alternative N-3, with addition of ISB to remediate groundwater upon completion of thermally-

enhanced NAPL extraction. Figure 4-17 shows the configuration of the elements for Alternative N-4A which, as previously described, assumes that thermally-enhanced NAPL extraction will be used as the primary remediation technology to provide an upper bound of the level of effort (and corresponding cost) for NAPL source removal.

The institutional controls would be a combination of those presented Alternative S-2 and those for Alternative GW-2. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document if this alternative is selected.

The following description of remedial activities proposed under this alternative is not intended to identify a sequence to be followed during implementation. If this alternative is selected, the RD would refine the implementation approaches and develop optimization strategies to allow for appropriate adjustments based on site conditions.

4.4.4.1. Source Removal or Treatment

Under Alternative N-4A, thermally-enhanced NAPL extraction is assumed to be the primary remediation technology for source removal at IR-03. This technology represents an upper bound of the level of effort (and corresponding cost) for NAPL source removal. Source removal by thermally-enhanced NAPL extraction for Alternative N-4A would be consistent with the procedures outlined in Alternative N-3. Alternative N-4A provides flexibility to incorporate other remediation technologies to remove or treat the NAPL source in a cost-effective manner; however, potential changes in the remediation approach would not affect the prescribed accuracy of the cost estimates, as specified in EPA guidance (+50/-30 percent) (EPA, 2000).

4.4.4.2. ISB

ISB will use aerobic processes to target aromatic COCs (such as benzene), as described for Alternative GW-3A. For this FS cost estimate, the injection point spacing was assumed to be 10 feet and the coverage area was assumed to be the entire area enclosed by the slurry wall. ORC injection was modeled to be effective in a single application. The treatment period was assumed to be 1 year, and the treatment area assumed to cover approximately 2 acres.

As explained in Section 4.4, for the purposes of this FS, in-situ treatment is limited to the area within the IR-03 boundary. Areas where the TPH plume extends outside the IR-03 site boundary (i.e., outside the slurry wall) would be addressed by source removal (excavation and off-site disposal under soil Alternatives S-3 and S-4; see Figure 4-4) and through MNA as part of the NAPL alternatives.

4.4.4.3. Source Containment

Source containment for Alternative N-4A would be consistent with the procedures outlined for Alternative N-3.

4.4.4.4. Monitored Natural Attenuation

Similar to prior alternatives, MNA would continue for as long as COC concentrations exceed their remediation goals. If degradation is not demonstrated through site data, the use of biological activity enhancers (such as electron acceptors, nutrients, and electron donors) may be required to enhance the MNA process. The timeframes assumed for purposes of costing are the same as those used for Alternative N-3. The MNA approach is discussed conceptually in Appendix C.

4.4.4.5. Institutional Controls

As described in Alternative N-2, institutional controls would be a combination of those presented for Alternatives S-2 and GW-2, and would be described in greater detail in a LUC RD document developed specifically for this alternative, should it be selected.

4.4.4.6. Long-Term Monitoring

Long-term monitoring would be conducted, as described for Alternative N-2, to delineate the plume and monitor concentrations of chemicals and degradation products in groundwater. The long-term monitoring approach is provided in Appendix C.

4.4.4.7. Radiological Controls

Intrusive activities contemplated under Alternative N-4A would include soil excavation; installing injection, heating, and extraction wells; and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative N-4A would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.2.4 and 4.3.2.4).

4.4.4.8. Considerations for Alternative N-4A

The following considerations apply for Alternative N-4A:

- Plume conditions may continue to change over time as a result of the continued effects of treatability studies and natural processes. Delineation of areas requiring treatment may require revision.
- Installation of the slurry wall (or implementation of in-situ mixing) could be complicated by the likely presence of large irregular subsurface obstacles (such as rocks, boulders, and debris) and by proximity to the shoreline.

- The site conditions at IR-03 pose challenges to cost-effectively address the NAPL source. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be further studied (through bench-scale or pilot-scale testing) and refined during the RD.
- Injection of substrate or other amendments under pressure could fracture the formation and consequently enhance permeability. This is the only type of permeability enhancement planned. The benefit of a dedicated permeability enhancement event may be explored during the RD.

4.4.5. Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-4B consists of a combination of source removal or treatment, followed by groundwater treatment (by steaming), containment, MNA, and institutional controls. This alternative assumes that ERH can be phased to first mobilize NAPL and then to boil (or steam) groundwater to remove the remaining VOCs and SVOCs in groundwater. Alternative N-4B is included to separately evaluate the process of using heat to steam groundwater and remove dissolved-phase chemicals. Alternative N-4B is the same as Alternative N-4A, except that organic chemicals in groundwater would be addressed by a steaming process following ERH treatment, rather than ISB. Figure 4-18 shows the configuration of the elements for Alternative N-4B.

The institutional controls would be a combination of those presented for Alternatives S-2 and GW-2. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document if this alternative is selected.

The following description of remedial activities proposed under this alternative is not intended to identify a sequence to be followed during implementation. If this alternative is selected, the RD would refine the implementation approaches and develop optimization strategies to allow for appropriate adjustments based on site conditions.

4.4.5.1. Source Removal or Treatment

Under Alternative N-4B, thermally-enhanced NAPL extraction is assumed to be the primary remediation technology for source removal at IR-03. This technology represents an upper bound of the level of effort (and corresponding cost) for NAPL source removal. Source removal by thermally-enhanced NAPL extraction for Alternative N-4B would be consistent with the areas and procedures outlined in Alternative N-3. Alternative N-4B provides flexibility to incorporate other remediation technologies to remove or treat the NAPL source in a cost-effective manner; however, potential changes in the remediation approach would

not affect the prescribed accuracy of the cost estimates, as specified in EPA guidance (+50/-30 percent) (EPA, 2000).

Following NAPL removal, the amount of electricity fed to the subsurface ERH array would be increased enough to vaporize the groundwater. Vapor generated would be extracted via the same dual-phase extraction wells used to conduct the source removal. Collected vapor would be condensed, nonaqueous phases separated, and the aqueous phase treated with GAC adsorption and disposed of off site. Vapor treatment would be performed using a catalytic oxidizer. It is anticipated that the steaming phase of remediation would be implemented for a period of 6 months.

4.4.5.2. Source Containment

Source containment for Alternative N-4B would be consistent with the procedures outlined for Alternatives N-3 and N-4A.

4.4.5.3. Monitored Natural Attenuation

Similar to prior alternatives, MNA would continue for as long as COC concentrations exceed their remediation goals. If degradation is not demonstrated through site data, the use of biological activity enhancers (such as electron acceptors, nutrients, and electron donors) may be required to enhance the MNA process. The timeframes assumed for purposes of costing are the same as those used for Alternative N-3. The MNA approach is discussed conceptually in Appendix C.

4.4.5.4. Institutional Controls

As described in Alternative N-2, institutional controls would be a combination of those presented for Alternatives S-2 and Alternative GW-2, and would be described in greater detail in a LUC RD document developed specifically for this alternative, should it be selected.

4.4.5.5. Long-Term Monitoring

Long-term monitoring would be conducted as described for Alternative N-2 to delineate the plume and monitor concentrations of chemicals and degradation products in groundwater. The long-term monitoring approach is provided in Appendix C.

4.4.5.6. Radiological Controls

Intrusive activities contemplated under Alternative N-4B would include soil excavation; installing injection, heating, and extraction wells; and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative N-4B would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.2.4 and 4.3.2.4).

4.4.5.7. Considerations for Alternative N-4B

The following considerations apply for Alternative N-4B:

- Plume conditions may continue to change over time as a result of the continued effects of treatability studies and natural processes. Delineation of areas requiring treatment may require revision.
- Installation of the slurry wall (or implementation of in-situ mixing) could be complicated by the likely presence of large irregular subsurface obstacles (such as rocks, boulders, and debris) and by proximity to the shoreline.
- The site conditions at IR-03 pose challenges to cost-effectively address the NAPL source. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be further studied (through bench-scale or pilot-scale testing) and refined during the RD.

4.4.6. Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-5 consists of a combination of source removal by excavation in the unsaturated zone, followed by NAPL extraction or treatment in the saturated zone, groundwater treatment (by aerobic ISB), containment, MNA, and institutional controls. Figure 4-19 shows the configuration of the elements for Alternative N-5. Alternative N-5 is the same as Alternative N-4A, but includes the excavation of all potential source material in the unsaturated zone.

The institutional controls would be a combination of those presented for Alternatives S-2 and GW-2. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document if this alternative is selected.

The following description of remedial activities proposed under this alternative is not intended to identify a sequence to be followed during implementation. If this alternative is selected, the RD would refine the implementation approaches and develop optimization strategies to allow for appropriate adjustments based on site conditions.

4.4.6.1. Source Removal by Excavation

NAPL and all associated soil would be excavated in the unsaturated zone area at IR-03. Excavation would occur to groundwater (approximately 9 feet bgs) to remove all NAPL in the unsaturated zone. The volume of soil for excavation is estimated to be approximately 38,933 cubic yards, and the open excavation would be backfilled with the same volume of clean soil. The excavated soil containing COCs

would be removed from the site and transported to an appropriately permitted disposal facility. Radiological control procedures for Alternative N-5 would be provided for the excavated area, as described for Alternative S-2. Detailed excavation plans would be developed in the RD.

This excavation would be challenging to implement because of its proximity to San Francisco Bay. Difficulties associated with the removal of soil include:

- Surface stability during excavation due to saturated soil conditions
- Surface water control to prevent inundation resulting from tides or storm water
- Radiological screening, characterization, and confirmation sampling of all soils and debris transported from the site (for disposal and treatment) and to the site (for backfill and restoration)
- Destruction and replacement of all existing monitoring wells on site
- Drying of saturated excavated shoreline soil prior to being hauled off site for disposal

The existing sheet-pile wall would not adequately address the difficulties associated with saturated soil excavation because (1) it does not encircle the entire excavation, and (2) it does not have a cathodic protection system and, during the more than 13 years since its installation, the wall has likely corroded to a point that it would not effectively control surface water inundation.

4.4.6.2. Source Removal or Treatment

Under Alternative N-5, thermally-enhanced NAPL extraction is assumed to be the primary remediation technology for source removal at IR-03. This technology represents an upper bound of the level of effort (and corresponding cost) for NAPL source removal. Source removal by thermally-enhanced NAPL extraction for Alternative N-5 would be consistent with the areas and procedures outlined for Alternative N-3. Alternative N-5 provides flexibility to incorporate other remediation technologies to remove or treat the NAPL source in a cost-effective manner; however, potential changes in the remediation approach would not affect the prescribed accuracy of the cost estimates, as specified in EPA guidance (+50/-30 percent) (EPA, 2000).

4.4.6.3. In-Situ Bioremediation

ISB for Alternative N-5 would be consistent with the areas and procedures outlined for Alternative N-4A.

4.4.6.4. Source Containment

Following excavation, source containment would be implemented. Source containment for Alternative N-5 would be consistent with the procedures outlined for Alternatives N-3, N-4A, and N-4B.

4.4.6.5. Monitored Natural Attenuation

MNA for Alternative N-5 would be consistent with the areas and procedures outlined for Alternatives N-3, N-4A, and N-4B.

4.4.6.6. Institutional Controls

As described for Alternative N-2, institutional controls would be a combination of those presented for Alternatives S-2 and GW-2, and would be described in greater detail in a LUC RD document developed specifically for this alternative, should it be selected.

4.4.6.7. Long-Term Monitoring

Long-term monitoring would be conducted, as described for Alternative N-2, to delineate the plume and monitor concentrations of chemicals and degradation products in groundwater.

4.4.6.8. Radiological Controls

Intrusive activities contemplated under Alternative N-5 would include soil excavation; installing injection, heating, and extraction wells; and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative N-5 would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.2.4 and 4.3.2.4).

4.4.6.9. Considerations for Alternative N-5

The following considerations apply for Alternative N-5:

- Maintaining stable excavation slopes and controlling surface water may complicate the excavation process, particularly for excavation areas adjacent to San Francisco Bay.
- Dewatering and radiological screening of saturated soil and waste (excavated from depths near the groundwater table) may take a long time and require cordoning off a large area adjacent to the site.
- Plume conditions may continue to change over time as a result of the continued effects of treatability studies and natural processes. Delineation of areas requiring treatment may require revision.
- Installation of the slurry wall (and implementation of in-situ mixing) could be complicated by the likely presence of large irregular subsurface obstacles (such as rocks, boulders, and debris) and by proximity to the shoreline.
- The site conditions at IR-03 pose challenges to cost-effectively address the NAPL source. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be further studied (through bench-scale or pilot-scale testing) and refined during the RD.
- Injection of substrate or other amendments under pressure could fracture the formation and consequently enhance permeability. This is the only type of permeability enhancement planned. The benefit of a dedicated permeability enhancement event may be explored during the RD.

4.4.7. Alternative N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls

Alternative N-6 would consist of a combination of source removal by excavation in the unsaturated and saturated zones, followed by MNA, and institutional controls. Figure 4-20 shows the configuration of the elements for Alternative N-6. Alternative N-6 considers excavating to and below the groundwater table with the objective of removing the entire NAPL source and achieving clean closure of IR-03.

The institutional controls would be a combination of those presented for Alternatives S-2 and GW-2. Further explanation of institutional controls is provided in Section 3.3.2.1.2. Institutional controls specific to this alternative would be described in greater detail in a LUC RD document if this alternative is selected.

The following description of remedial activities proposed under this alternative is not intended to identify a sequence to be followed during implementation. If this alternative is selected, the RD would refine the implementation approaches and develop optimization strategies to allow for appropriate adjustments based on site conditions.

4.4.7.1. Source Removal by Excavation

NAPL and all associated soil would be excavated in the unsaturated and saturated zones at IR-03. Excavation would occur to approximately 35 feet bgs to remove all NAPL, to the extent feasible. The volume of soil for excavation is estimated to be approximately 162,037 cubic yards, and the open excavation would be backfilled with the same volume of clean soil. The excavated soil containing COCs would be removed from the site and transported to an appropriate permitted disposal facility. Radiological control procedures for Alternative N-6 would be provided for the excavated area, as described for Alternative S-2. Detailed excavation plans would be developed in the RD.

This excavation would be extremely challenging to implement because of its proximity to San Francisco Bay, the depth of the excavation, and the volume of soil to be screened, characterized, and removed. Difficulties associated with the removal of soil include:

- Operating surface stability during excavation due to saturated soil conditions
- Surface water control to prevent inundation resulting from tides or storm water
- Management and treatment of contaminated water collected while dewatering the excavation
- Radiological screening, characterization, and confirmation sampling of all soils and debris transported from the site (for disposal and treatment) and to the site (for backfill and restoration)
- Destruction and replacement of all existing monitoring wells on site.
- Drying of saturated excavated shoreline soil prior to being hauled off site for disposal

The existing sheet-pile wall would not adequately address the difficulties associated with saturated soil excavation because (1) it does not encircle the entire excavation, and (2) it does not have a cathodic protection system and, during the more than 13 years since its installation, the wall has likely corroded to a point that it would not effectively control surface water inundation.

It should be noted that the technical difficulties and costs associated with implementing this alternative are significant. This "clean closure" alternative is presented primarily for comparison purposes with other alternatives.

4.4.7.2. Monitored Natural Attenuation

MNA for Alternative N-6 would be consistent with the areas and procedures outlined for Alternative N-5. It would be implemented to monitor attenuation of minor residual contamination left in groundwater after the completion of large-scale source removal excavation.

4.4.7.3. Institutional Controls

As described in Alternative N-2, institutional controls would be a combination of those presented for Alternatives S-2 and Alternative GW-2, and would be described in greater detail in a LUC RD document developed specifically for this alternative, should it be selected. However, under this alternative, restrictions on use of B-aquifer groundwater may be removed once chemical concentrations have attenuated to less than the remediation goals.

4.4.7.4. Long-Term Monitoring

Long-term monitoring would be conducted, as described for Alternative N-2, to delineate the plume and monitor concentrations of chemicals and degradation products in groundwater.

4.4.7.5. Radiological Controls

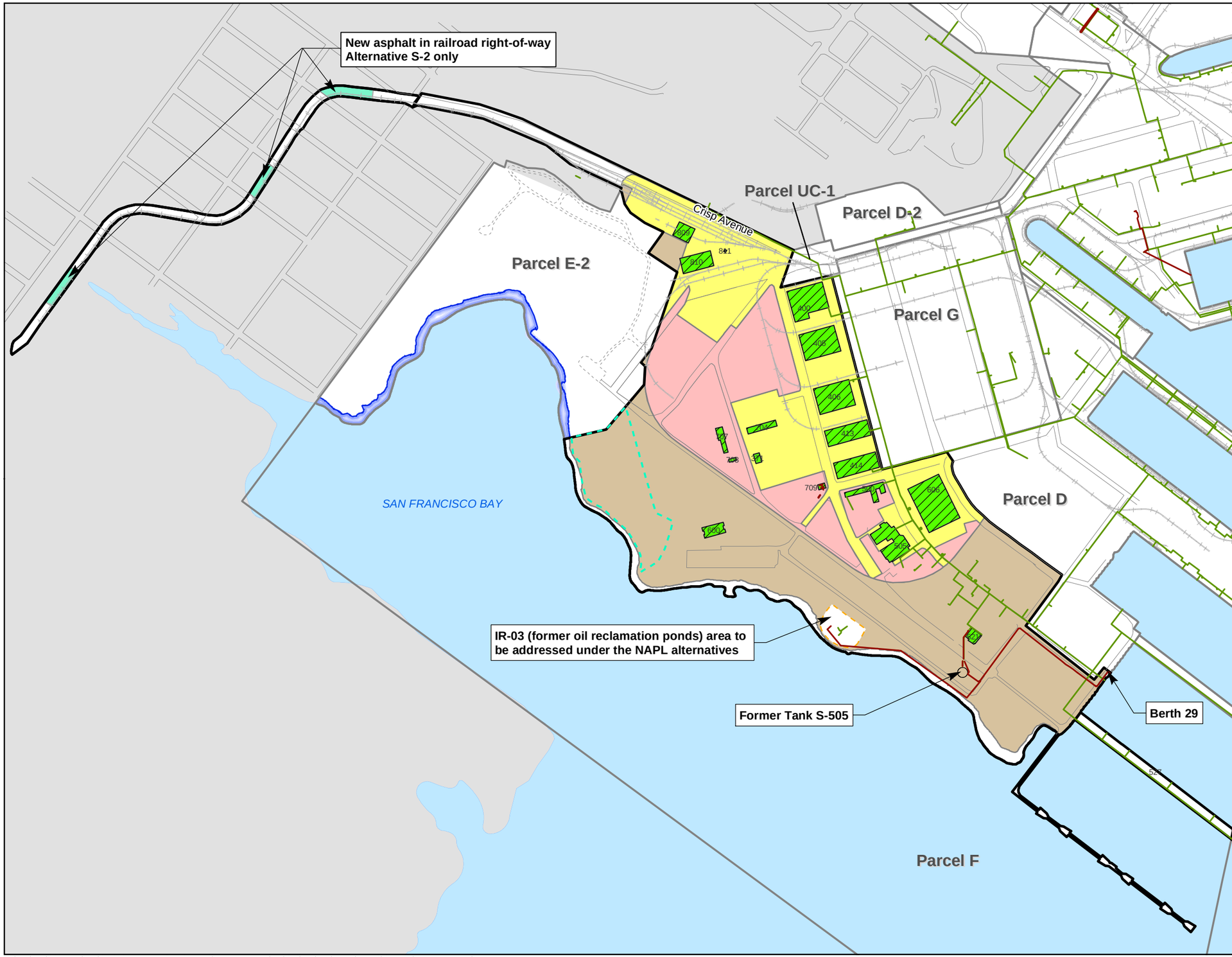
Intrusive activities contemplated under Alternative N-6 would include soil excavation and decommissioning and installing monitoring wells. Applicable radiological control procedures for Alternative N-6 would be as described for Alternatives S-2 and GW-2 (see Sections 4.2.2.4 and 4.3.2.4).

4.4.7.6. Considerations for Alternative N-6

The following considerations apply for Alternative N-6:

- Maintaining stable excavation slopes and controlling surface water and groundwater may complicate the excavation process.
- Dewatering and radiological screening of saturated soil and waste (excavated from depths below the groundwater table) may take a long time and require cordoning off a large area adjacent to the site.
- The potential presence of NAPL adjacent to the shoreline or well beyond the IR-03 site boundary may exist.

Figures



LEGEND

- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- San Francisco Bay
- Shoreline Area (see Appendix D for evaluation of shoreline protection options; 4.3 acres)
- Road
- Gravel Road
- Rail Road
- Fuel Lines (IR-47)[a]
- Steam Lines (IR-45)[a]

Proposed Surface Treatments

- New Asphalt (24.9 acres)
- Repair of Existing Asphalt (32.9 acres)
- Soil Cover (58.4 acres)
- Building Footprint (8.99 acres)
- HDPE Liner (under soil cover; 7.5 acres)
- New Asphalt in Railroad Right-of-Way (Alternative S-2 only; 1.3 acres)[b]

Notes:

[a] Fuel and steam lines would be inspected and either removed or closed in place; fuel and steam lines in adjoining parcels were previously closed.

[b] New asphalt in railroad right-of-way is proposed only for Alternative S-2. Alternatives S-3 and S-4 include excavation in these areas instead (see Figure 4-9).

No soil underlying piers, no cover required.

HPS = Hunters Point Shipyard
HDPE= high density polyethylene
NAPL = non-aqueous phase liquid

N

650 0 650

Scale in Feet

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FIGURE 4-1

PROPOSED COVER LOCATIONS AND FUEL AND STEAM LINE REMOVALS

Feasibility Study Report for Parcel E

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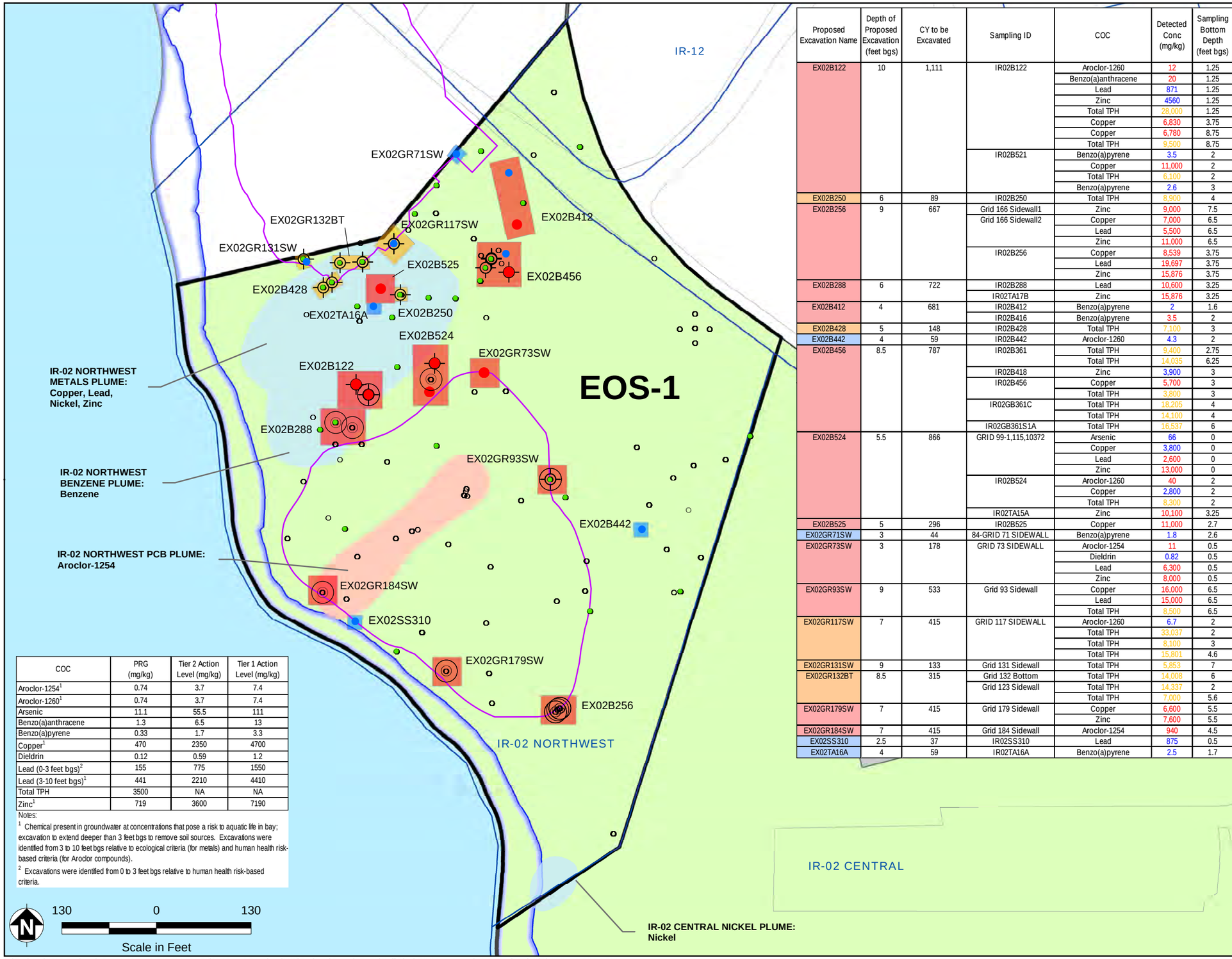

COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
Aroclor-1254[1]	0.74	3.7	7.4
Aroclor-1260[1]	0.74	3.7	7.4
Arsenic	11.1	55.5	111
Benzo(a)anthracene	1.3	6.5	13
Benzo(a)pyrene	0.33	1.7	3.3
Copper[1]	470	2350	4700
Dieldrin	0.12	0.59	1.2
Lead (0-3 feet bgs)[2]	155	775	1550
Lead (3-10 feet bgs)[1]	441	2210	4410
Total TPH	3500	NA	NA
Zinc[1]	719	3600	7190

Notes:
[1] Chemical present in groundwater at concentrations that pose a risk to aquatic life in bay; excavation to extend deeper than 3 feet bgs to remove soil sources. Excavations were identified from 3 to 10 feet bgs relative to ecological criteria (for metals) and human health risk-based criteria (for Aroclor compounds).
[2] Excavations were identified from 0 to 3 feet bgs relative to human health risk-based criteria.

Proposed Excavation Name	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc (mg/kg)	Sampling Bottom Depth (feet bgs)
EX02B122	10	1,111	IR02B122	Aroclor-1260	12	1.25
				Benzo(a)anthracene	20	1.25
				Lead	871	1.25
				Zinc	4560	1.25
				Total TPH	28,000	1.25
				Copper	6,830	3.75
				Copper	6,780	8.75
				Total TPH	9,500	8.75
			IR02B521	Benzo(a)pyrene	3.5	2
				Copper	11,000	2
				Total TPH	6,100	2
				Benzo(a)pyrene	2.6	3
EX02B250	6	89	IR02B250	Total TPH	8,900	4
EX02B256	9	667	Grid 166 Sidewall1	Zinc	9,000	7.5
			Grid 166 Sidewall2	Copper	7,000	6.5
				Lead	5,500	6.5
				Zinc	11,000	6.5
			IR02B256	Copper	8,539	3.75
				Lead	19,697	3.75
				Zinc	15,876	3.75
EX02B288	6	722	IR02B288	Lead	10,600	3.25
			IR02TA17B	Zinc	15,876	3.25
EX02B412	4	681	IR02B412	Benzo(a)pyrene	2	1.6
			IR02B416	Benzo(a)pyrene	3.5	2
EX02B428	5	148	IR02B428	Total TPH	7,100	3
EX02B442	4	59	IR02B442	Aroclor-1260	4.3	2
EX02B456	8.5	787	IR02B361	Total TPH	9,400	2.75
				Total TPH	14,035	6.25
			IR02B418	Zinc	3,900	3
			IR02B456	Copper	5,700	3
				Total TPH	3,800	3
			IR02GB361C	Total TPH	18,205	4
				Total TPH	14,100	4
			IR02GB361S1A	Total TPH	16,537	6
EX02B524	5.5	866	GRID 99-1,115,10372	Arsenic	66	0
				Copper	3,800	0
				Lead	2,600	0
				Zinc	13,000	0
			IR02B524	Aroclor-1260	40	2
				Copper	2,800	2
				Total TPH	8,300	2
			IR02TA15A	Zinc	10,100	3.25
EX02B525	5	296	IR02B525	Copper	11,000	2.7
EX02GR71SW	3	44	84-GRID 71 SIDEWALL	Benzo(a)pyrene	1.8	2.6
EX02GR73SW	3	178	GRID 73 SIDEWALL	Aroclor-1254	11	0.5
				Dieldrin	0.82	0.5
				Lead	6,300	0.5
				Zinc	8,000	0.5
EX02GR93SW	9	533	Grid 93 Sidewall	Copper	16,000	6.5
				Lead	15,000	6.5
				Total TPH	8,500	6.5
EX02GR117SW	7	415	GRID 117 SIDEWALL	Aroclor-1260	6.7	2
				Total TPH	33,037	2
				Total TPH	8,100	3
				Total TPH	15,801	4.6
EX02GR131SW	9	133	Grid 131 Sidewall	Total TPH	5,853	7
EX02GR132BT	8.5	315	Grid 132 Bottom	Total TPH	14,008	6
			Grid 123 Sidewall	Total TPH	14,337	2
				Total TPH	7,000	5.6
EX02GR179SW	7	415	Grid 179 Sidewall	Copper	6,600	5.5
				Zinc	7,600	5.5
EX02GR184SW	7	415	Grid 184 Sidewall	Aroclor-1254	940	4.5
EX02SS310	2.5	37	IR02SS310	Lead	875	0.5
EX02TA16A	4	59	IR02TA16A	Benzo(a)pyrene	2.5	1.7

LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the PRG but less than 5 times the PRG
- Soil concentration (for one or more COC) is less than the PRG (includes detected or not detected results)
- Soil concentration is 10 times the selected action level.**
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of Tier 2 Location
- Proposed Excavation of comingled TPH concentration exceeding source criterion
- Metals Plume in Groundwater
- PCB Plume in Groundwater
- IR-02 Northwest and Central Removal Action Area
- Road
- Gravel Road
- Building
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary

Redevelopment Block EOS-1

- Open Space Reuse

Notes:
bgs = below ground surface
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
PCB = polychlorinated biphenyl
PSC = protective soil concentration
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon

* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

** = Soils between 3 and 10 feet bgs were evaluated to determine where excavations of Tier 1 locations might reduce the potential for groundwater contamination. Soil concentrations for metals (copper, lead, nickel, and zinc) were compared to 10 times the PSC values and soil concentrations for PCBs were compared to 10 times the recreational soil criterion. Excavations were delineated around areas where these criteria were exceeded.

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FIGURE 4-2

PROPOSED EXCAVATIONS FOR REDEVELOPMENT BLOCK EOS-1

Feasibility Study Report for Parcel E

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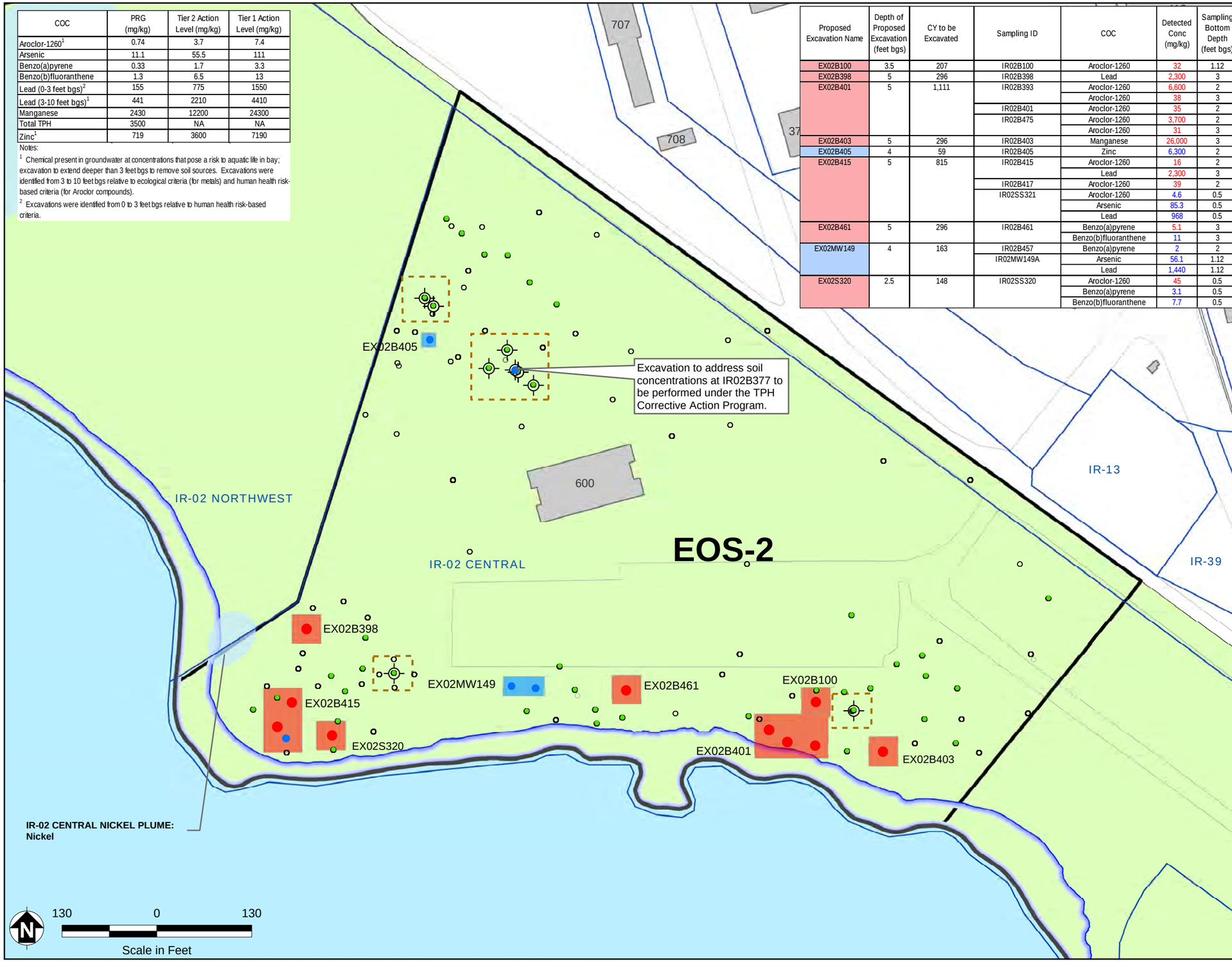
COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
Aroclor-1260[1]	0.74	3.7	7.4
Arsenic	11.1	55.5	111
Benzo(a)pyrene	0.33	1.7	3.3
Benzo(b)fluoranthene	1.3	6.5	13
Lead (0-3 feet bgs)[2]	155	775	1550
Lead (3-10 feet bgs)[1]	441	2210	4410
Manganese	2430	12200	24300
Total TPH	3500	NA	NA
Zinc[1]	719	3600	7190

Notes:

[1] Chemical present in groundwater at concentrations that pose a risk to aquatic life in bay; excavation to extend deeper than 3 feet bgs to remove soil sources. Excavations were identified from 3 to 10 feet bgs relative to ecological criteria (for metals) and human health risk-based criteria (for Aroclor compounds).

[2] Excavations were identified from 0 to 3 feet bgs relative to human health risk-based criteria.

Proposed Excavation Name	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc (mg/kg)	Sampling Bottom Depth (feet bgs)
EX02B100	3.5	207	IR02B100	Aroclor-1260	32	1.12
EX02B398	5	296	IR02B398	Lead	2,300	3
EX02B401	5	1,111	IR02B393	Aroclor-1260	6,600	2
				Aroclor-1260	38	3
			IR02B401	Aroclor-1260	35	2
			IR02B475	Aroclor-1260	3,700	2
				Aroclor-1260	31	3
EX02B403	5	296	IR02B403	Manganese	26,000	3
EX02B405	4	59	IR02B405	Zinc	6,300	2
EX02B415	5	815	IR02B415	Aroclor-1260	16	2
				Lead	2,300	3
			IR02B417	Aroclor-1260	39	2
			IR02SS321	Aroclor-1260	4.6	0.5
				Arsenic	85.3	0.5
				Lead	968	0.5
EX02B461	5	296	IR02B461	Benzo(a)pyrene	5.1	3
				Benzo(b)fluoranthene	11	3
EX02MW149	4	163	IR02B457	Benzo(a)pyrene	2	2
			IR02MW149A	Arsenic	56.1	1.12
				Lead	1,440	1.12
EX02S320	2.5	148	IR02SS320	Aroclor-1260	45	0.5
				Benzo(a)pyrene	3.1	0.5
				Benzo(b)fluoranthene	7.7	0.5



LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the PRG but less than 5 times the PRG
- Soil concentration (for one or more COC) is less than the PRG (includes detected or not detected results)
- Soil concentration is 10 times the selected action level.**
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of Tier 2 Location
- Proposed Excavation of comingled TPH concentration exceeding source criterion
- Petroleum Program Managed AOC
- Metals Plume in Groundwater
- PCB Plume in Groundwater
- IR-02 Northwest and Central Removal Action Area
- Road
- Gravel Road
- Building
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary

Redevelopment Block EOS-2

- Open Space Reuse

Notes:
AOC = area of concern
bgs = below ground surface
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
PCB = polychlorinated biphenyl
PSC = protective soil concentration
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon

* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

** = Soils between 3 and 10 feet bgs were evaluated to determine where excavations of Tier 1 locations might reduce the potential for groundwater contamination. Soil concentrations for metals (copper, lead, nickel, and zinc) were compared to 10 times the PSC values and soil concentrations for PCBs were compared to 10 times the recreational soil criterion. Excavations were delineated around areas where these criteria were exceeded.

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FIGURE 4-3

PROPOSED EXCAVATIONS FOR REDEVELOPMENT BLOCK EOS-2

Feasibility Study Report for Parcel E

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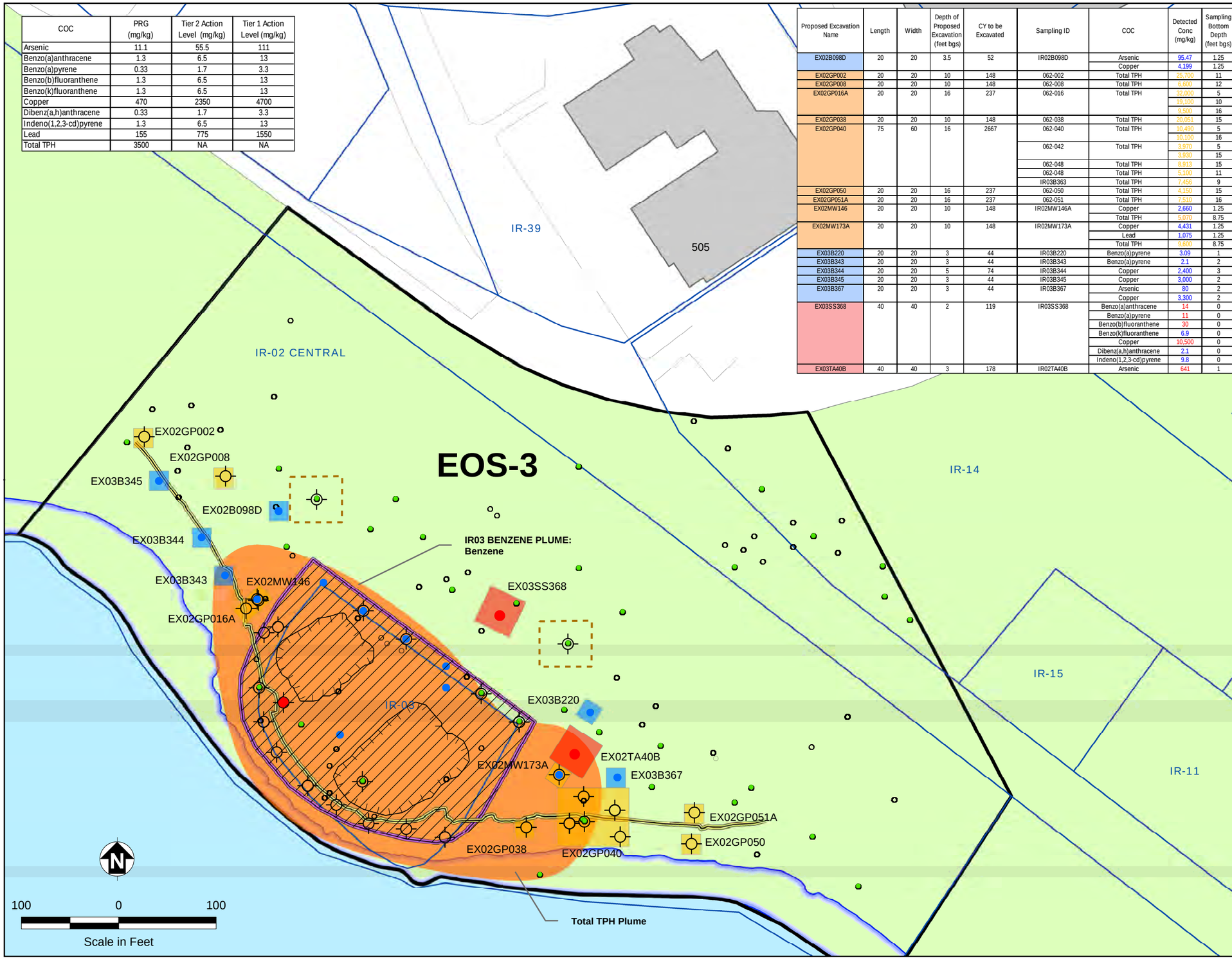
COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
Arsenic	11.1	55.5	111
Benzo(a)anthracene	1.3	6.5	13
Benzo(a)pyrene	0.33	1.7	3.3
Benzo(b)fluoranthene	1.3	6.5	13
Benzo(k)fluoranthene	1.3	6.5	13
Copper	470	2350	4700
Dibenz(a,h)anthracene	0.33	1.7	3.3
Indeno(1,2,3-cd)pyrene	1.3	6.5	13
Lead	155	775	1550
Total TPH	3500	NA	NA

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc (mg/kg)	Sampling Bottom Depth (feet bgs)
EX02B098D	20	20	3.5	52	IR02B098D	Arsenic	95.47	1.25
						Copper	4,199	1.25
EX02GP002	20	20	10	148	062-002	Total TPH	25,700	11
EX02GP008	20	20	10	148	062-008	Total TPH	6,600	12
EX02GP016A	20	20	16	237	062-016	Total TPH	32,000	5
							19,100	10
							9,500	16
EX02GP038	20	20	10	148	062-038	Total TPH	20,051	15
EX02GP040	75	60	16	2667	062-040	Total TPH	10,490	5
							10,100	16
					062-042	Total TPH	3,970	5
							3,930	15
					062-048	Total TPH	8,913	15
					062-048	Total TPH	5,100	11
					IR03B363	Total TPH	7,456	9
EX02GP050	20	20	16	237	062-050	Total TPH	4,150	15
EX02GP051A	20	20	16	237	062-051	Total TPH	7,510	16
EX02MW146	20	20	10	148	IR02MW146A	Copper	2,660	1.25
						Total TPH	5,070	8.75
EX02MW173A	20	20	10	148	IR02MW173A	Copper	4,431	1.25
						Lead	1,075	1.25
						Total TPH	9,600	8.75
EX03B220	20	20	3	44	IR03B220	Benzo(a)pyrene	3.09	1
EX03B343	20	20	3	44	IR03B343	Benzo(a)pyrene	2.1	2
EX03B344	20	20	5	74	IR03B344	Copper	2,400	3
EX03B345	20	20	3	44	IR03B345	Copper	3,000	2
EX03B367	20	20	3	44	IR03B367	Arsenic	80	2
						Copper	3,300	2
EX03SS368	40	40	2	119	IR03SS368	Benzo(a)anthracene	14	0
						Benzo(a)pyrene	11	0
						Benzo(b)fluoranthene	30	0
						Benzo(k)fluoranthene	6.9	0
						Copper	10,500	0
						Dibenz(a,h)anthracene	2.1	0
						Indeno(1,2,3-cd)pyrene	9.8	0
EX03TA40B	40	40	3	178	IR02TA40B	Arsenic	641	1



LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the PRG but less than 5 times the PRG
- Soil concentration (for one or more COC) is less than the PRG (includes detected or not detected results)
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of Tier 2 Location
- Proposed Excavation of comingled TPH concentration exceeding source criterion
- Petroleum Program Managed AOC
- Area to be addressed under NAPL Alternative
- TPH Plume in Groundwater
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photos
- Sheetpile Wall (existing)
- Slurry Wall (proposed)
- Road
- Gravel Road
- Building
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary

Redevelopment Block EOS-3

- Open Space Reuse

Notes:
AOC = area of concern
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
NAPL = non-aqueous phase liquid
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon
* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 4-4

PROPOSED EXCAVATIONS FOR REDEVELOPMENT BLOCK EOS-3

Feasibility Study Report for Parcel E

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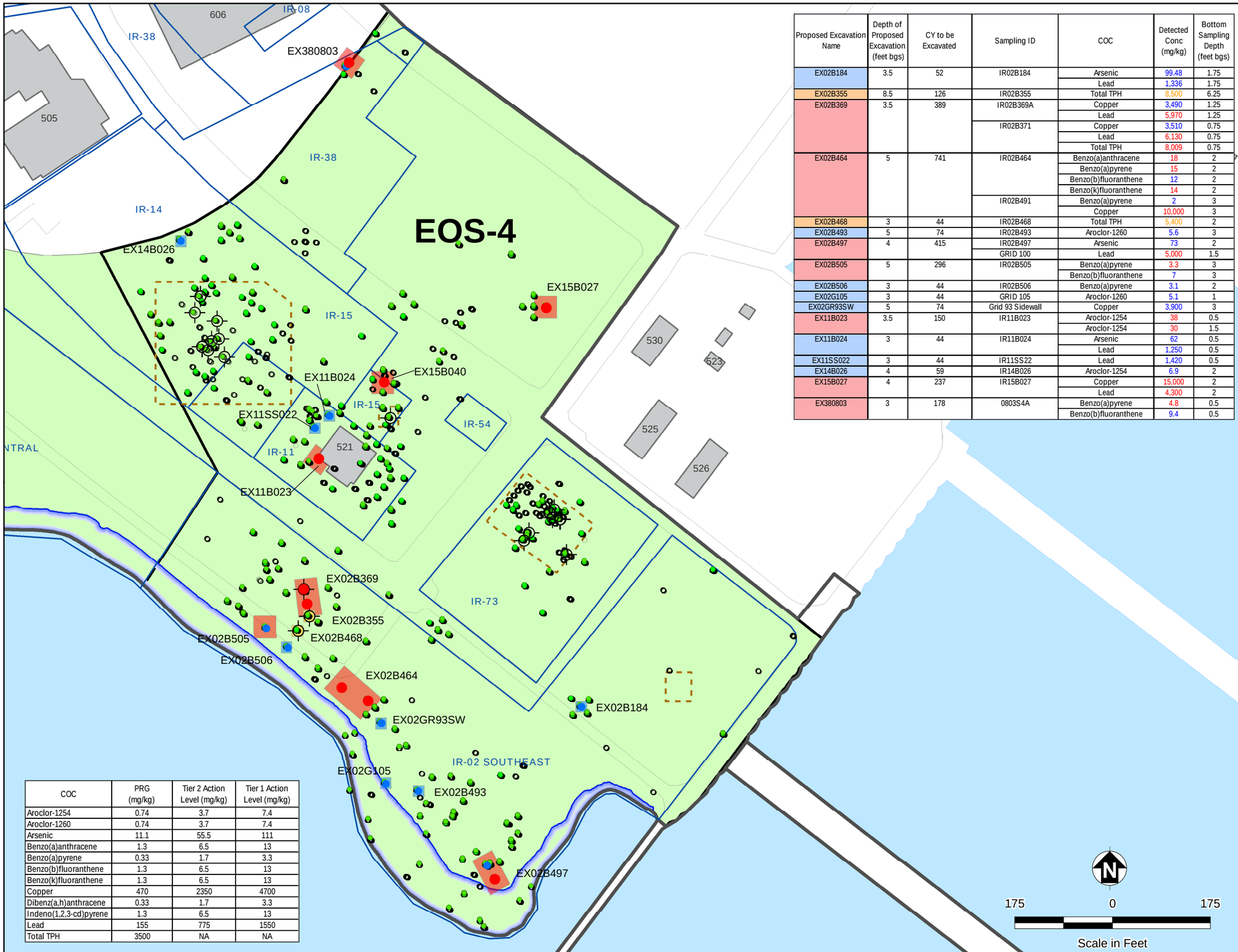

Proposed Excavation Name	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc (mg/kg)	Bottom Sampling Depth (feet bgs)
EX02B184	3.5	52	IR02B184	Arsenic	99.48	1.75
				Lead	1,336	1.75
EX02B355	8.5	126	IR02B355	Total TPH	8,500	6.25
EX02B369	3.5	389	IR02B369A	Copper	3,490	1.25
				Lead	5,970	1.25
			IR02B371	Copper	3,510	0.75
				Lead	6,130	0.75
				Total TPH	8,009	0.75
EX02B464	5	741	IR02B464	Benzo(a)anthracene	18	2
				Benzo(a)pyrene	15	2
				Benzo(b)fluoranthene	12	2
				Benzo(k)fluoranthene	14	2
			IR02B491	Benzo(a)pyrene	2	3
				Copper	10,000	3
EX02B468	3	44	IR02B468	Total TPH	5,400	2
EX02B493	5	74	IR02B493	Aroclor-1260	5.6	3
EX02B497	4	415	IR02B497	Arsenic	73	2
			GRID 100	Lead	5,000	1.5
EX02B505	5	296	IR02B505	Benzo(a)pyrene	3.3	3
				Benzo(b)fluoranthene	7	3
EX02B506	3	44	IR02B506	Benzo(a)pyrene	3.1	2
EX02G105	3	44	GRID 105	Aroclor-1260	5.1	1
EX02GR93SW	5	74	Grid 93 Sidewall	Copper	3,900	3
EX11B023	3.5	150	IR11B023	Aroclor-1254	38	0.5
				Aroclor-1254	30	1.5
EX11B024	3	44	IR11B024	Arsenic	62	0.5
				Lead	1,250	0.5
EX11SS022	3	44	IR11SS22	Lead	1,420	0.5
EX14B026	4	59	IR14B026	Aroclor-1254	6.9	2
EX15B027	4	237	IR15B027	Copper	15,000	2
				Lead	4,300	2
EX380803	3	178	0803S4A	Benzo(a)pyrene	4.8	0.5
				Benzo(b)fluoranthene	9.4	0.5

COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
Aroclor-1254	0.74	3.7	7.4
Aroclor-1260	0.74	3.7	7.4
Arsenic	11.1	55.5	111
Benzo(a)anthracene	1.3	6.5	13
Benzo(a)pyrene	0.33	1.7	3.3
Benzo(b)fluoranthene	1.3	6.5	13
Benzo(k)fluoranthene	1.3	6.5	13
Copper	470	2350	4700
Dibenz(a,h)anthracene	0.33	1.7	3.3
Indeno(1,2,3-cd)pyrene	1.3	6.5	13
Lead	155	775	1550
Total TPH	3500	NA	NA

LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the PRG but less than 5 times the PRG
- Soil concentration (for one or more COC) is less than the PRG (includes detected or not detected results)
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of Tier 2 Location
- Petroleum Program Managed AOC
- Road
- Gravel Road
- Building
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary

Redevelopment Block EOS-4

- Open Space Reuse

Notes:
AOC = area of concern
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon
* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 4-5

PROPOSED EXCAVATIONS FOR REDEVELOPMENT BLOCK EOS-4

Feasibility Study Report for Parcel E

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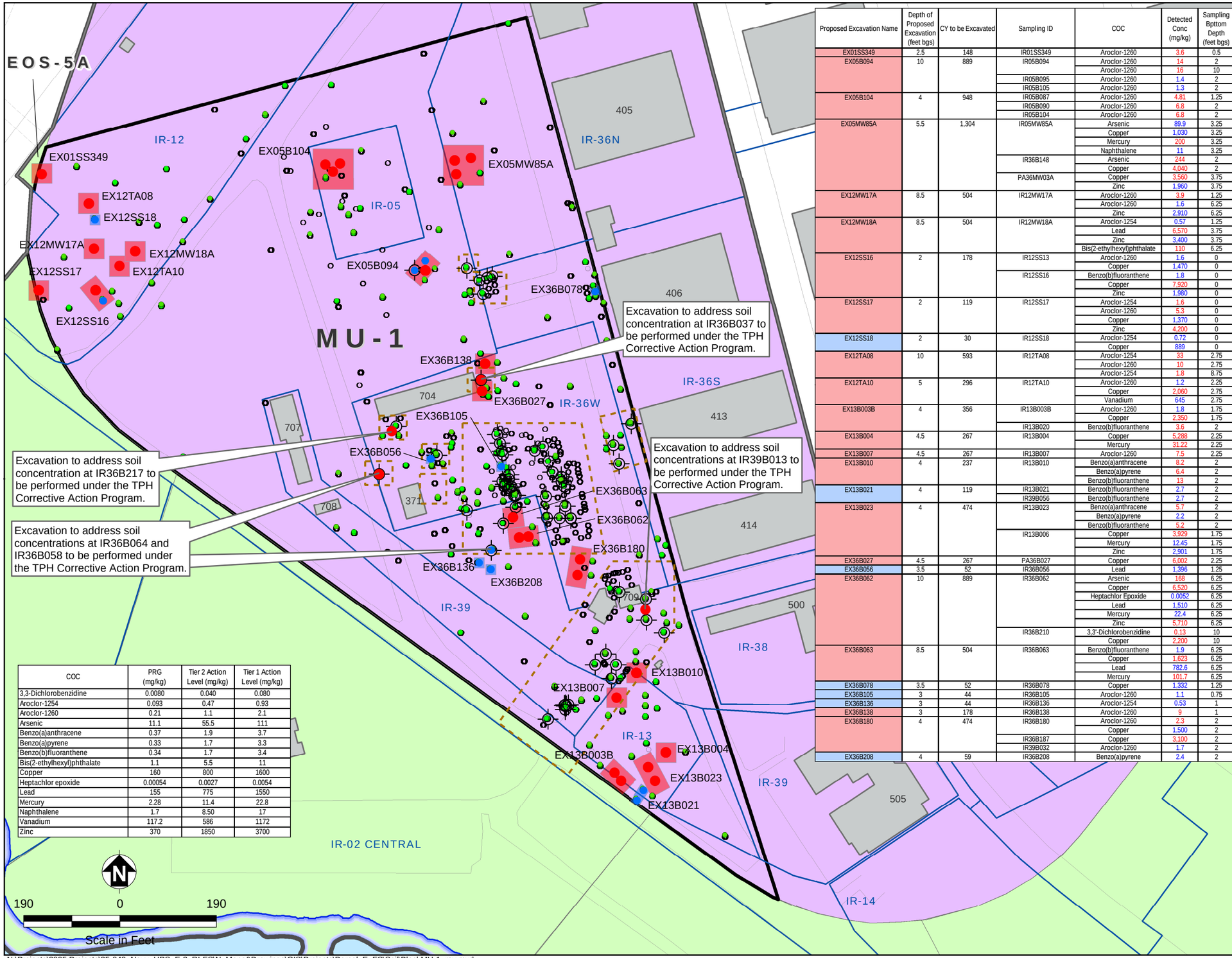

COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
3,3-Dichlorobenzidine	0.0080	0.040	0.080
Aroclor-1254	0.093	0.47	0.93
Aroclor-1260	0.21	1.1	2.1
Arsenic	11.1	55.5	111
Benzo(a)anthracene	0.37	1.9	3.7
Benzo(a)pyrene	0.33	1.7	3.3
Benzo(b)fluoranthene	0.34	1.7	3.4
Bis(2-ethylhexyl)phthalate	1.1	5.5	11
Copper	160	800	1600
Heptachlor epoxide	0.00054	0.0027	0.0054
Lead	155	775	1550
Mercury	2.28	11.4	22.8
Naphthalene	1.7	8.50	17
Vanadium	117.2	586	1172
Zinc	370	1850	3700

Proposed Excavation Name	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc (mg/kg)	Sampling Bpttom Depth (feet bgs)
EX01SS349	2.5	148	IR01SS349	Aroclor-1260	3.6	0.5
EX05B094	10	889	IR05B094	Aroclor-1260	14	2
				Aroclor-1260	16	10
			IR05B095	Aroclor-1260	1.4	2
			IR05B105	Aroclor-1260	1.3	2
EX05B104	4	948	IR05B087	Aroclor-1260	4.81	1.25
			IR05B090	Aroclor-1260	6.8	2
			IR05B104	Aroclor-1260	6.8	2
EX05MW85A	5.5	1,304	IR05MW85A	Arsenic	89.9	3.25
				Copper	1,030	3.25
				Mercury	200	3.25
				Naphthalene	11	3.25
			IR36B148	Arsenic	244	2
				Copper	4,040	2
			PA36MW03A	Copper	3,560	3.75
				Zinc	1,960	3.75
EX12MW17A	8.5	504	IR12MW17A	Aroclor-1260	3.9	1.25
				Aroclor-1260	1.6	6.25
				Zinc	2,910	6.25
EX12MW18A	8.5	504	IR12MW18A	Aroclor-1254	0.57	1.25
				Lead	6,570	3.75
				Zinc	3,400	3.75
				Bis(2-ethylhexyl)phthalate	110	6.25
EX12SS16	2	178	IR12SS13	Aroclor-1260	1.6	0
				Copper	1,470	0
			IR12SS16	Benzo(b)fluoranthene	1.8	0
				Copper	7,920	0
				Zinc	1,980	0
EX12SS17	2	119	IR12SS17	Aroclor-1254	1.6	0
				Aroclor-1260	5.3	0
				Copper	1,370	0
				Zinc	4,200	0
EX12SS18	2	30	IR12SS18	Aroclor-1254	0.72	0
				Copper	889	0
EX12TA08	10	593	IR12TA08	Aroclor-1254	33	2.75
				Aroclor-1260	10	2.75
				Aroclor-1254	1.8	8.75
EX12TA10	5	296	IR12TA10	Aroclor-1260	1.2	2.25
				Copper	2,060	2.75
				Vanadium	645	2.75
EX13B003B	4	356	IR13B003B	Aroclor-1260	1.8	1.75
				Copper	2,350	1.75
			IR13B020	Benzo(b)fluoranthene	3.6	2
EX13B004	4.5	267	IR13B004	Copper	5,288	2.25
				Mercury	31.22	2.25
EX13B007	4.5	267	IR13B007	Aroclor-1260	7.5	2.25
EX13B010	4	237	IR13B010	Benzo(a)anthracene	8.2	2
				Benzo(a)pyrene	6.4	2
				Benzo(b)fluoranthene	1.3	2
EX13B021	4	119	IR13B021	Benzo(b)fluoranthene	2.7	2
			IR39B056	Benzo(b)fluoranthene	2.7	2
EX13B023	4	474	IR13B023	Benzo(a)anthracene	5.7	2
				Benzo(a)pyrene	2.2	2
				Benzo(b)fluoranthene	5.2	2
			IR13B006	Copper	3,929	1.75
				Mercury	12.45	1.75
				Zinc	2,901	1.75
EX36B027	4.5	267	PA36B027	Copper	6,002	2.25
EX36B056	3.5	52	IR36B056	Lead	1,396	1.25
EX36B062	10	889	IR36B062	Arsenic	168	6.25
				Copper	6,520	6.25
				Heptachlor Epoxide	0.0052	6.25
				Lead	1,510	6.25
				Mercury	22.4	6.25
				Zinc	5,710	6.25
			IR36B210	3,3'-Dichlorobenzidine	0.13	10
				Copper	2,200	10
EX36B063	8.5	504	IR36B063	Benzo(b)fluoranthene	1.9	6.25
				Copper	1,623	6.25
				Lead	782.6	6.25
				Mercury	101.7	6.25
EX36B078	3.5	52	IR36B078	Copper	1,332	1.25
EX36B105	3	44	IR36B105	Aroclor-1260	1.1	0.75
EX36B136	3	44	IR36B136	Aroclor-1254	0.53	1
EX36B138	3	178	IR36B138	Aroclor-1260	9	1
EX36B180	4	474	IR36B180	Aroclor-1260	2.3	2
				Copper	1,500	2
			IR36B187	Copper	3,100	2
			IR39B032	Aroclor-1260	1.7	2
EX36B208	4	59	IR36B208	Benzo(a)pyrene	2.4	2

LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the PRG but less than 5 times the PRG
- Soil concentration (for one or more COC) is less than the PRG (includes detected or not detected results)
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of Tier 2 Location
- Petroleum Program Managed AOC
- Road
- Gravel Road
- Building
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary

Redevelopment Block MU-1

- Multi Use Reuse
- Open Space Reuse

Notes:
AOC = area of concern
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon
* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 4-6

PROPOSED EXCAVATIONS FOR REDEVELOPMENT BLOCK MU-1

Feasibility Study Report for Parcel E

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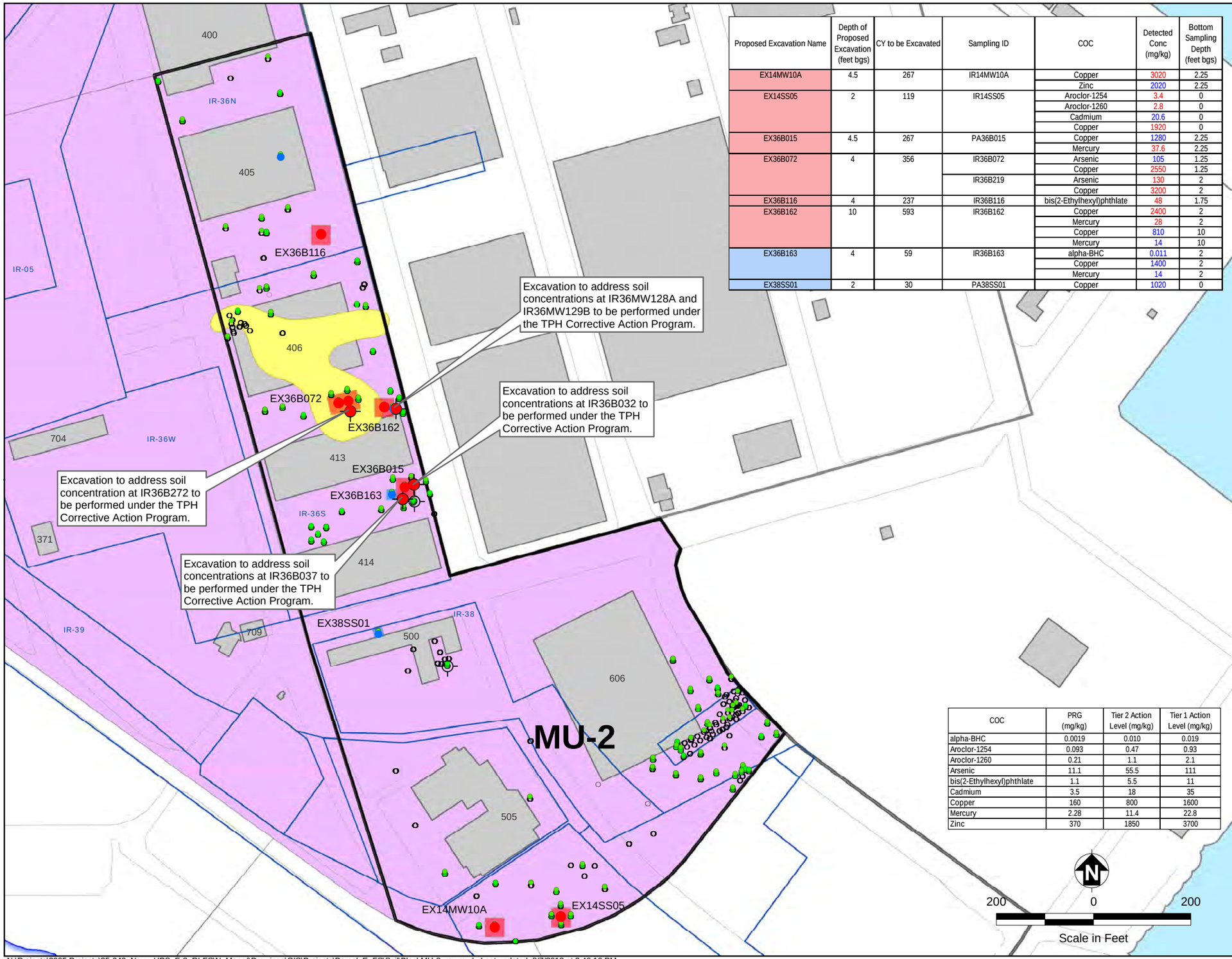

Proposed Excavation Name	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc (mg/kg)	Bottom Sampling Depth (feet bgs)
EX14MW10A	4.5	267	IR14MW10A	Copper	3020	2.25
				Zinc	2020	2.25
EX14SS05	2	119	IR14SS05	Aroclor-1254	3.4	0
				Aroclor-1260	2.8	0
				Cadmium	20.6	0
				Copper	1920	0
EX36B015	4.5	267	PA36B015	Copper	1280	2.25
				Mercury	37.6	2.25
EX36B072	4	356	IR36B072	Arsenic	105	1.25
				Copper	2550	1.25
			IR36B219	Arsenic	130	2
				Copper	3200	2
EX36B116	4	237	IR36B116	bis(2-Ethylhexyl)phthlate	48	1.75
EX36B162	10	593	IR36B162	Copper	2400	2
				Mercury	28	2
				Copper	810	10
				Mercury	14	10
EX36B163	4	59	IR36B163	alpha-BHC	0.011	2
				Copper	1400	2
				Mercury	14	2
EX38SS01	2	30	PA38SS01	Copper	1020	0

COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
alpha-BHC	0.0019	0.010	0.019
Aroclor-1254	0.093	0.47	0.93
Aroclor-1260	0.21	1.1	2.1
Arsenic	11.1	55.5	111
bis(2-Ethylhexyl)phthlate	1.1	5.5	11
Cadmium	3.5	18	35
Copper	160	800	1600
Mercury	2.28	11.4	22.8
Zinc	370	1850	3700

LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the PRG but less than 5 times the PRG
- Soil concentration (for one or more COC) is less than the PRG (includes detected or not detected results)
- Impacted Groundwater
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of Tier 2 Location
- Road
- Gravel Road
- Building
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary

Redevelopment Block MU-2

- Multi Use Reuse

Notes:
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon
* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 4-7

PROPOSED EXCAVATIONS FOR REDEVELOPMENT BLOCK MU-2

Feasibility Study Report for Parcel E

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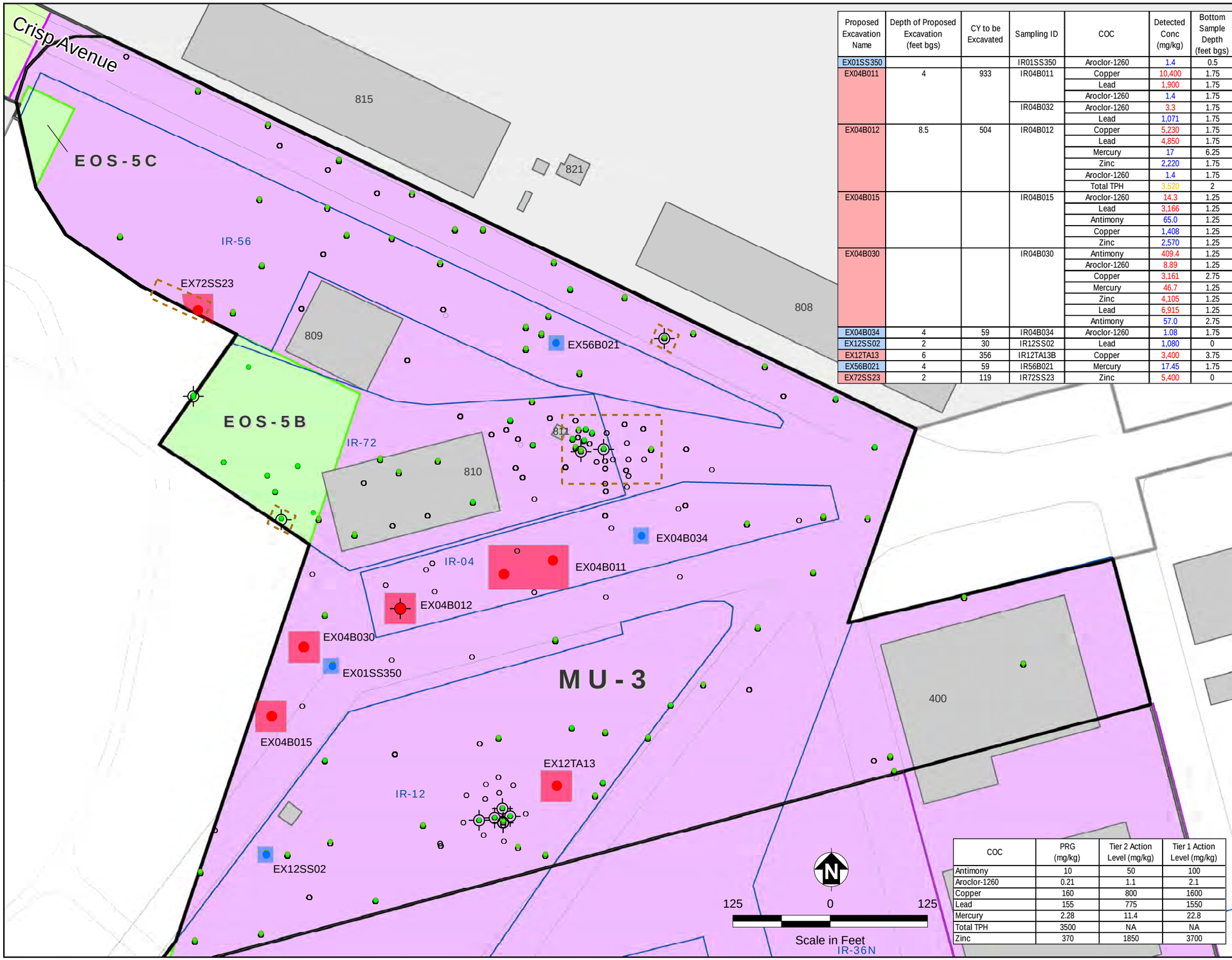

Proposed Excavation Name	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc (mg/kg)	Bottom Sample Depth (feet bgs)
EX01SS350			IR01SS350	Aroclor-1260	1.4	0.5
EX04B011	4	933	IR04B011	Copper	10,400	1.75
				Lead	1,900	1.75
				Aroclor-1260	1.4	1.75
			IR04B032	Aroclor-1260	3.3	1.75
				Lead	1,071	1.75
EX04B012	8.5	504	IR04B012	Copper	5,230	1.75
				Lead	4,850	1.75
				Mercury	17	6.25
				Zinc	2,220	1.75
				Aroclor-1260	1.4	1.75
				Total TPH	3,520	2
EX04B015			IR04B015	Aroclor-1260	14.3	1.25
				Lead	3,166	1.25
				Antimony	65.0	1.25
				Copper	1,408	1.25
				Zinc	2,570	1.25
EX04B030			IR04B030	Antimony	409.4	1.25
				Aroclor-1260	8.89	1.25
				Copper	3,161	2.75
				Mercury	46.7	1.25
				Zinc	4,105	1.25
				Lead	6,915	1.25
				Antimony	57.0	2.75
EX04B034	4	59	IR04B034	Aroclor-1260	1.08	1.75
EX12SS02	2	30	IR12SS02	Lead	1,080	0
EX12TA13	6	356	IR12TA13B	Copper	3,400	3.75
EX56B021	4	59	IR56B021	Mercury	17.45	1.75
EX72SS23	2	119	IR72SS23	Zinc	5,400	0

COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
Antimony	10	50	100
Aroclor-1260	0.21	1.1	2.1
Copper	160	800	1600
Lead	155	775	1550
Mercury	2.28	11.4	22.8
Total TPH	3500	NA	NA
Zinc	370	1850	3700

LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the PRG but less than 5 times the PRG
- Soil concentration (for one or more COC) is less than the PRG (includes detected or not detected results)
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of Tier 2 Location
- Petroleum Program Managed AOC
- Road
- Gravel Road
- Building
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary
- Non-Navy Property

Redevelopment Block MU-3

- Multi Use Reuse
- Open Space Reuse

Notes:
AOC = area of concern
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon
* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

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FIGURE 4-8

PROPOSED EXCAVATIONS FOR REDEVELOPMENT BLOCK MU-3

Feasibility Study Report for Parcel E

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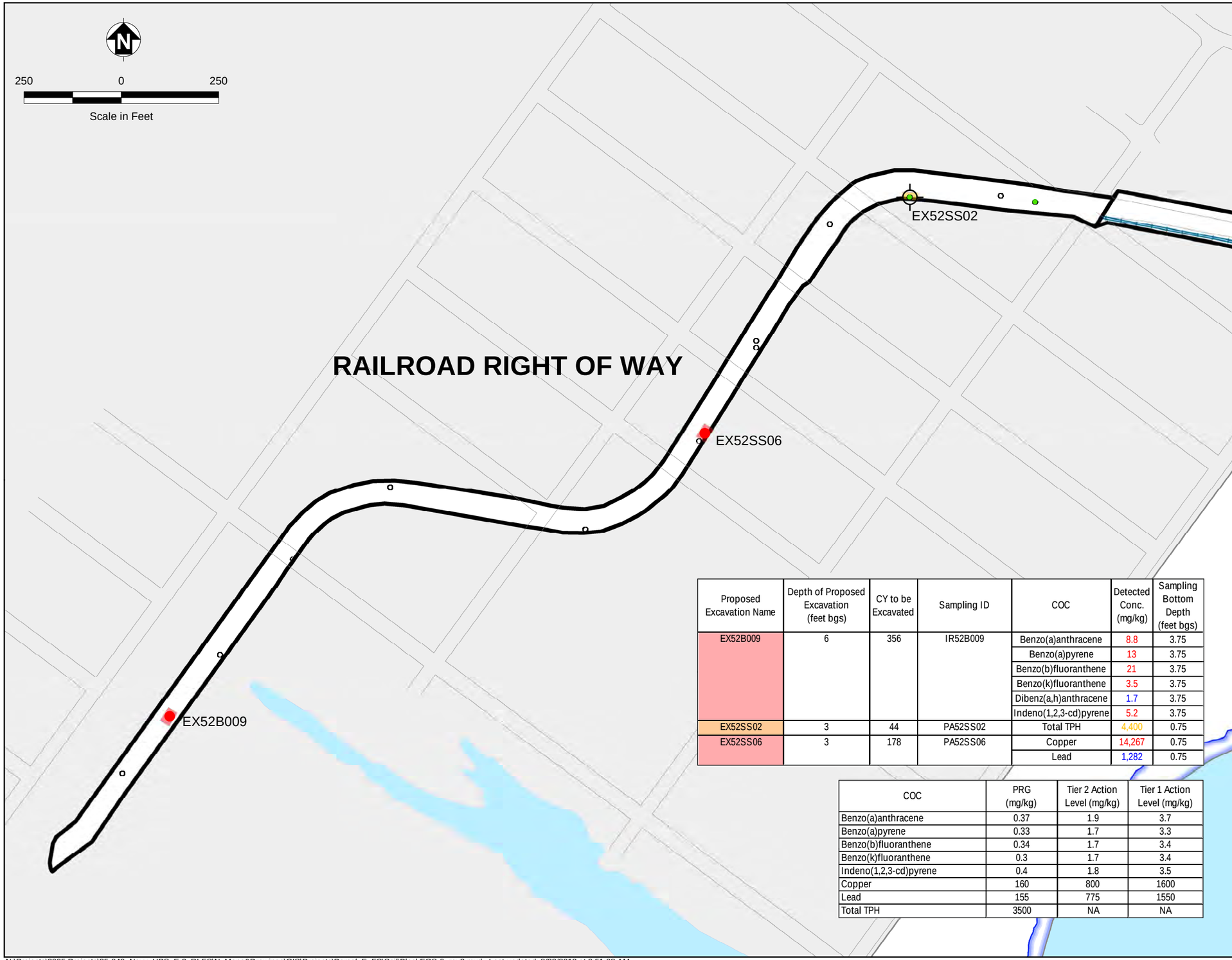

Proposed Excavation Name	Depth of Proposed Excavation (feet bgs)	CY to be Excavated	Sampling ID	COC	Detected Conc. (mg/kg)	Sampling Bottom Depth (feet bgs)
EX52B009	6	356	IR52B009	Benzo(a)anthracene	8.8	3.75
				Benzo(a)pyrene	13	3.75
				Benzo(b)fluoranthene	21	3.75
				Benzo(k)fluoranthene	3.5	3.75
				Dibenz(a,h)anthracene	1.7	3.75
				Indeno(1,2,3-cd)pyrene	5.2	3.75
EX52SS02	3	44	PA52SS02	Total TPH	4,400	0.75
EX52SS06	3	178	PA52SS06	Copper	14,267	0.75
				Lead	1,282	0.75

COC	PRG (mg/kg)	Tier 2 Action Level (mg/kg)	Tier 1 Action Level (mg/kg)
Benzo(a)anthracene	0.37	1.9	3.7
Benzo(a)pyrene	0.33	1.7	3.3
Benzo(b)fluoranthene	0.34	1.7	3.4
Benzo(k)fluoranthene	0.3	1.7	3.4
Indeno(1,2,3-cd)pyrene	0.4	1.8	3.5
Copper	160	800	1600
Lead	155	775	1550
Total TPH	3500	NA	NA

LEGEND

- Detected soil concentration (for one or more COC) is greater than or equal to 10 times the Residential PRG (Tier 1 Location)
- Detected soil concentration (for one or more COC) is greater than or equal to 5 times the Residential PRG (Tier 2 Location)
- Detected total TPH soil concentrations is greater than the source criterion*
- Detected soil concentration (for one or more COC) is greater than the Residential PRG but less than 5 times the Residential PRG
- Soil concentration (for one or more COC) is less than the Residential PRG (includes detected or not detected results)
- Reporting Limit Exceeds the Residential PRG (for at least one sample)
- Proposed Excavation of Tier 1 Location
- Proposed Excavation of comingled TPH concentration exceeding source criterion
- Road
- Gravel Road
- San Francisco Bay
- Shoreline Area
- IR Site Boundary
- Parcel E Boundary
- Non-Navy Property

Notes:
COC = chemical of concern
CY = cubic yards
IR = installation restoration
mg/kg = milligrams per kilogram
PRG = preliminary remediation goal
TPH = total petroleum hydrocarbon
* = Exceedances of total TPH source criterion (3,500 mg/kg; Shaw Environmental, Inc. 2007) located outside proposed excavation areas will be addressed by TPH Corrective Action Program.

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FIGURE 4-9

PROPOSED EXCAVATIONS FOR RAILROAD RIGHT OF WAY

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LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Proposed B-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing Bedrock Aquifer Monitoring Well Not Proposed for use in this Alternative
- Decommissioned Well
- A-Aquifer Flow Direction
- Impacted Groundwater
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- San Francisco Bay
- Building
- Sheet Pile Wall
- Road
- Gravel Road
- 250' Distance from Shoreline in Feet

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

IR-52, the railroad right-of-way, is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E.

Monitoring and remediation of IR-03 are addressed by the NAPL alternatives.

IC = institutional control
IR = Installation Restoration
NAPL = non-aqueous phase liquid
PCB = polychlorinated biphenyl
TCE = trichloroethene
TPH = total petroleum hydrocarbon
VOC = volatile organic compound

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FIGURE 4-10
ALTERNATIVE GW-2
IC AND LONG-TERM GROUNDWATER MONITORING

Feasibility Study Report for Parcel E

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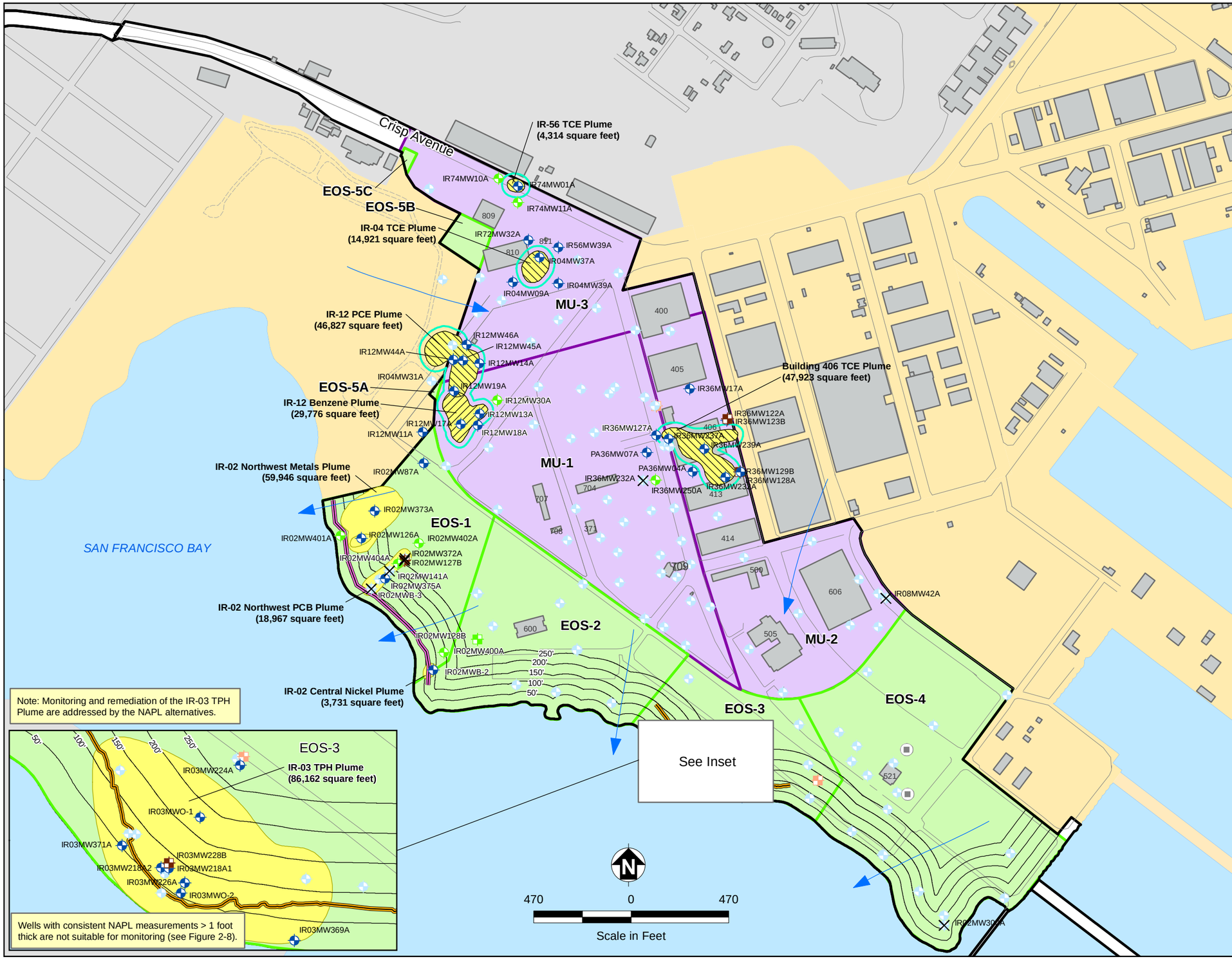

LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Proposed B-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing Bedrock Aquifer Monitoring Well Not Proposed for use in this Alternative
- Decommissioned Well
- Monitored Natural Attenuation Area
- Anaerobic In-Situ Bioremediation Area
- Aerobic In-Situ Bioremediation Area
- A-Aquifer Flow Direction
- Impacted Groundwater
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- San Francisco Bay
- Building
- Slurry Wall (proposed)
- Sheet Pile Wall
- Road
- Gravel Road
- 250' Distance from Shoreline in Feet

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

IR-52, the railroad right-of-way, is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E.

Monitoring and remediation of IR-03 are addressed by the NAPL alternatives.

IC = institutional control
IR = Installation Restoration
ISB = in-situ bioremediation
MNA = monitored nautral attenuation
NAPL = non-aqueous phase liquid
PCB = polychlorinated biphenyl
TCE = trichloroethene
TPH = total petroleum hydrocarbon
VOC = volatile organic compound

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FIGURE 4-11
ALTERNATIVE GW-3A
GROUNDWATER CONTAINMENT, ISB, MNA, AND ICs

Feasibility Study Report for Parcel E

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LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Proposed B-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing Bedrock Aquifer Monitoring Well Not Proposed for use in this Alternative
- Decommissioned Well
- Monitored Natural Attenuation Area
- Anaerobic In-Situ Bioremediation Area
- Aerobic In-Situ Bioremediation Area
- Zero Valent Iron Remediation Area
- A-Aquifer Flow Direction
- Impacted Groundwater
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- San Francisco Bay
- Building
- Slurry Wall (proposed)
- Sheet Pile Wall
- Road
- Gravel Road
- 250' Distance from Shoreline in Feet

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

IR-52, the railroad right-of-way, is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E.

Monitoring and remediation of IR-03 are addressed by the NAPL alternatives.

IC = institutional control
IR = Installation Restoration
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid
PCB = polychlorinated biphenyl
TCE = trichloroethene
TPH = total petroleum hydrocarbon
VOC = volatile organic compound
ZVI = zero-valent iron

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FIGURE 4-12
ALTERNATIVE GW-3B
GROUNDWATER CONTAINMENT, ISB, ZVI REDUCTION, MNA, AND ICs

Feasibility Study Report for Parcel E

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Note: Monitoring and remediation of the IR-03 TPH Plume are addressed by the NAPL alternatives.

Wells with consistent NAPL measurements > 1 foot thick are not suitable for monitoring (see Figure 2-8).

LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Proposed B-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing Bedrock Aquifer Monitoring Well Not Proposed for use in this Alternative
- Decommissioned Well
- Monitored Natural Attenuation Area
- Anaerobic In-Situ Bioremediation Area
- Aerobic In-Situ Bioremediation Area
- Air Sparging Remediation Area
- A-Aquifer Flow Direction
- Impacted Groundwater
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- San Francisco Bay
- Building
- Slurry Wall (proposed)
- Sheet Pile Wall
- Road
- Gravel Road
- 250' Distance from Shoreline in Feet

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

IR-52, the railroad right-of-way, is not shown in its entirety in order to better display more detailed information for the remainder of Parcel E.

Monitoring and remediation of IR-03 are addressed by the NAPL alternatives.

IC = institutional control
IR = Installation Restoration
ISB = in-situ bioremediation
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid
PCB = polychlorinated biphenyl
TCE = trichloroethene
TPH = total petroleum hydrocarbon
VOC = volatile organic compound

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FIGURE 4-13
ALTERNATIVE GW-4
GROUNDWATER CONTAINMENT, AIR SPARGING, ISB, MNA, AND ICs

Feasibility Study Report for Parcel E

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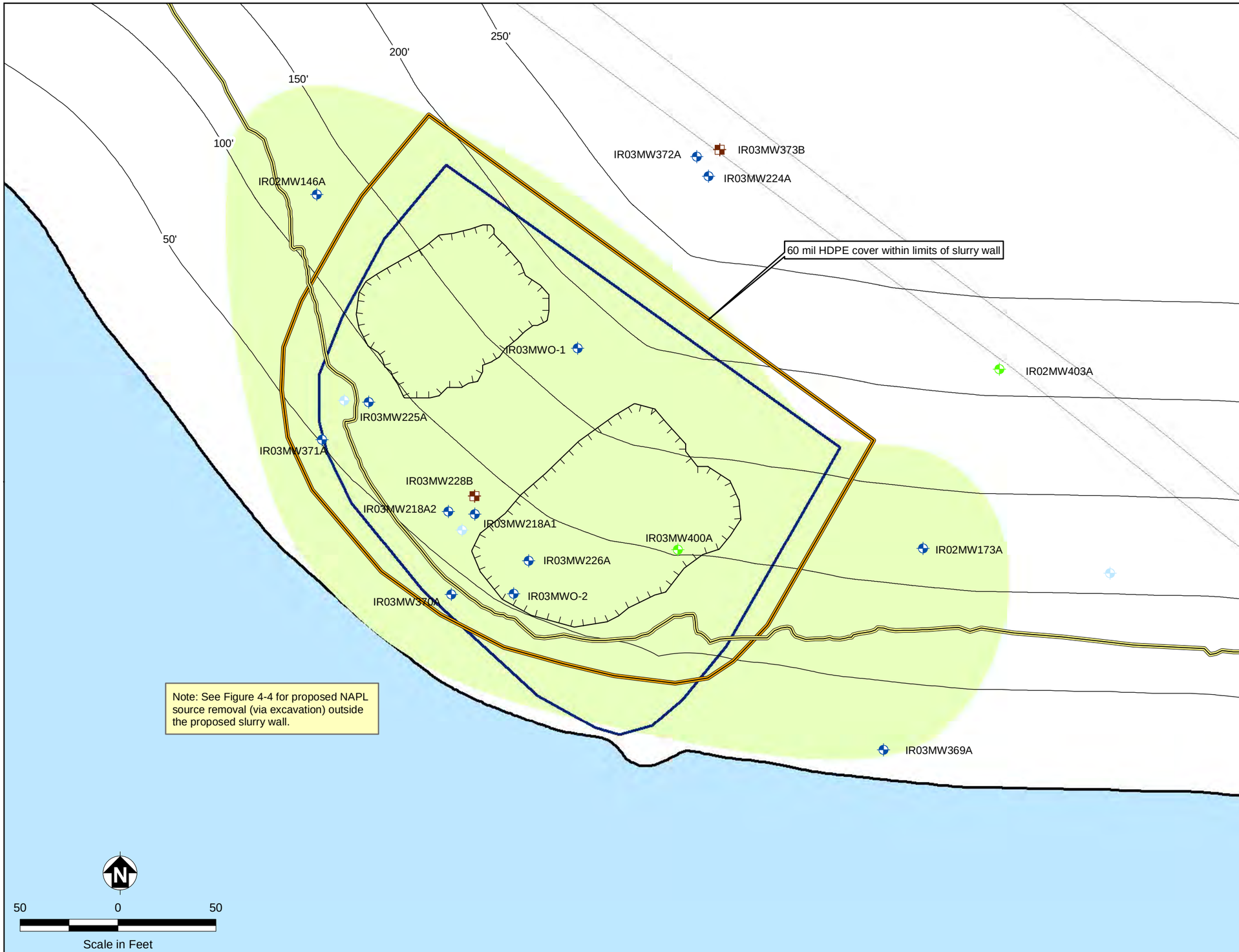

LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- 250' Distance from Shoreline in Feet
- Impacted Groundwater
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photos
- IR Site Boundary
- Parcel E Boundary
- San Francisco Bay
- Road
- Slurry Wall (proposed)
- Sheetpile Wall (existing)

Notes:
Not all wells within IR-03 will be available for monitoring due to presence of NAPL.

HDPE = high density polyethylene
IC = institutional control
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid

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FIGURE 4-14
ALTERNATIVE N-2
SOURCE CONTAINMENT, LONG-TERM GROUNDWATER MONITORING, AND ICs
Feasibility Study Report for Parcel E

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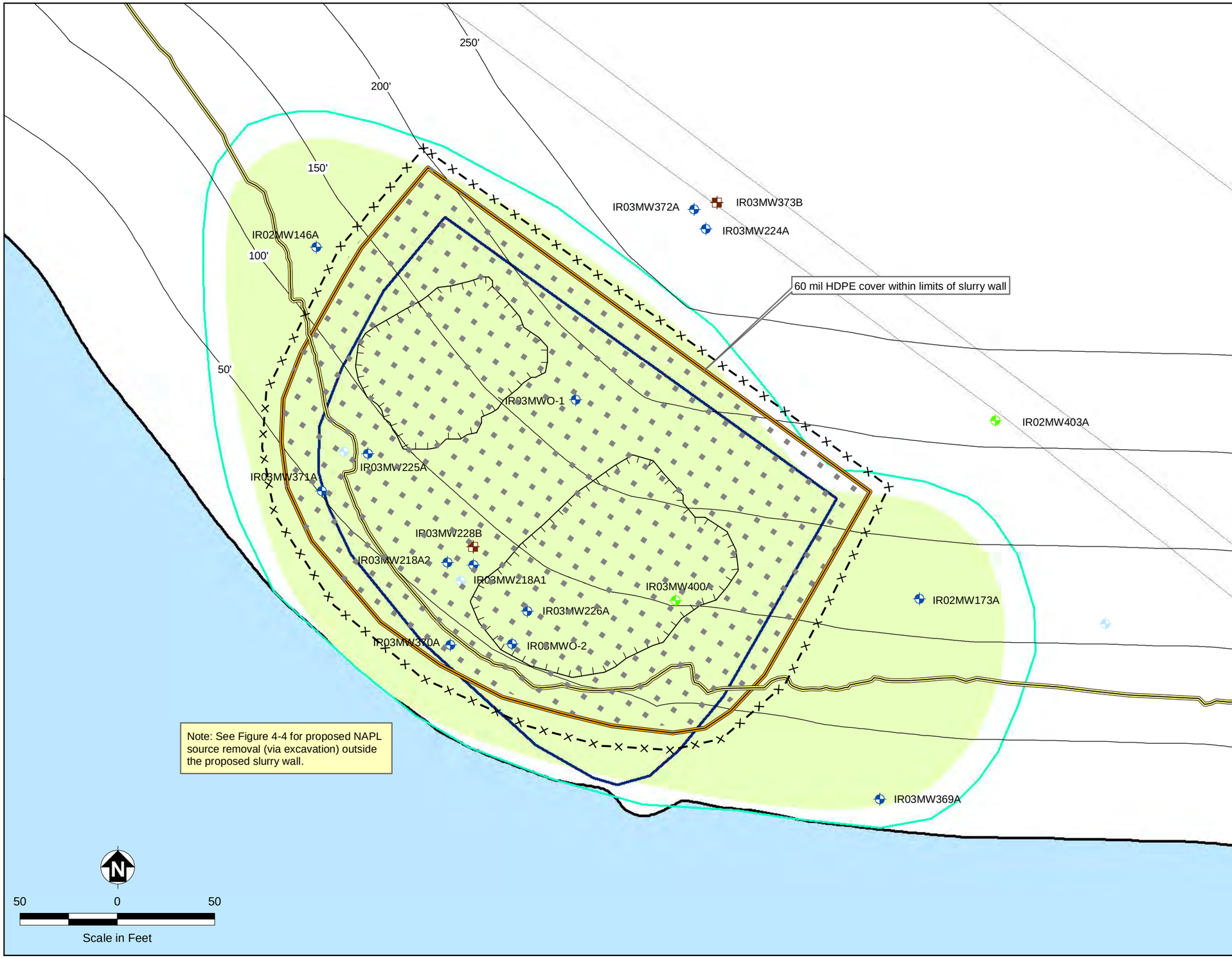

LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Electrical Resistive Heating Remediation Area*
- 250' Distance from Shoreline in Feet
- Impacted Groundwater
- Monitored Natural Attenuation Area
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photos
- IR Site Boundary
- Parcel E Boundary
- San Francisco Bay
- Road
- Slurry Wall (proposed)
- Sheetpile Wall (existing)
- Fencing

Notes:
Not all wells within IR-03 will be available for monitoring due to presence of NAPL.

* For cost estimating purposes, electrical resistive heating was selected as a representative thermal enhancement technology for addressing the NAPL source; other thermal enhancement technologies may be identified during the remedial design.

This alternative may incorporate multiple removal or treatment technologies used in combination to address the NAPL source (because of uncertain effectiveness and implementability of some technologies).

HDPE = high density polyethylene
IC = institutional control
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid

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FIGURE 4-15
ALTERNATIVE N-3
SOURCE REMOVAL OR TREATMENT, CONTAINMENT, MNA, AND ICs

Feasibility Study Report for Parcel E

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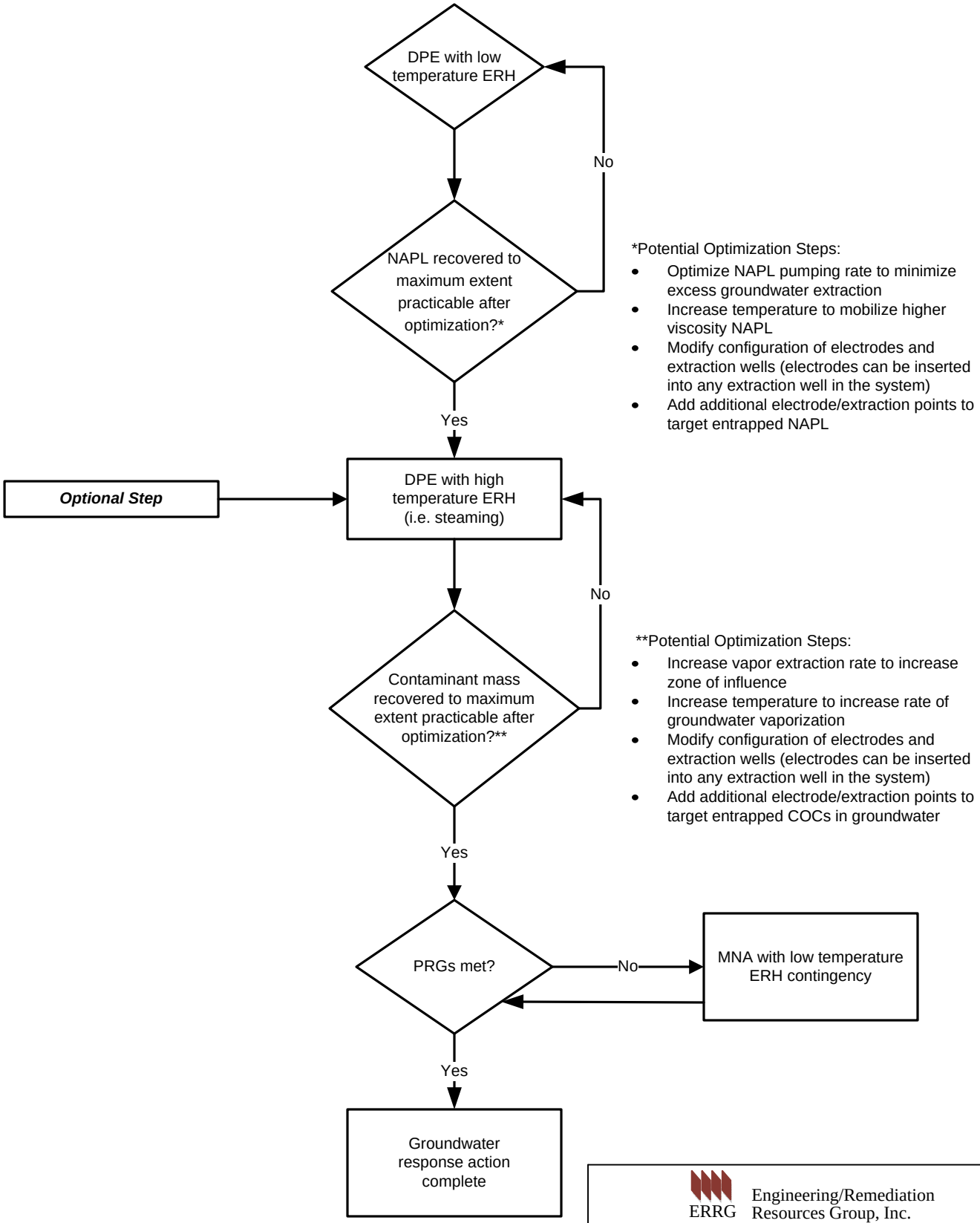

Notes:

COCs	contaminants of concern
DPE	dual-phase extraction
ERH	electric-resistive heating
MNA	monitored natural attenuation
NAPL	non-aqueous phase liquid
PRG	preliminary remediation goal

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FIGURE 4-16
PRELIMINARY OPTIMIZATION STRATEGY FOR REMOVAL OF NAPL AT IR-03

Feasibility Study Report for Parcel E

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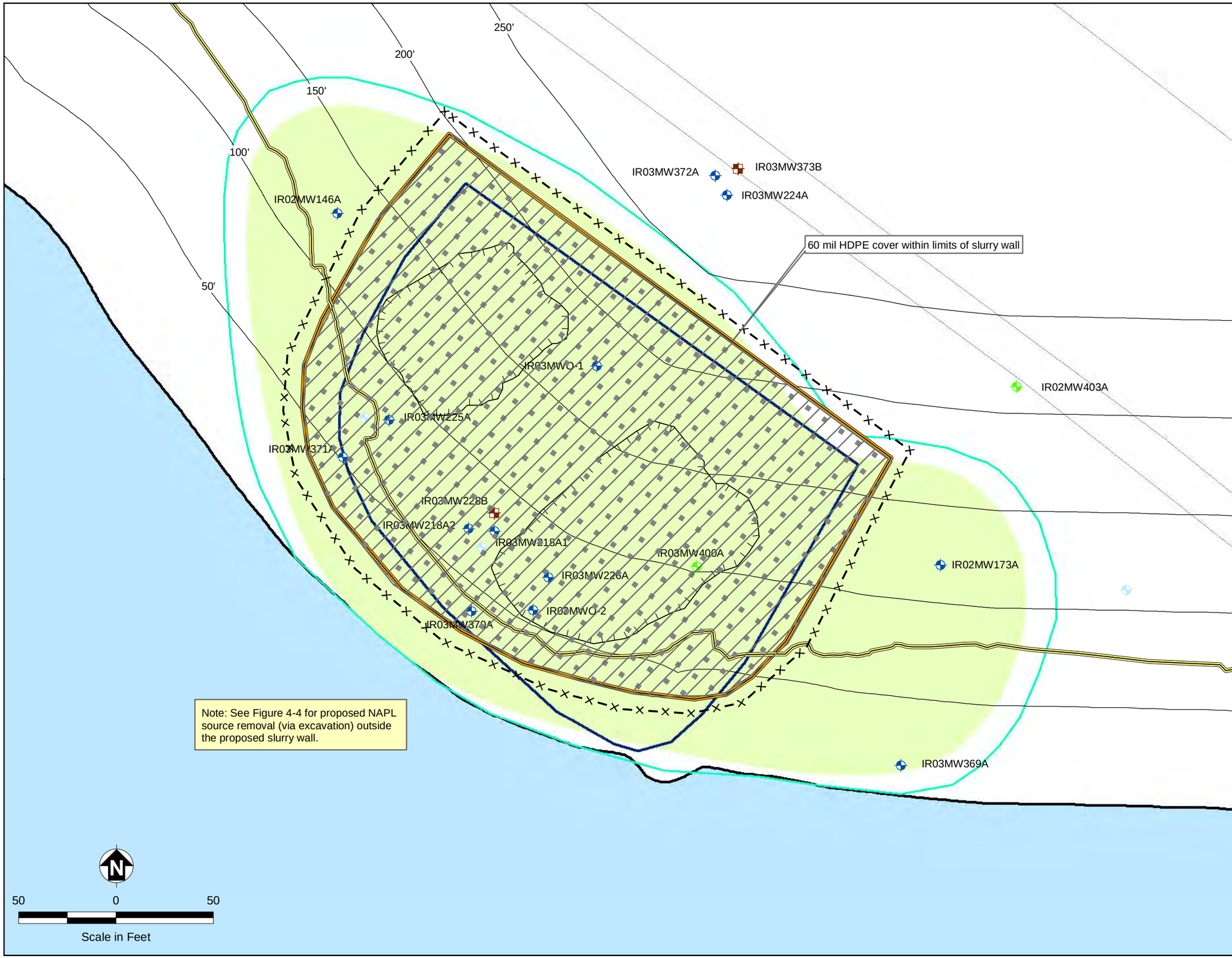

LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Electrical Resistive Heating Remediation Area*
- Aerobic In-Situ Bioremediation Injection Area
- 250' Distance from Shoreline in Feet
- Impacted Groundwater
- Monitored Natural Attenuation Area
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photos
- IR Site Boundary
- Parcel E Boundary
- San Francisco Bay
- Road
- Slurry Wall (proposed)
- Sheetpile Wall (existing)
- Fencing

Notes:
Not all wells within IR-03 will be available for monitoring due to presence of NAPL.

* For cost estimating purposes, electrical resistive heating was selected as a representative thermal enhancement technology for addressing the NAPL source; other thermal enhancement technologies may be identified during the remedial design.

This alternative may incorporate multiple removal or treatment technologies used in combination to address the NAPL source (because of uncertain effectiveness and implementability of some technologies).

HDPE = high density polyethylene
IC = institutional control
ISB = in-situ bioremediation
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid

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FIGURE 4-17
ALTERNATIVE N-4A
SOURCE REMOVAL OR TREATMENT, ISB, CONTAINMENT, MNA, AND ICs

Feasibility Study Report for Parcel E

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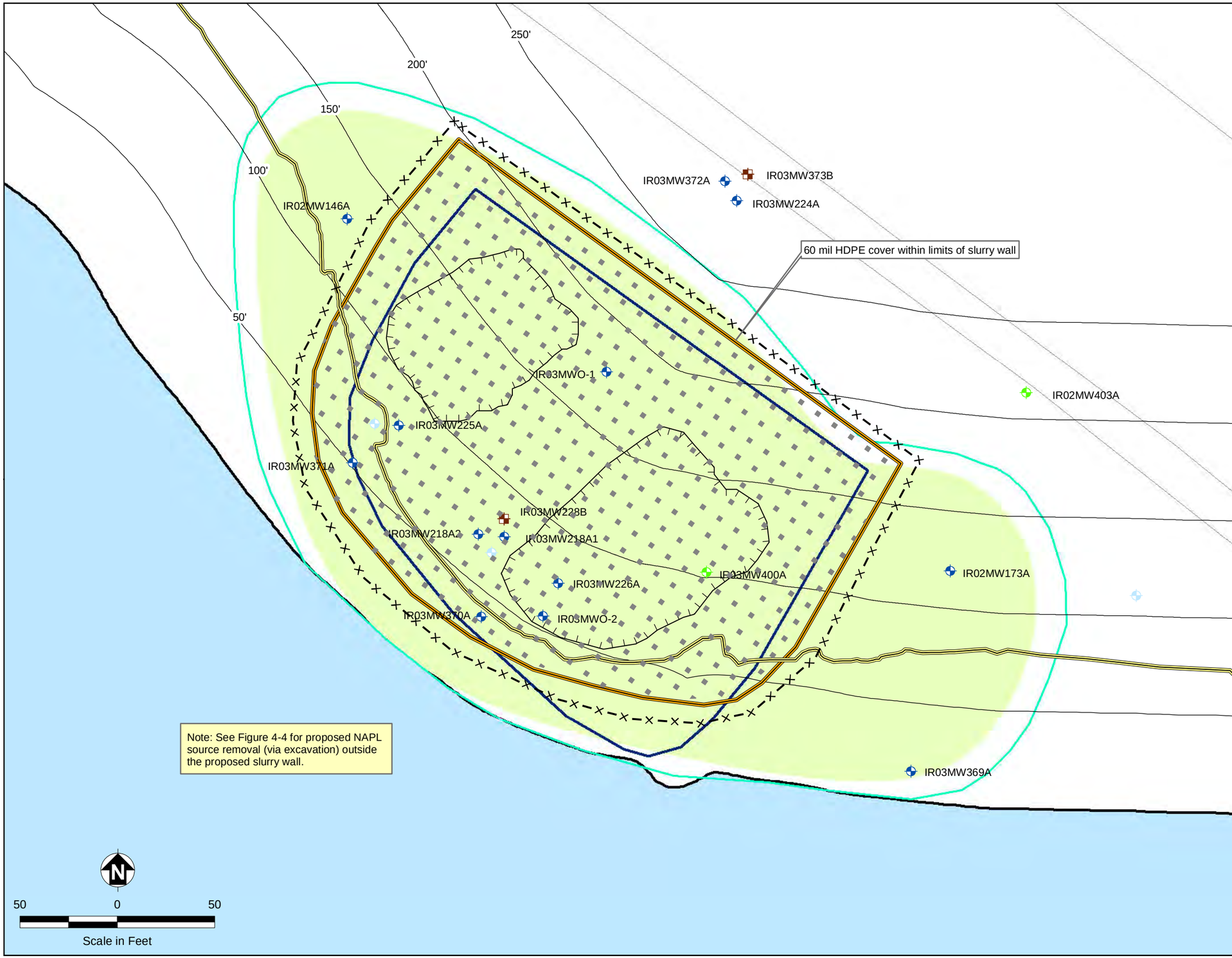

LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Electrical Resistive Heating (with Steaming) Remediation Area*
- 250' Distance from Shoreline in Feet
- Impacted Groundwater
- Monitored Natural Attenuation Area
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photo
- IR Site Boundary
- Parcel E Boundary
- San Francisco Bay
- Road
- Slurry Wall (proposed)
- Sheetpile Wall (existing)
- Fencing

Notes:
Not all wells within IR-03 will be available for monitoring due to presence of NAPL.

* For cost estimating purposes, electrical resistive heating was selected as a representative thermal enhancement technology for addressing the NAPL source; other thermal enhancement technologies may be identified during the remedial design.

This alternative may incorporate multiple removal or treatment technologies used in combination to address the NAPL source (because of uncertain effectiveness and implementability of some technologies).

HDPE = high density polyethylene
IC = institutional control
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid

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FIGURE 4-18
ALTERNATIVE N-4B
SOURCE REMOVAL OR TREATMENT, STEAMING, CONTAINMENT, MNA, AND ICs

Feasibility Study Report for Parcel E

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LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Electrical Resistive Heating Remediation Area*
- Aerobic In-Situ Bioremediation Injection Area
- Soil Excavation Area**
- 250' Distance from Shoreline in Feet
- Impacted Groundwater
- Monitored Natural Attenuation Area
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photos
- IR Site Boundary
- Parcel E Boundary
- San Francisco Bay
- Road
- Slurry Wall (proposed)
- Sheetpile Wall (existing)
- Fencing

Notes:

* For cost estimating purposes, electrical resistive heating was selected as a representative thermal enhancement technology for addressing the NAPL source; other thermal enhancement technologies may be identified during the remedial design.

This alternative may incorporate multiple removal or treatment technologies used in combination to address the NAPL source (because of uncertain effectiveness and implementability of some technologies).

** Soil to be excavated from the ground surface to the water table (~9 feet below ground surface).

Not all wells within IR-03 will be available for monitoring due to presence of NAPL.

HDPE = high density polyethylene
IC = institutional control
ISB = in-situ bioremediation
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid

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FIGURE 4-19
ALTERNATIVE N-5
SOURCE REMOVAL AND NAPL EXTRACTION/TREATMENT, CONTAINMENT, ISB, MNA, AND ICs

Feasibility Study Report for Parcel E

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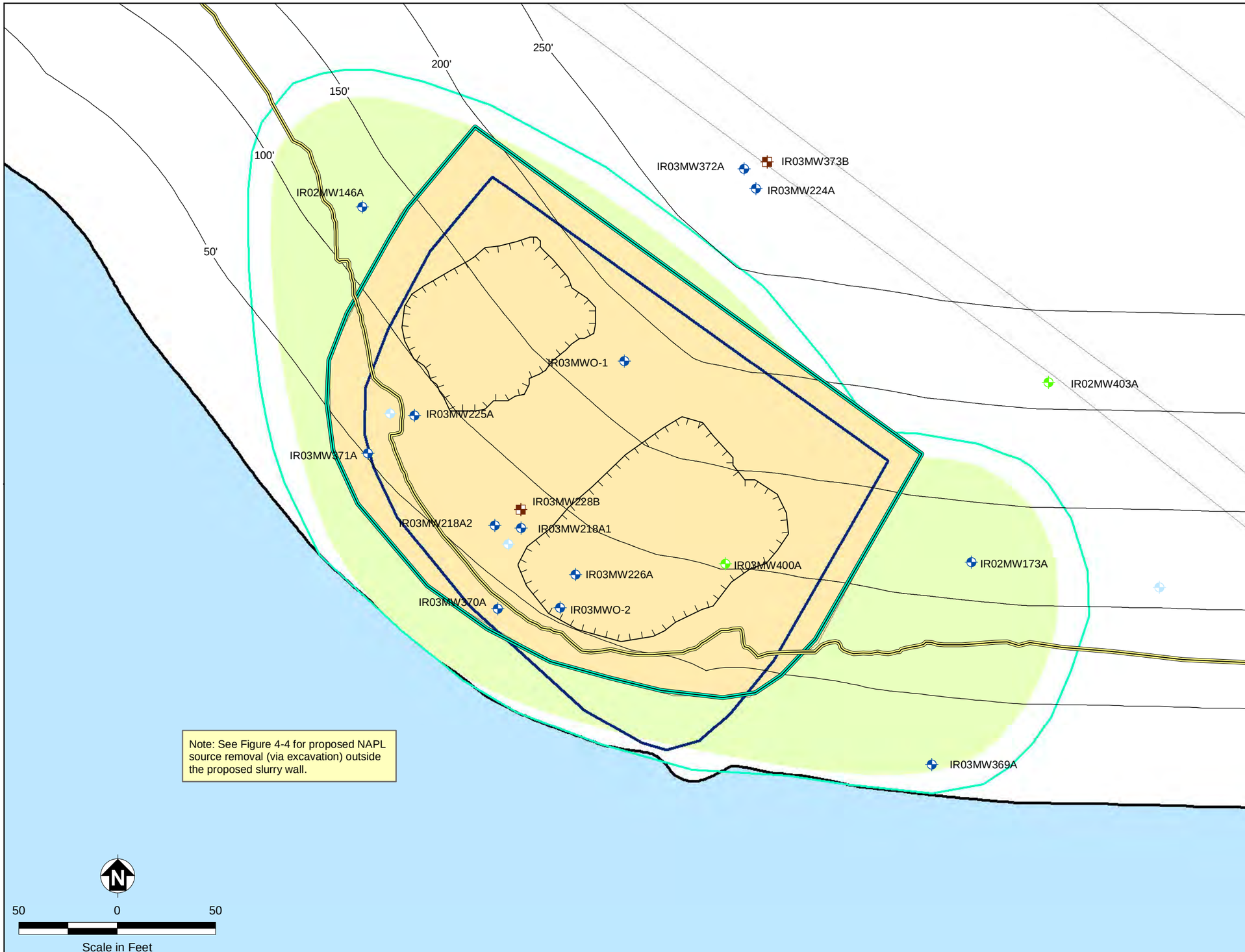

LEGEND

- Proposed A-Aquifer Monitoring Well for use in this Alternative
- Existing A-Aquifer Monitoring Well Proposed for use in this Alternative
- Existing A-Aquifer Monitoring Well Not Proposed for use in this Alternative
- Existing B-Aquifer Monitoring Well Proposed for use in this Alternative
- Soil Excavation Area*
- 250' Distance from Shoreline in Feet
- Impacted Groundwater
- Monitored Natural Attenuation Area
- Location of Waste Oil Reclamation Ponds from Historical Aerial Photos
- IR Site Boundary
- Parcel E Boundary
- San Francisco Bay
- Road
- Sheetpile Wall (proposed)
- Sheetpile Wall (existing)

Notes:
* Soil to be excavated from the ground surface to the Bay Mud aquitard (~35 feet below ground surface).

Not all wells within IR-03 will be available for monitoring due to presence of NAPL.

IC = institutional control
MNA = monitored natural attenuation
NAPL = non-aqueous phase liquid

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FIGURE 4-20
ALTERNATIVE N-6
SOURCE REMOVAL BY EXCAVATION, MNA, AND ICs

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Tables

Table 4-1. Soil and Shoreline Sediment Remedial Alternatives for Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Options	S-1: No Action	S-2: Covers, ICs, and Shoreline Protection	S-3: Excavation and Disposal of Tier 1 Locations, Covers, ICs, and Shoreline Protection	S-4: Excavation and Disposal of Tier 1 and Tier 2 Locations, Covers, SVE, ICs, and Shoreline Protection
No Action	None	None	✓			
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions		✓	✓	✓
Engineering Controls[1]	Physical Barriers	Fencing, Barriers, and Signs		✓	✓	✓
Monitoring	Soil Gas Monitoring	Periodic Soil Gas Monitoring		✓	✓	✓
Containment	Caps/Covers[2]	Soil Cover		✓	✓	✓
		Asphalt or Concrete Cover		✓	✓	✓
		Engineered Cover		✓	✓	✓
	Shoreline Armoring[3]	Rock Revetment		✓	✓	✓
	Shoreline Stabilization (Hybrid)[3]	Natural Shoreline Materials with Underlying Rock Armor		✓	✓	✓

Table 4-1. Soil and Sediment Remedial Alternatives for Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Options	S-1: No Action	S-2: Covers, ICs, and Shoreline Protection	S-3: Excavation and Disposal of Tier 1 Locations, Covers, ICs, and Shoreline Protection	S-4: Excavation and Disposal of Tier 1 and Tier 2 Locations, Covers, SVE, ICs, and Shoreline Protection
In Situ Treatment	Physical-Chemical Treatment	Soil Vapor Extraction				✓
Removal	Excavation and Off-site Disposal[4]	Permitted Off-Site Disposal Facility			✓	✓

Notes:

1. Engineering controls would be used during remedy implementation and in conjunction with ICs.
2. Cap and cover type would vary based on planned reuse and nature of contamination to be contained.
3. Based on the evaluation presented in Appendix D, the following shoreline protection options will be incorporated into Alternatives S-2, S-3, and S-4: Armoring (rock revetment) will be installed in the steep and narrow shoreline areas. Steep and narrow areas of the intertidal shoreline zone are predominately narrow (most of the area is 50 feet wide or less) with predominately steep slopes (1V:3H). Hybrid stabilization using natural shoreline materials with underlying rock armor will be installed in the gradually sloped and wide shoreline areas. Gradually sloped and wide areas of the intertidal shoreline zone are predominately wide (most of the area is greater than 50 feet wide) with predominately gradual slopes (less than 1V:3H, with many portions close to 1V:10H).
4. Excavation volume would vary but would exclude removal of ubiquitous metals at concentrations exceeding remedial goals.

ICs = institutional controls

SVE = soil vapor extraction

Table 4-2. Major Components of Soil Alternatives by Redevelopment Block
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Component	Alternative			
	S-1	S-2	S-3	S-4
Institutional Controls	No Action	All RBs	All RBs	All RBs
Shoreline Protection	--	EOS-1, EOS-2, EOS-3, EOS-4	EOS-1, EOS-2, EOS-3, EOS-4	EOS-1, EOS-2, EOS-3, EOS-4
Excavation and Disposal	--	--	EOS-1, EOS-2, EOS-3, EOS-4, MU-1, MU-2, MU-3, Railroad Right-of-Way	EOS-1, EOS-2, EOS-3, EOS-4, MU-1, MU-2, MU-3, Railroad Right-of-Way
Fuel Line Closure	--	EOS-3, EOS-4	EOS-3, EOS-4	EOS-3, EOS-4
Steam Line Closure	--	EOS-3, EOS-4, MU-2, MU-3	EOS-3, EOS-4, MU-2, MU-3	EOS-3, EOS-4, MU-2, MU-3
Covers	--	EOS-1, EOS-2, EOS-3, EOS-4, EOS-5, MU-1, MU-2, MU-3,Portions of Railroad Right-of-Way	EOS-1, EOS-2, EOS-3, EOS-4, EOS-5, MU-1, MU-2, MU-3	EOS-1, EOS-2, EOS-3, EOS-4, EOS-5, MU-1, MU-2, MU-3
Soil Vapor Extraction	--	--	--	MU-2
Periodic Soil Gas Monitoring	--	MU-1, MU-2, MU-3	MU-1, MU-2, MU-3	MU-1, MU-2, MU-3

Notes: Proposed covers and fuel/steam line closures are identified on Figure 4-1, and locations planned for excavation are listed in Table 4-3.

RB = Redevelopment Block

"--" = Dashes indicate component not included in the listed alternative

Table 4-3. Proposed Excavation Areas at Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
EXCAVATIONS AREAS UNDER ALTERNATIVES S-3 AND S-4 (see footnotes 1 and 2)									
REDEVELOPMENT BLOCK EOS-1									
EX02B122	60	50	10	1,111	IR02B122	Aroclor-1260	12	1.25	Tier 1 Location
						Benzo(a)anthracene	20	1.25	Tier 1 Location
						Lead	871	1.25	Tier 2 Location
						Zinc	4,560	1.25	Tier 2 Location
						Total TPH	28,000	1.25	TPH Location
						Copper	6,830	3.75	Tier 1 Location
						Copper	6,780	8.75	Tier 1 Location
						Total TPH	9,500	8.75	TPH Location
					IR02B521	Benzo(a)pyrene	3.5	2	Tier 2 Location
						Copper	11,000	2	Tier 1 Location
						Total TPH	6,100	2	TPH Location
						Benzo(a)pyrene	2.6	3	Tier 2 Location
EX02B250	20	20	6	89	IR02B250	Total TPH	8,900	4	TPH Location
EX02B256	50	40	9	667	Grid 166 Sidewall1	Zinc	9,000	7.5	Tier 1 Location
					Grid 166 Sidewall2	Copper	7,000	6.5	Tier 1 Location
						Lead	5,500	6.5	Tier 1 Location
						Zinc	11,000	6.5	Tier 1 Location
					IR02B256	Copper	8,539	3.75	Tier 1 Location
						Lead	19,697	3.75	Tier 1 Location
						Zinc	15,876	3.75	Tier 1 Location
EX02B288	65	50	6	722	IR02B288	Lead	10,600	3.25	Tier 1 Location
					IR02TA17B	Zinc	15,876	3.25	Tier 1 Location
EX02B412	115	40	4	681	IR02B412	Benzo(a)pyrene	2	1.6	Tier 2 Location
					IR02B416	Benzo(a)pyrene	3.5	2	Tier 1 Location
EX02B428	40	20	5	148	IR02B428	Total TPH	7,100	3	TPH Location
EX02B456	50	50	8.5	787	IR02B361	Total TPH	9,400	2.75	TPH Location
						Total TPH	14,035	6.25	TPH Location
					IR02B418	Zinc	3,900	3	Tier 2 Location
					IR02B456	Copper	5,700	3	Tier 1 Location
						Total TPH	3,800	3	TPH Location
					IR02GB361C	Total TPH	18,205	4	TPH Location
						Total TPH	14,100	4	TPH Location
					IR02GB361S1A	Total TPH	16,537	6	TPH Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
REDEVELOPMENT BLOCK EOS-1 *(continued)*									
EX02B524	85	50	5.5	866	GRID 99-1,115,10372	Arsenic	66	0	Tier 2 Location
						Copper	3,800	0	Tier 2 Location
						Lead	2,600	0	Tier 1 Location
						Zinc	13,000	0	Tier 1 Location
					IR02B524	Aroclor-1260	40	2	Tier 1 Location
						Copper	2,800	2	Tier 2 Location
						Total TPH	8,300	2	TPH Location
					IR02TA15A	Zinc	10,100	3.25	Tier 1 Location
EX02B525	40	40	5	296	IR02B525	Copper	11,000	2.7	Tier 1 Location
EX02GR73SW	40	40	3	178	GRID 73 SIDEWALL	Aroclor-1254	11	0.5	Tier 1 Location
						Dieldrin	0.82	0.5	Tier 2 Location
						Lead	6,300	0.5	Tier 1 Location
						Zinc	8,000	0.5	Tier 1 Location
EX02GR93SW	40	40	9	533	Grid 93 Sidewall	Copper	16,000	6.5	Tier 1 Location
						Lead	15,000	6.5	Tier 1 Location
						Total TPH	8,500	6.5	TPH Location
EX02GR117SW	40	40	7	415	GRID 117 SIDEWALL	Aroclor-1260	6.7	2	Tier 2 Location
						Total TPH	33,037	2	TPH Location
						Total TPH	8,100	3	TPH Location
						Total TPH	15,801	4.6	TPH Location
EX02GR131SW	20	20	9	133	Grid 131 Sidewall	Total TPH	5,853	7	TPH Location
EX02GR132BT	50	20	8.5	315	Grid 132 Bottom	Total TPH	14,008	6	TPH Location
					Grid 123 Sidewall	Total TPH	14,337	2	TPH Location
						Total TPH	7,000	5.6	TPH Location
EX02GR179SW	40	40	7	415	Grid 179 Sidewall	Copper	6,600	5.5	Tier 1 Location
						Zinc	7,600	5.5	Tier 1 Location
EX02GR184SW	40	40	7	415	Grid 184 Sidewall	Aroclor-1254	940	4.5	Tier 1 Location
REDEVELOPMENT BLOCK EOS-2									
EX02B100	40	40	3.5	207	IR02B100	Aroclor-1260	32	1.12	Tier 1 Location
EX02B398	40	40	5	296	IR02B398	Lead	2,300	3	Tier 1 Location
EX02B401	100	60	5	1,111	IR02B393	Aroclor-1260	6,600	2	Tier 1 Location
						Aroclor-1260	38	3	Tier 1 Location
					IR02B401	Aroclor-1260	35	2	Tier 1 Location
					IR02B475	Aroclor-1260	3,700	2	Tier 1 Location
						Aroclor-1260	31	3	Tier 1 Location
EX02B403	40	40	5	296	IR02B403	Manganese	26,000	3	Tier 1 Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
REDEVELOPMENT BLOCK EOS-2 *(continued)*									
EX02B415	80	55	5	815	IR02B415	Aroclor-1260	16	2	Tier 1 Location
						Lead	2,300	3	Tier 1 Location
					IR02B417	Aroclor-1260	39	2	Tier 1 Location
					IR02SS321	Aroclor-1260	5	0.5	Tier 2 Location
						Arsenic	85	0.5	Tier 2 Location
						Lead	968	0.5	Tier 2 Location
EX02B461	40	40	5	296	IR02B461	Benzo(a)pyrene	5	3	Tier 1 Location
						Benzo(b)fluoranthene	11	3	Tier 2 Location
EX02S320	40	40	2.5	148	IR02SS320	Aroclor-1260	45	0.5	Tier 1 Location
						Benzo(a)pyrene	3	0.5	Tier 2 Location
						Benzo(b)fluoranthene	8	0.5	Tier 2 Location
REDEVELOPMENT BLOCK EOS-3									
EX02GP002	20	20	10	148	062-002	Total TPH	25,700	11	TPH Location
EX02GP008	20	20	10	148	062-008	Total TPH	6,600	12	TPH Location
EX02GP016A	20	20	16	237	062-016	Total TPH	32,000	5	TPH Location
						Total TPH	19,100	10	TPH Location
						Total TPH	9,500	16	TPH Location
EX02GP038	20	20	10	148	062-038	Total TPH	20,051	15	TPH Location
EX02GP040	75	60	16	2,667	062-040	Total TPH	10,490	5	TPH Location
						Total TPH	10,100	16	TPH Location
					062-042	Total TPH	3,970	5	TPH Location
						Total TPH	3,930	15	TPH Location
					062-048	Total TPH	8,913	15	TPH Location
					062-048	Total TPH	5,100	11	TPH Location
					IR03B363	Total TPH	7,456	9	TPH Location
EX02GP050	20	20	16	237	062-050	Total TPH	4,150	15	TPH Location
EX02GP051A	20	20	16	237	062-051	Total TPH	7,510	16	TPH Location
EX02MW146	20	20	10	148	IR02MW146A	Copper	2,660	1.25	Tier 2 Location
						Total TPH	5,070	8.75	TPH Location
EX02MW173A	20	20	10	148	IR02MW173A	Copper	4,431	1.25	Tier 2 Location
						Lead	1,075	1.25	Tier 2 Location
						Total TPH	9,600	8.75	TPH Location
EX03SS368	40	40	2	119	IR03SS368	Benzo(a)anthracene	14	0	Tier 1 Location
						Benzo(a)pyrene	11	0	Tier 1 Location
						Benzo(b)fluoranthene	30	0	Tier 1 Location
						Benzo(k)fluoranthene	7	0	Tier 2 Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
REDEVELOPMENT BLOCK EOS-3 *(continued)*									
EX03SS368 *(cont.)*	40	40	2	119	IR03SS368	Copper	10,500	0	Tier 1 Location
						Dibenz(a,h)anthracene	2	0	Tier 2 Location
						Indeno(1,2,3-cd)pyrene	10	0	Tier 2 Location
EX03TA40B	40	40	3	178	IR02TA40B	Arsenic	641	1	Tier 1 Location
REDEVELOPMENT BLOCK EOS-4									
EX02B355	20	20	8.5	126	IR02B355	Total TPH	8,500	6.25	TPH Location
EX02B369	75	40	3.5	389	IR02B369A	Copper	3,490	1.25	Tier 2 Location
						Lead	5,970	1.25	Tier 1 Location
					IR02B371	Copper	3,510	0.75	Tier 2 Location
						Lead	6,130	0.75	Tier 1 Location
						Total TPH	8,009		TPH Location
EX02B464	80	50	5	741	IR02B464	Benzo(a)anthracene	18	2	Tier 1 Location
						Benzo(a)pyrene	15	2	Tier 1 Location
						Benzo(b)fluoranthene	12	2	Tier 2 Location
						Benzo(k)fluoranthene	14	2	Tier 1 Location
					IR02B491	Benzo(a)pyrene	2	3	Tier 2 Location
						Copper	10,000	3	Tier 1 Location
EX02B468	20	20	3	44	IR02B468	Total TPH	5,400	2	TPH Location
EX02B497	70	40	4	415	IR02B497	Arsenic	73	2	Tier 2 Location
					GRID 100	Lead	5,000	1.5	Tier 1 Location
EX02B505	40	40	5	296	IR02B505	Benzo(a)pyrene	3.3	3	Tier 1 Location
						Benzo(b)fluoranthene	7	3	Tier 2 Location
EX11B023	--	--	3.5	150	IR11B023	Aroclor-1254	38	0.5	Tier 1 Location
						Aroclor-1254	30	1.5	Tier 1 Location
EX15B027	40	40	4	237	IR15B027	Copper	15,000	2	Tier 1 Location
						Lead	4,300	2	Tier 1 Location
EX380803	40	40	3	178	0803S4A	Benzo(a)pyrene	4.8	0.5	Tier 1 Location
						Benzo(b)fluoranthene	9.4	0.5	Tier 2 Location
REDEVELOPMENT BLOCK MU-1									
EX01SS349	40	40	2.5	148	IR01SS349	Aroclor-1260	3.6	0.5	Tier 1 Location
EX05B094	60	40	10	889	IR05B094	Aroclor-1260	14	2	Tier 1 Location
						Aroclor-1260	16	10	Tier 1 Location
					IR05B095	Aroclor-1260	1.4	2	Tier 2 Location
					IR05B105	Aroclor-1260	1.3	2	Tier 2 Location
EX05B104	80	80	4	948	IR05B087	Aroclor-1260	4.8	1.25	Tier 1 Location
					IR05B090	Aroclor-1260	6.8	2	Tier 1 Location
					IR05B104	Aroclor-1260	6.8	2	Tier 1 Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
REDEVELOPMENT BLOCK MU-1 *(continued)*									
EX05MW85A	80	80	5.5	1,304	IR05MW85A	Arsenic	90	3.25	Tier 2 Location
						Copper	1,030	3.25	Tier 2 Location
						Mercury	200	3.25	Tier 1 Location
						Naphthalene	11	3.25	Tier 2 Location
					IR36B148	Arsenic	244	2	Tier 1 Location
						Copper	4,040	2	Tier 1 Location
					PA36MW03A	Copper	3,560	3.75	Tier 1 Location
						Zinc	1,960	3.75	Tier 2 Location
EX12MW17A	40	40	8.5	504	IR12MW17A	Aroclor-1260	3.9	1.25	Tier 1 Location
						Aroclor-1260	1.6	6.25	Tier 2 Location
						Zinc	2,910	6.25	Tier 2 Location
EX12MW18A	40	40	8.5	504	IR12MW18A	Aroclor-1254	0.6	1.25	Tier 2 Location
						Lead	6,570	3.75	Tier 1 Location
						Zinc	3,400	3.75	Tier 2 Location
						Bis(2-ethylhexyl)phthalate	110	6.25	Tier 1 Location
EX12SS16	60	40	2	178	IR12SS13	Aroclor-1260	1.6	0	Tier 2 Location
						Copper	1,470	0	Tier 2 Location
					IR12SS16	Benzo(b)fluoranthene	1.8	0	Tier 2 Location
						Copper	7,920	0	Tier 1 Location
						Zinc	1,980	0	Tier 2 Location
EX12SS17	40	40	2	119	IR12SS17	Aroclor-1254	1.6	0	Tier 1 Location
						Aroclor-1260	5.3	0	Tier 1 Location
						Copper	1,370	0	Tier 2 Location
						Zinc	4,200	0	Tier 1 Location
EX12TA08	40	40	10	593	IR12TA08	Aroclor-1254	33	2.75	Tier 1 Location
						Aroclor-1260	10	2.75	Tier 1 Location
						Aroclor-1254	1.8	8.75	Tier 1 Location
EX12TA10	40	40	5	296	IR12TA10	Aroclor-1260	1.2	2.25	Tier 2 Location
						Copper	2,060	2.75	Tier 1 Location
						Vanadium	645	2.75	Tier 2 Location
EX13B003B	60	40	4	356	IR13B003B	Aroclor-1260	1.8	1.75	Tier 2 Location
						Copper	2,350	1.75	Tier 1 Location
					IR13B020	Benzo(b)fluoranthene	3.6	2	Tier 1 Location
EX13B004	40	40	4.5	267	IR13B004	Copper	5,288	2.25	Tier 1 Location
						Mercury	31.2	2.25	Tier 1 Location
EX13B007	40	40	4.5	267	IR13B007	Aroclor-1260	7.5	2.25	Tier 1 Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
REDEVELOPMENT BLOCK MU-1 *(continued)*									
EX13B010	40	40	4	237	IR13B010	Benzo(a)anthracene	8.2	2	Tier 1 Location
						Benzo(a)pyrene	6.4	2	Tier 1 Location
						Benzo(b)fluoranthene	13	2	Tier 1 Location
EX13B023	80	40	4	474	IR13B023	Benzo(a)anthracene	5.7	2	Tier 1 Location
						Benzo(a)pyrene	2.2	2	Tier 2 Location
						Benzo(b)fluoranthene	5.2	2	Tier 1 Location
					IR13B006	Copper	3,929	1.75	Tier 1 Location
						Mercury	12.5	1.75	Tier 2 Location
						Zinc	2,901	1.75	Tier 2 Location
EX36B027	40	40	4.5	267	PA36B027	Copper	6,002	2.25	Tier 1 Location
EX36B062	60	40	10	889	IR36B062	Arsenic	168	6.25	Tier 1 Location
						Copper	6,520	6.25	Tier 1 Location
						Heptachlor Epoxide	0.0052	6.25	Tier 2 Location
						Lead	1,510	6.25	Tier 2 Location
						Mercury	22.4	6.25	Tier 2 Location
						Zinc	5,710	6.25	Tier 1 Location
					IR36B210	3,3'-Dichlorobenzidine	0.13	10	Tier 1 Location
						Copper	2,200	10	Tier 1 Location
EX36B063	40	40	8.5	504	IR36B063	Benzo(b)fluoranthene	1.9	6.25	Tier 2 Location
						Copper	1,623	6.25	Tier 1 Location
						Lead	783	6.25	Tier 2 Location
						Mercury	102	6.25	Tier 1 Location
EX36B138	40	40	3	178	IR36B138	Aroclor-1260	9	1	Tier 1 Location
EX36B180	80	40	4	474	IR36B180	Aroclor-1260	2.3	2	Tier 1 Location
						Copper	1,500	2	Tier 2 Location
					IR36B187	Copper	3,100	2	Tier 1 Location
					IR39B032	Aroclor-1260	1.7	2	Tier 2 Location
REDEVELOPMENT BLOCK MU-2									
EX14MW10A	40	40	4.5	267	IR14MW10A	Copper	3,020	2.25	Tier 1 Location
						Zinc	2,020	2.25	Tier 2 Location
EX14SS05	40	40	2	119	IR14SS05	Aroclor-1254	3.4	0	Tier 1 Location
						Aroclor-1260	2.8	0	Tier 1 Location
						Cadmium	20.6	0	Tier 2 Location
						Copper	1,920	0	Tier 1 Location
EX36B015	40	40	4.5	267	PA36B015	Copper	1,280	2.25	Tier 2 Location
						Mercury	37.6	2.25	Tier 1 Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
REDEVELOPMENT BLOCK MU-2 *(continued)*									
EX36B072	60	40	4	356	IR36B072	Arsenic	105	1.25	Tier 2 Location
						Copper	2,550	1.25	Tier 1 Location
					IR36B219	Arsenic	130	2	Tier 1 Location
						Copper	3,200	2	Tier 1 Location
EX36B116	40	40	4	237	IR36B116	bis(2-Ethylhexyl)phthlate	48	1.75	Tier 1 Location
EX36B162	40	40	10	593	IR36B162	Copper	2,400	2	Tier 1 Location
						Mercury	28	2	Tier 1 Location
						Copper	810	10	Tier 2 Location
						Mercury	14	10	Tier 2 Location
REDEVELOPMENT BLOCK MU-3									
EX04B011	105	60	4	933	IR04B011	Copper	10,400	1.75	Tier 1 Location
						Lead	1,900	1.75	Tier 1 Location
						Aroclor-1260	1.4	1.75	Tier 2 Location
					IR04B032	Aroclor-1260	3.3	1.75	Tier 1 Location
						Lead	1,071	1.75	Tier 2 Location
EX04B012	40	40	8.5	504	IR04B012	Copper	5,230	1.75	Tier 1 Location
						Lead	4,850	1.75	Tier 1 Location
						Mercury	17	6.25	Tier 2 Location
						Zinc	2,220	1.75	Tier 2 Location
						Aroclor-1260	1.4	1.75	Tier 2 Location
						Total TPH	3,520	2	TPH Location
EX04B015	40	40	3.5	207	IR04B015	Antimony	65	1.25	Tier 2 Location
						Aroclor-1260	14	1.25	Tier 1 Location
						Copper	1,408	1.25	Tier 2 Location
						Lead	3,166	1.25	Tier 1 Location
						Zinc	2,570	1.25	Tier 2 Location
EX04B030	40	40	5	296	IR04B030	Antimony	409	1.25	Tier 1 Location
						Aroclor-1260	8.9	1.25	Tier 1 Location
						Lead	6,915	1.25	Tier 1 Location
						Mercury	47	1.25	Tier 1 Location
						Zinc	4,105	1.25	Tier 1 Location
						Antimony	57	2.75	Tier 2 Location
						Copper	3,161	2.75	Tier 1 Location
EX12TA13	40	40	6	356	IR12TA13B	Copper	3,400	3.75	Tier 1 Location
EX72SS23	40	40	2	119	IR72SS23	Zinc	5,400	0	Tier 1 Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
RAILROAD RIGHT-OF-WAY									
EX52B009	40	40	6	356	IR52B009	Benzo(a)anthracene	8.8	3.75	Tier 1 Location
						Benzo(a)pyrene	13	3.75	Tier 1 Location
						Benzo(b)fluoranthene	21	3.75	Tier 1 Location
						Benzo(k)fluoranthene	3.5	3.75	Tier 1 Location
						Dibenz(a,h)anthracene	1.7	3.75	Tier 2 Location
						Indeno(1,2,3-cd)pyrene	5.2	3.75	Tier 1 Location
EX52SS02	20	20	3	44	PA52SS02	Total TPH	4,400	0.75	TPH Location
EX52SS06	40	40	3	178	PA52SS06	Copper	14,267	0.75	Tier 1 Location
						Lead	1,282	0.75	Tier 2 Location
Total Tier 1 and TPH Exceedance Excavations =				32,155					
Total Excavation Volume for Alternative S-3[1] =				**32,155**					
ADDITIONAL EXCAVATION AREAS UNDER ALTERNATIVE S-4 (see footnotes 1 and 2)									
REDEVELOPMENT BLOCK EOS-1									
EX02B442	20	20	4	59	IR02B442	Aroclor-1260	4.3	2	Tier 2 Location
EX02GR71SW	20	20	3	44	84-GRID 71 SIDEWALL	Benzo(a)pyrene	1.8	2.6	Tier 2 Location
EX02SS310	20	20	2.5	37	IR02SS310	Lead	875	0.5	Tier 2 Location
EX02TA16A	20	20	4	59	IR02TA16A	Benzo(a)pyrene	2.5	1.7	Tier 2 Location
REDEVELOPMENT BLOCK EOS-2									
EX02B405	20	20	4	59	IR02B405	Zinc	6,300	2	Tier 2 Location
EX02MW149	55	20	4	163	IR02B457	Benzo(a)pyrene	2	2	Tier 2 Location
					IR02MW149A	Arsenic	56	1.12	Tier 2 Location
						Lead	1,440	1.12	Tier 2 Location
REDEVELOPMENT BLOCK EOS-3									
EX02B098D	20	20	3.5	52	IR02B098D	Arsenic	95	1.25	Tier 2 Location
						Copper	4,199	1.25	Tier 2 Location
EX03B220	20	20	3	44	IR03B220	Benzo(a)pyrene	3	1	Tier 2 Location
EX03B343	20	20	3	44	IR03B343	Benzo(a)pyrene	2	2	Tier 2 Location
EX03B344	20	20	5	74	IR03B344	Copper	2,400	3	Tier 2 Location
EX03B345	20	20	3	44	IR03B345	Copper	3,000	2	Tier 2 Location
EX03B367	20	20	3	44	IR03B367	Arsenic	80	2	Tier 2 Location
						Copper	3,300	2	Tier 2 Location
REDEVELOPMENT BLOCK EOS-4									
EX02B184	20	20	3.5	52	IR02B184	Arsenic	99.48	1.75	Tier 2 Location
						Lead	1,336	1.75	Tier 2 Location
EX02B493	20	20	5	74	IR02B493	Aroclor-1260	5.6	3	Tier 2 Location
EX02B506	20	20	3	44	IR02B506	Benzo(a)pyrene	3.1	2	Tier 2 Location

Table 4-3. Proposed Excavation Areas at Parcel E *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Proposed Excavation Name	Length	Width	Depth of Proposed Excavation (feet bgs)	Excavation Volume (cy)	Sampling ID No.	COC	Detected Concentration (mg/kg)	Sample Depth (feet bgs)	Sample Classification
REDEVELOPMENT BLOCK EOS-4 *(continued)*									
EX02G105	20	20	3	44	GRID 105	Aroclor-1260	5.1	1	Tier 2 Location
EX02GR93SW	20	20	5	74	Grid 93 Sidewall	Copper	3,900	3	Tier 2 Location
EX11B024	20	20	3	44	IR11B024	Arsenic	62	0.5	Tier 2 Location
						Lead	1,250	0.5	Tier 2 Location
EX11SS022	20	20	3	44	IR11SS22	Lead	1,420	0.5	Tier 2 Location
EX14B026	20	20	4	59	IR14B026	Aroclor-1254	6.9	2	Tier 2 Location
REDEVELOPMENT BLOCK MU-1									
EX12SS18	20	20	2	30	IR12SS18	Aroclor-1254	0.7	0	Tier 2 Location
						Copper	889	0	Tier 2 Location
EX13B021	40	20	4	119	IR13B021	Benzo(b)fluoranthene	2.7	2	Tier 2 Location
					IR39B056	Benzo(b)fluoranthene	2.7	2	Tier 2 Location
EX36B056	20	20	3.5	52	IR36B056	Lead	1,396	1.25	Tier 2 Location
REDEVELOPMENT BLOCK MU-1 *(continued)*									
EX36B078	20	20	3.5	52	IR36B078	Copper	1,332	1.25	Tier 2 Location
EX36B105	20	20	3	44	IR36B105	Aroclor-1260	1.1	0.75	Tier 2 Location
EX36B136	20	20	3	44	IR36B136	Aroclor-1254	0.53	1	Tier 2 Location
EX36B208	20	20	4	59	IR36B208	Benzo(a)pyrene	2.4	2	Tier 2 Location
REDEVELOPMENT BLOCK MU-2									
EX36B163	20	20	4	59	IR36B163	alpha-BHC	0.011	2	Tier 2 Location
						Copper	1,400	2	Tier 2 Location
						Mercury	14	2	Tier 2 Location
EX38SS01	20	20	2	30	PA38SS01	Copper	1,020	0	Tier 2 Location
REDEVELOPMENT BLOCK MU-3									
EX04B034	20	20	4	59	IR04B034	Aroclor-1260	1.1	1.75	Tier 2 Location
EX01SS350	20	20	2.5	37	IR01SS350	Aroclor-1260	1.4	0.5	Tier 2 Location
EX12SS02	20	20	2	30	IR12SS02	Lead	1,080	0	Tier 2 Location
EX56B021	20	20	4	59	IR56B021	Mercury	17.45	1.75	Tier 2 Location
			Total Tier 2 Excavations =	1,837					
			Total Excavation Volume for Alternative S-4 (2) =	**33,992**					

Notes:

(1) Alternative S-3 includes excavation of Tier 1 locations (with COCs at concentrations greater than 10 times the remedial goals) and TPH locations (exceeding the TPH source criterion)

(2) Alternative S-4 includes excavation of Tier 1 and Tier 2 locations (with COCs at concentrations greater than 5 times the remedial goals) and TPH locations (exceeding the TPH source criterion)

bgs = below ground surface

COC = chemical of concern

cy = cubic yard

mg/kg = milligrams per kilogram

PeCDF = pentachlorodibenzofuran

TPH = total petroleum hydrocarbons

Table 4-4. Remedial Alternatives for Groundwater at Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Options	GW-1: No Action	GW-2: ICs and Long-Term Groundwater Monitoring	GW-3A: Containment, ISB, MNA, and ICs	GW-3B: Containment, ZVI Reduction, ISB, MNA, and ICs	GW-4: Containment, AS, ISB, MNA, and ICs
No Action	None	None	✓				
Institutional Controls	Legal Mechanisms	Covenants to Restrict Use of Property and Deed Restrictions		✓	✓	✓	✓
Engineering Controls [1]	Physical Barriers	Security Features and Signs		✓	✓	✓	✓
Monitoring	Groundwater Monitoring	Periodic Groundwater Monitoring		✓	✓	✓	✓
Containment	Groundwater Physical Barrier[2]	Slurry Wall or Sheet-Pile Wall			✓	✓	✓
In-Situ Treatment[3]	Passive	Monitored Natural Attenuation[4]			✓	✓	✓
	Biological Treatment	Enhanced Anaerobic and Aerobic Bioremediation[5]			✓	✓	✓
	Physical-Chemical Treatment	Air Sparging (with Soil Vapor Extraction, Alternative S-4)					✓
		Chemical Reduction by ZVI Injection				✓	

Table 4-4. Remedial Alternatives for Groundwater at Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes:

1. Engineering controls would be used during remedy implementation and in conjunction with ICs.
2. Physical barrier type (for groundwater containment) will be identified in the Draft Feasibility Study Report for Parcel E.
3. In-situ treatment would address VOC plumes at Parcel E, except for the benzene plume associated with former underground storage tank at Building 709 (to be addressed under petroleum program). In-situ treatment options may vary based on the site conditions at individual plumes.
4. Bioremediation would be achieved by sparging and injection of substrate to enhance biodegradation.
5. MNA would be used as a polishing step following bioremediation, chemical oxidation, or air sparging.

AS = air sparging

ICs = institutional controls

MNA = monitored natural attenuation

VOC = volatile organic compound

ZVI = zero-valent iron

Table 4-5. Potential Applicability of Alternatives to Groundwater Plumes
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

RB	Plume	Alternative					Notes
		GW-1	GW-2	GW-3A	GW-3B	GW-4	
		No Action	ICs, LTM	Containment, ISB, MNA, ICs	Containment, ISB, ZVI, MNA, ICs	Containment, Air Sparging, ISB, MNA, ICs	
MU-1 and MU-2	Building 406 TCE Plume	✓	✓	✓	✓ (ZVI, no ISB)	✓ (Air Sparging, no ISB)	
MU-1	IR-12 Benzene Plume	✓	✓	✓	✓	✓	
MU-1 and MU-3	IR-12 PCE Plume	✓	✓	✓	✓	✓	
MU-3	IR-04 TCE Plume	✓	✓	✓	✓	✓	
	IR-56 TCE Plume	✓	✓	✓	✓	✓	
EOS-1 and EOS-2	IR-02 Central Nickel Plume	✓	✓	✓ (Containment)	✓ (Containment)	✓ (Containment)	
EOS-1	IR-02 Northwest PCB Plume	✓	✓	✓ (Containment)	✓ (Containment)	✓ (Containment)	
EOS-1	IR02 Northwest Metals Plume	✓	✓	✓ (Containment)	✓ (Containment)	✓ (Containment)	
EOS-3	IR03 TPH Plume						Addressed in IR-03 NAPL evaluation

Notes: ZVI and air sparging for use at Building 406 only.
Groundwater containment at IR-02 Metals Plume area only.

GW = groundwater
ICs = institutional control
ISB = in-situ bioremediation
MNA = monitored natural attenuation
PCE = tetrachloroethene
RB = Redevelopment Block
TCE = trichloroethene
ZVI = zero-valent iron

Table 4-6. Remedial Alternatives for IR-03 (NAPL with associated soil and groundwater contamination)
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Process Options	N-1: No Action	N-2: Source Containment, Monitoring, and ICs	N-3: Source Removal or Treatment, Containment MNA, and ICs	N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, MNA, and Institutional Controls	N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, MNA, and Institutional Controls	N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, MNA, and Institutional Controls	N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls
No Action	None	✓						
Institutional Controls	Covenants to Restrict Use of Property and Deed Restrictions		✓	✓	✓	✓	✓	✓
Engineering Controls[1]	Security Features and Signs		✓	✓	✓	✓	✓	✓
Monitoring	Periodic Groundwater Monitoring		✓	✓	✓	✓	✓	✓
Containment	Slurry Wall or Sheet-Pile Wall		✓	✓	✓	✓	✓	
	Engineered Cover		✓	✓	✓	✓	✓	
Treatment (NAPL Source)	In-Situ Mixing to Solidify/ Stabilize NAPL			✓	✓	✓	✓	
In-Situ Treatment (Groundwater)	Monitored Natural Attenuation			✓	✓	✓	✓	✓
	Bioremediation				✓		✓	
Removal	Dual-Phase Extraction			✓	✓	✓	✓	
	ERH to Mobilize NAPL[2]			✓	✓	✓	✓	
	ERH with Steaming to Strip Chemicals From Groundwater					✓		
	Excavation and Off-Site Disposal			✓	✓	✓	✓	✓

Notes:

1. Engineering controls would be used during remedy implementation and in conjunction with ICs.
2. Based on past investigations, the viscosity of the NAPL at IR-03 precludes extraction without some form of thermal enhancement. ERH is identified as a representative thermal technology; however, site-specific studies would be required to determine the viability of this, or any other thermal technology, to cost-effectively remove NAPL from the subsurface. Because of the uncertainty related to thermal technologies, other source removal or in-situ treatment options may be used to address the NAPL source.

ERH = electrical resistive heating

ICs = institutional controls

LLRW = low-level radioactive waste

MNA = monitored natural attenuation

NAPL = non-aqueous phase liquid

Table 4-7. Projected Performance of NAPL Source Removal or Treatment Options
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Potential Advantages	Potential Disadvantages	Potential Applications During Remediation
Removal	Physical Extraction	Dual-Phase Extraction	Use vacuum pumps to remove various combinations of contaminated groundwater, separate phase petroleum product, and hydrocarbon vapor from the subsurface. Extracted liquids and vapor are collected and treated.	• Moderate capital and O&M costs • Readily available equipment • Can stimulate biodegradation of petroleum constituents in the unsaturated zone by increasing the supply of oxygen	• Ineffective without thermal treatment, which would significantly increase the cost • Need to treat excessive amounts of groundwater could result in high O&M costs	Potential use in conjunction with thermally enhanced extraction (see below)
		Thermally Enhanced Extraction	Use hot water injection, electrical resistive heating, thermal conductive heating, or steam injection to decrease viscosity of NAPL, potentially increasing its mobility for removal (via extraction).	• Proven technology used in the treatment of NAPL (particularly in high permeability soils) • Would remove primary source of soil and groundwater contamination	• Site-specific conditions at IR-03 (most notably the thick viscous product) may limit the effectiveness of this technology • Implementation would be moderately difficult and costly because of specialized equipment and significant power demand	Potential use in high permeability soils with extensive NAPL. Bench-scale or pilot-scale studies would be needed to better understand its effectiveness and implement ability.
		Treatment and Off-Site Disposal of Extracted NAPL/ Groundwater	Treat extracted NAPL, groundwater, and vapor prior to disposal. Depending on the POTW facility pretreatment requirements and other potential regulatory issues, extracted groundwater can be conveyed and discharged to a POTW facility.	• Common technologies that would be readily implementable • Moderate capital costs	• Relatively high annual O&M costs (which could be controlled if discharge to POTW is viable) • Discharge to POTW could require construction of conveyance structure to nearest publically-owned sewer line	Potential use in conjunction with thermally enhanced extraction (see above)
		Excavation	Remove contaminated material with heavy equipment. Excavated soil could be stockpiled on site for treatment, or transported to a permitted off-site treatment and disposal facility.	• Common technology that would be readily implementable (for small to medium volumes) • Would remove primary source of soil and groundwater contamination (but would need to be performed in conjunction with either off-site disposal or ex-situ treatment to prevent exposure to humans and wildlife)	• Implementation may be difficult to implement below the water table (and associated dewatering and treatment would increase costs) • Would generate fugitive emissions requiring control • High capital costs (particularly for large excavation volumes)	Potential use in shallow soil and deeper zones where other technologies may not be cost-effective (see discussion of thermally enhanced extraction and in-situ mixing)
		Off-Site Disposal of Excavated NAPL/ Soil	Collect and transport soil to an appropriate treatment, storage, or disposal facility. Disposal of soil would involve constructing on-site staging area from which soil would be transferred to trucks and transported to an off-site facility.	• Common technology that would be readily implementable (for small to medium volumes) • Would remove primary source of soil and groundwater contamination	• Soil saturated with either water or NAPL would require processing (phase separation or stabilization) prior to off-site disposal; limited on-site area available for material processing • High capital costs (particularly for large excavation volumes)	Potential use in conjunction with excavation (see above)

Table 4-7. Projected Performance of NAPL Source Removal or Treatment Options *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Remedial Technology	Process Option	Description	Potential Advantages	Potential Disadvantages	Potential Applications During Remediation
Treatment	Solidification /Stabilization	In-Situ Mixing	Mix one or more reagents directly into the contaminated soil/NAPL with mechanical equipment. Reagents include stabilizing agents (such as cement or bentonite), and reactive agents (such as chemical oxidants).	• If designed and implemented appropriately, technology would be capable of preventing migration of NAPL to San Francisco Bay (in accordance with the RAOs). • Mechanical equipment for in-situ mixing is readily available • Low O&M costs because minimal long-term management of groundwater would be needed for the stabilized waste (which would have a low hydraulic conductivity)	• Homogeneous mixing may be difficult to achieve in shoreline areas containing large debris • Moderate to high capital costs • Mixing process would require controls for air and liquid residuals, which could be moderately difficult to implement given the range of contaminants at the site • Administrative implementability may be challenging if technology is not implemented in combination with other technologies that seek to remove the NAPL source to the extent practicable	Potential use in shallow and deep soil where other technologies may not be cost-effective (see discussion of thermally enhanced extraction and excavation). Bench-scale or pilot-scale studies would be required to identify the appropriate reagent(s) to solidify and stabilize the contaminated soil and NAPL.
		Ex-Situ Mixing	Excavate contaminated soil and NAPL, transport to on-site location, and spread in layers. Mix a binding reagent into the soil/NAPL with mechanical equipment and transport/place stabilized material in excavation.	• Same advantages as in-situ mixing • Also, technology could be implemented in areas shoreline areas containing large debris (where in-situ mixing may be difficult)	• High capital costs because of the labor intensive process of excavation, transportation, mixing, and backfilling • Mixing process would require controls for air and liquid residuals (see discussion above for in-situ mixing) • Administrative implementability may be challenging (see discussion above for in-situ mixing)	Potential use in limited areas where in-situ mixing may not be cost-effective (see above).

Notes:
IR = Installation Restoration
NAPL = nonaqueous-phase liquid
O&M = operation and maintenance
POTW = publicly owned treatment works
RAOs = remedial action objectives

Table 4-8. Actions to be Addressed in Remedial Design for Parcel E
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Alternatives	Action
S-2, S-3, and S-4	Evaluate the extent of maintenance, upgrades, or repairs to the existing covers.
S-2, S-3, and S-4	Develop cover performance standards and finalize cover design to address potential exposure to radionuclides and COCs in soil. Specifically, include plans for a performance standard for completion near the seawalls, as well as inspection, maintenance, and identification of problems. The RD would address (1) drainage to prevent erosion and standing water, (2) maintenance, and (3) methods for completion of the cover near the shoreline protection features.
S-2, S-3, and S-4	Present engineering design details for geotechnical stabilization measures (such as a geosynthetic reinforcement material) to ensure stability of the shoreline protection and refine conceptual design as necessary.
S-2, S-3, and S-4	Evaluate if additional characterization of potential subsurface methane at oil reclamation ponds (IR-03) and disposal trenches (IR-12) is warranted.
S-2, S-3, and S-4	Prepare detailed excavation and sampling plans for removal of buried fuel lines (IR-47) and steam lines (IR-45).
S-3 and S-4	Perform pre-excavation characterization of hot spots and exceedances and further refine preliminary excavation details for soil excavation.
S-3 and S-4	Develop post-excavation confirmation sampling procedures, including specific DQOs to facilitate proper implementation.
S-4	Prepare specific DQOs and perform additional investigations to further define the areas requiring removal by SVE.
S-4	Refine the spacing of the SVE wells and the operational characteristics of SVE system through field testing and an SVE pilot-scale study.
GW-2, GW-3A, GW-3B, and GW-4	Develop groundwater monitoring parameters to evaluate effectiveness of the remedial alternative.
GW-2, GW-3A, GW-3B, and GW-4	Further refine the approach for long-term groundwater monitoring, including wells to be monitored, chemicals to be analyzed for, laboratory analytical methods, sample collection procedures, and quality control requirements. The analysis in the RD would include data evaluated for this FS Report and newer data (including data from newly installed wells).
GW-3A, GW-3B and GW-4	Refine the implementation approaches, develop optimization strategies, and develop remediation endpoints for ISB.
GW-3A, GW-3B and GW-4	Conduct source zone characterization to refine the extent of the contaminated areas requiring remediation under the ISB alternatives.

Table 4-8. Actions to be Addressed in Remedial Design for Parcel E *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Alternatives	Action
GW-3A, GW-3B, GW-4, and N-2	Develop contingency plan for issues encountered during installation of the slurry wall, such as performing pre-design studies to identify subsurface obstacles and planning for potential realignment of the wall if large obstacles are encountered.
GW-3A, GW-3B and GW-4	Evaluate alternatives for oxygen delivery under ISB alternatives to maximize the efficiency of aerobic bioremediation.
GW-3A, GW-3B and GW-4	Evaluate the benefit of a dedicated permeability enhancement event (injection of a substrate under pressure to fracture the formation and enhance permeability) under the ISB alternatives.
GW-3A, GW-3B and GW-4	Evaluate the need for special substrates, such as substrates with sulfur-containing compounds, to immobilize metals under the ISB alternatives.
GW-3B	Define the parameters for final planning and costing of ZVI.
GW-4	Refine the spacing of the AS wells and the operational characteristics of SVE/AS system through field testing and an SVE/AS pilot-scale study.
N-2, N-3, N-4A, N-4B, N-5, and N-6	Perform additional characterization of NAPL at IR-03 and refine the area targeted by the NAPL alternatives. Characterization is needed to refine the nature and extent of NAPL at IR-03 and to better understand the site conditions (such as the presence of large subsurface debris) to properly implement each alternative.
N-3, N-4A, N-4B, and N-5	Adjust the source removal approaches within and beyond IR-03 and develop optimization strategies to allow for appropriate adjustments based on site conditions.
N-3, N-4A, N-4B, and N-5	Conduct bench-scale and field-scale testing to select specific thermal enhancement technology.
N-6	Prepare detailed excavation plans for removal of NAPL and associated soil.

Notes:

AS	air sparging
COC	chemical of concern
DQO	data quality objective
IR	Installation Restoration
ISB	in-situ bioremediation
NAPL	nonaqueous-phase liquids
RD	remedial design
SVE	soil vapor extraction
ZVI	zero-valent iron reduction

Section 5. Detailed and Comparative Analysis of Remedial Alternatives

This section provides a detailed analysis of each remedial alternative developed in Section 4, followed by comparative analysis. This information will be used to help select a final remedy for Parcel E. The alternatives developed in Section 4 are evaluated using criteria based on statutory requirements of CERCLA as amended by the Superfund Amendments and Reauthorization Act, Section 121; the NCP; and "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA, 1988).

The NCP specifies nine criteria to be used in the detailed analysis. The first two criteria are threshold criteria that must be satisfied in order for a remedy to be eligible for selection; the next five criteria are balancing criteria used to evaluate the comparative advantages and disadvantages of the remedial alternatives; and the final two criteria are modifying criteria generally considered after regulatory agency and public comments are received on the Proposed Plan. The nine criteria are listed below.

1. **Overall Protection of Human Health and the Environment:** This criterion describes how each alternative, as a whole, protects human health and the environment and indicates how each hazardous substance source is to be eliminated, reduced, or controlled.
2. **Compliance with ARARs:** This criterion evaluates each alternative's compliance with ARARs, or, if an ARAR waiver is required, how the waiver is justified. ARARs consider location-specific, chemical-specific, and cleanup action-specific concerns.
3. **Long-Term Effectiveness and Permanence:** This criterion evaluates the effectiveness of each alternative in protecting human health and the environment after the response action is complete. Factors considered include magnitude of residual risks and adequacy and reliability of release controls.
4. **Reduction of Toxicity, Mobility, or Volume through Treatment:** This criterion evaluates the anticipated capability of each alternative's specific treatment technology to reduce the toxicity, mobility, or volume of hazardous substances.
5. **Short-Term Effectiveness:** This criterion addresses the effectiveness of each alternative in protecting human health and the environment during the construction and implementation phase. Factors considered include:
   - Exposure of the community during implementation
   - Exposure of the workers during construction

- Effects to the environment (as supported by the green and sustainable remediation [GSR] analysis in Appendix F)
- Time required to meet the RAOs

6. **Implementability:** This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of the required services and materials during its implementation. Factors considered include:
   - Ability to construct the technology
   - Reliability of the technology
   - Monitoring considerations
   - Availability of equipment and specialists
7. **Cost:** This criterion evaluates the capital and O&M costs for each alternative. Capital and O&M cost estimates are order-of-magnitude-level estimates and have an expected accuracy of minus 30 to plus 50 percent (EPA, 2000b). Table 5-1 summarizes the capital cost for each alternative.
8. **Community Acceptance:** This criterion evaluates issues and concerns the public may have regarding each alternative. This criterion will be assessed following receipt of public comments on the FS Report and the Proposed Plan.
9. **State Acceptance:** This criterion evaluates technical and administrative issues and concerns the state regulatory agencies may have about each alternative. This criterion will be assessed following receipt of regulatory agency comments on the FS Report and the Proposed Plan.

In the following sections, each remedial alternative is compared with the two threshold and five balancing NCP criteria, and subsequently compared with the other alternatives to assess their relative performance with respect to the NCP criteria. Comparison with the two modifying criteria of community and state acceptance will be included in the Proposed Plan; further discussion of these criteria is not included in this FS Report. Section 5.1 provides a detailed analysis of each soil remedial alternative, and Section 5.2 provides a comparative analysis of the soil remedial alternatives. Section 5.3 presents a detailed analysis of each groundwater remedial alternative, and Section 5.4 provides a comparative analysis of the groundwater remedial alternatives. Section 5.5 presents a detailed analysis of each NAPL remedial alternative, and Section 5.6 provides a comparative analysis of the NAPL remedial alternatives.

5.1. DETAILED ANALYSIS OF SOIL ALTERNATIVES

This section compares each soil alternative with the two threshold and five balancing NCP evaluation criteria. Table 5-1 summarizes the costs for each alternative, and Table 5-2 summarizes each alternative's rating under the seven NCP evaluation criteria. The ranking categories used in Table 5-2 and in the discussion of the alternatives are (1) protective or not protective, and meets ARARs or does not meet ARARs, for the two threshold criteria; and (2) excellent, very good, good, poor, and not acceptable for the five balancing criteria.

5.1.1. Detailed Analysis of Alternative S-1: No Action

Under Alternative S-1, no response action would be taken. Soil at Parcel E would be left in place as is, without implementing any institutional controls, containment, removal, treatment, or other response actions. Table 5-2 summarizes the analysis of Alternative S-1 relative to the NCP evaluation criteria.

5.1.1.1. Overall Protection of Human Health and the Environment: Alternative S-1

At Parcel E, COCs pose unacceptable risks to human health under the planned reuse for several redevelopment blocks. Alternative S-1 does not address these risks; therefore, the rating for Alternative S-1 for the overall protection of human health and the environment is not protective.

5.1.1.2. Compliance with ARARs: Alternative S-1

There is no need to identify ARARs for the no-action alternative because ARARs apply to "any removal or remedial action conducted entirely on site" and "no action" is not a removal or remedial action. CERCLA § 121 (42 U.S.C. § 9621) cleanup standards for selection of a Superfund remedy, including the requirement to meet ARARs, are not triggered by the no-action alternative (EPA, 1988). Therefore, a discussion of compliance with ARARs is not appropriate for this alternative.

5.1.1.3. Long-Term Effectiveness and Permanence: Alternative S-1

Under the no-action alternative, residual soils contamination above PRGs would not be addressed. No engineering controls to prevent exposure and no long-term management measures such as institutional controls would be implemented. Based on this evaluation, the overall rating for Alternative S-1 for the long-term effectiveness and permanence is not acceptable.

5.1.1.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative S-1

Alternative S-1 does not include treatment that would result in the destruction, transformation, or irreversible reduction in contaminant mobility, toxicity, or volume. Therefore, the overall rating for Alternative S-1 for the reduction of mobility, toxicity, and volume through treatment is poor.

5.1.1.5. Short-Term Effectiveness: Alternative S-1

Under Alternative S-1, no response actions would occur. As a result, the on-site community would not be exposed to additional risks from soil response actions; the risks would be as presented in the risk assessment. Additionally, the off-site community would be protected because soils presenting unacceptable risk would not be disturbed, no workers would be exposed to health risks, and no adverse environmental effects would result from construction and implementation of Alternative S-1. The site is currently fenced to prevent access. Because no response action would be taken, there would be no time required to complete Alternative S-1. The overall rating for Alternative S-1 for short-term effectiveness is excellent.

5.1.1.6. Implementability: Alternative S-1

Implementability includes technical and administrative feasibility and availability of required resources. No action, including implementing institutional controls or constructing and operating a remedial system, would be required to implement this alternative; therefore, Alternative S-1 would be very easily implemented and the overall rating for Alternative S-1 for implementability is excellent.

5.1.1.7. Cost: Alternative S-1

No capital or O&M costs are associated with Alternative S-1; therefore, the overall rating for Alternative S-1 for cost is excellent.

5.1.1.8. Overall Rating: Alternative S-1

The overall rating for Alternative S-1 is not acceptable because it fails to meet the threshold criteria.

5.1.2. Detailed Analysis of Alternative S-2: Covers, Institutional Controls, and Shoreline Protection

Alternative S-2 includes (1) covers to prevent human exposure to ubiquitous metals and other COCs that may pose an unacceptable risk, (2) shoreline protection, and (3) institutional controls that would be implemented through deed restrictions, including maintaining the covers and shoreline protection.

5.1.2.1. Overall Protection of Human Health and the Environment: Alternative S-2

Alternative S-2 protects human health and the environment because soil that causes unacceptable risk based on planned future land use would be covered. These covers would be implemented over the entire redevelopment block where needed to prevent unacceptable exposure to COCs in soil and shoreline sediment. Covers would be maintained in accordance with pertinent ARARs, and institutional controls would be implemented parcel-wide to prevent potential exposure to unacceptable risks posed by COCs in soil and shoreline sediment. The rating for Alternative S-2 for the overall protection of human health and the environment is protective.

5.1.2.2. Compliance with ARARs: Alternative S-2

Alternative S-2 consists of covers and institutional controls to limit exposure to chemicals in soil. Action-specific and chemical-specific ARARs associated with this alternative would be met. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. The overall rating for Alternative S-2 for compliance with ARARs is meets ARARs.

5.1.2.3. Long-Term Effectiveness and Permanence: Alternative S-2

The factors evaluated under long-term effectiveness and permanence are the magnitude of residual risks and adequacy and reliability of controls. Under Alternative S-2, risks associated with exposure to COCs

in soil would be reduced by covering the soils. As a result, the exposure pathways would be eliminated. However, if intrusive activities (such as excavation or subsurface utility excavation) are performed, site workers would be exposed to unacceptable risk. The adequacy and reliability of the institutional controls depend on monitoring and maintenance of the covers and other land use and deed restrictions to continue their effectiveness. The overall rating for Alternative S-2 for long-term effectiveness and permanence is good.

5.1.2.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative S-2

Alternative S-2 includes covers over contaminated soil and institutional controls. This alternative does not include treatment that would result in the destruction, transformation, or irreversible reduction in contaminant mobility. Therefore, the overall rating for Alternative S-2 for the reduction of mobility, toxicity, and volume through treatment is poor.

5.1.2.5. Short-Term Effectiveness: Alternative S-2

Risks to the community and current occupants may occur due to increased construction traffic. Only clean, approved soil or asphalt would be imported to construct the covers, and trucks would cover their loads and adhere to a traffic plan to reduce noise and traffic concerns of the community. A portion of Parcel E is already covered with building foundations, asphalt, or concrete, and repairs to these covers would cause minimal disturbance and impact to the community. Risk to workers that are constructing covers over known contaminated soil may occur. However, workers would adhere to chemical- and activity-specific accident prevention and safety and health plans, which would include the assignment of appropriate personal protective equipment (PPE) and protective exposure measures. The GSR evaluation revealed that the environmental footprint related to installation and maintenance of durable covers would be associated primarily with greenhouse gas emissions and energy use attributable to material consumption and equipment use during construction. Some environmental effects would be reduced through implementation of best management practices (BMPs). BMPs for construction would prevent soil from reaching the bay during implementation of the response action. A portion of Parcel E is industrial and contains existing covers and ruderal habitat, resulting in low-quality terrestrial habitat; therefore, the adverse environmental impact of implementing this alternative would be low. This alternative could be implemented in a very short period of time (2 years), so the period during which workers and the environment would be exposed to short-term risks would be minimal.

The overall rating for Alternative S-2 for short-term effectiveness, including implementing the institutional controls, is very good.

5.1.2.6. Implementability: Alternative S-2

Implementability includes technical and administrative feasibility and availability of required resources. The alternative is technically feasible and easily implemented because grading and installing covers and

repairing and monitoring existing concrete and asphalt covers are conventional and commonplace technologies. Fences and signs are not required for Alternative S-2, allowing ease of movement and use of Parcel E prior to development. In addition, the institutional controls are administratively easy to implement. The only significant challenge to implementing this alternative is associated with the coordination required to resurface the entire parcel on a periodic basis (assumed to occur every 10 years in the cost estimate) to maintain the covers. The overall rating for Alternative S-2 for implementability is very good.

5.1.2.7. Cost: Alternative S-2

The total capital and O&M costs for Alternative S-2 are presented in Table 5-1 and detailed in Appendix E. The overall rating for Alternative S-2 for cost is very good.

5.1.2.8. Overall Rating: Alternative S-2

The overall rating for Alternative S-2 is very good. Institutional controls would prevent exposure to all COCs and short-term exposure would be reduced through soil covers.

5.1.3. Detailed Analysis of Alternative S-3: Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, Institutional Controls, and Shoreline Protection

Alternative S-3 consists of (1) excavation and off-site disposal of Tier 1 locations at an off-site permitted facility, and (2) covers, institutional controls, and shoreline protection to limit exposure to COCs in soil and shoreline sediments that are left in place. Excavation of Tier 1 locations removes soil with COC concentrations equal to or exceeding 10 times the PRGs.

5.1.3.1. Overall Protection of Human Health and the Environment: Alternative S-3

Alternative S-3 protects human health and the environment because it would remove soil contaminated with metals and organic chemicals that present unacceptable risk for the planned reuse. Soil containing COCs at concentrations equal to or greater than 10 times the PRGs would be removed under this alternative and disposed of off site at an appropriately permitted off-site disposal facility. After receipt of acceptable post-excavation confirmation sampling results, excavations would be backfilled with clean soil meeting stringent chemical and radiological acceptance criteria. The entire redevelopment block would then be covered with soil, HDPE geomembrane, or asphalt to eliminate the direct exposure pathway to remaining soil contamination that poses an unacceptable risk. Covers would be maintained in accordance with pertinent ARARs, and institutional controls would be implemented parcel-wide to prevent potential exposure to unacceptable risks posed by COCs in soil and shoreline sediment. The rating for Alternative S-3 for overall protection of human health and the environment is protective.

5.1.3.2. Compliance with ARARs: Alternative S-3

Alternative S-3 includes both institutional controls and response actions. Both action- and chemical-specific ARARs associated with this alternative would be met. The location-specific ARARs identified

for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative S-3 would meet ARARs. The overall rating for Alternative S-3 for compliance with ARARs is meets ARARs.

5.1.3.3. Long-Term Effectiveness and Permanence: Alternative S-3

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative S-3, contaminated soil in excavated areas would be removed and disposed of off site. Excavation would continue until results of confirmation samples indicate remediation goals for COCs are met or until excavations reach a depth of 10 feet bgs in mixed-use areas and 2 feet bgs in recreational areas. Areas with chemical concentrations remaining above remediation goals would be addressed by implementing covers and institutional controls. As a result, the exposure pathways would be eliminated. If intrusive activities (such as excavation or subsurface utility excavation) are performed, risk to site workers would be moderately controlled because soil from Tier 1 locations would be removed from the site. The adequacy and reliability of the institutional controls depend on monitoring and maintenance of the covers and other land use and deed restrictions to continue their effectiveness. Long-term effectiveness and permanence in areas where these COCs would be excavated is rated as excellent. In areas where only covers and institutional controls are used, the adequacy and reliability of this alternative are very good.

The overall rating for Alternative S-3 for long-term effectiveness and permanence is very good.

5.1.3.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative S-3

Alternative S-3 includes excavation and off-site disposal of soil from Tier 1 locations, covers, institutional controls, and shoreline protection. This alternative does not include treatment that would result in the destruction, transformation, or irreversible reduction in contaminant mobility. Therefore, the overall rating for Alternative S-3 for the reduction of mobility, toxicity, and volume through treatment is poor.

5.1.3.5. Short-Term Effectiveness: Alternative S-3

Under Alternative S-3, the community would be protected during implementation by containment controls such as dust suppression during excavation and cover installation, and use of covers over the hauling trucks during off-site transportation. The total volume of excavation is approximately 43,700 cubic yards, or more than 2,185 truckloads (20 cubic yards per truck). Risks to the community and current occupants may occur during excavation and transportation of contaminated soil; however, these risks would be minimized by implementing containment controls, such as monitoring for and suppression of dust during excavation, limited hours of operation, rules minimizing truck idling, and covers over the haul trucks during off-site transportation. Alternative S-3 would pose added risks to the community and current occupants by increased construction traffic. Clean, approved soil or asphalt

would be imported to backfill the excavations, and haul trucks would cover their loads and adhere to a traffic plan to reduce noise and traffic concerns of the community.

Workers would be protected during soil excavation by implementing containment controls. Containment controls would include monitoring for and suppression of dust during excavation, stockpiling, and loading trucks and following health and safety protocols, including PPE and decontamination procedures. The institutional controls would require installing and maintaining barriers, fences, and signs throughout the construction period. Health and safety requirements and PPE protocols would be enforced to minimize worker exposure during these activities. BMPs for construction would ensure that effects would be limited. The estimated time required to implement Alternative S-3 is approximately 2 years.

Similar to Alternative S-2, the GSR evaluation revealed that the environmental footprint related to implementation of this alternative would primarily be associated with greenhouse gas emissions and energy use attributable to material consumption and equipment use during construction. The inclusion of excavation and off-site disposal of Tier 1 locations does not contribute significantly to the environmental footprint associated with installation of durable covers. A portion of Parcel E is industrial and contains existing covers and ruderal habitat, resulting in low-quality terrestrial habitat; therefore, the adverse environmental impact of implementing this alternative would be low. This alternative could be implemented in a short period of time (2 years), so the period during which workers and the environment would be exposed to short-term risks would be minimal.

The overall rating for Alternative S-3 for the short-term effectiveness is good.

5.1.3.6. Implementability: Alternative S-3

Implementability includes technical and administrative feasibility and availability of required resources. Alternative S-3 would be technically feasible, although there would be significant site activity during implementation. This alternative is easily implemented because excavating, hauling, backfilling, grading, installing covers, and repairing existing concrete and asphalt covers are conventional and commonplace technologies. In addition, the institutional controls are easy to administratively implement. The overall rating for Alternative S-3 for implementability is very good.

5.1.3.7. Cost: Alternative S-3

The total capital and O&M costs and parameters used to derive present worth costs for Alternative S-3 are presented in Table 5-1 and detailed in Appendix E. The overall rating for Alternative S-3 for cost is good.

5.1.3.8. Overall Rating: Alternative S-3

The overall rating for Alternative S-3 is good. Long-term exposure to COCs would be reduced through excavation of soil from Tier 1 locations. Institutional controls would prevent exposure to all remaining COCs, and short-term exposure would be reduced through soil covers for all redevelopment blocks.

5.1.4. Detailed Analysis of Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection

Alternative S-4 consists of (1) excavation and off-site disposal of soil from Tier 1 and Tier 2 locations, and (2) covers, institutional controls, and shoreline protection to limit exposure to COCs in soil and shoreline sediments that are left in place. Excavation of Tier 1 and Tier 2 locations would remove soils with COC concentrations equal to or exceeding 10 times and 5 times the PRGs, respectively. Additionally, Alternative S-4 includes SVE and treatment to remove and treat VOCs in vadose zone soil at Building 406.

5.1.4.1. Overall Protection of Human Health and the Environment: Alternative S-4

Alternative S-4 provides protection to human health and the environment because it would remove (either through excavation or SVE) soil contaminated with COCs that present unacceptable risk for the planned reuse. Soil containing COCs at concentrations equal to or greater than 5 times the PRGs would be removed under this alternative and disposed of off site at an appropriately permitted off-site disposal facility. After receipt of acceptable post-excavation confirmation sampling results, excavations would be backfilled with clean soil meeting stringent chemical and radiological acceptance criteria. The entire redevelopment block would be covered with soil, HDPE geomembrane, or asphalt, thus eliminating the direct exposure pathway to remaining soil contamination that poses an unacceptable risk. Covers would be maintained in accordance with pertinent ARARs, and institutional controls would be implemented parcel-wide to prevent potential exposure to unacceptable risks posed by COCs in soil and shoreline sediment. The rating for Alternative S-4 for the overall protection of human health and the environment is protective.

5.1.4.2. Compliance with ARARs: Alternative S-4

Alternative S-4 includes both institutional controls and response actions. Both action- and chemical-specific ARARs associated with this alternative would be met. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative S-4 would meet ARARs. The overall rating for Alternative S-4 for compliance with ARARs is meets ARARs.

5.1.4.3. Long-Term Effectiveness and Permanence: Alternative S-4

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative S-4, contaminated soil in excavated areas would be removed and disposed of off site. Excavation would continue until results of confirmation samples indicated remediation goals for COCs are met or until excavations reach a depth of 10 feet bgs in residential areas and 2 feet bgs in recreational areas. Areas with chemical concentrations remaining above remediation goals would be addressed by implementing covers and institutional controls. As a result, the exposure pathways would be eliminated. If intrusive activities (such as excavation or

subsurface utility excavation) are performed, risk to site workers would be minimized because contaminated soil from Tier 1 and Tier 2 locations would be removed from the site. Long-term effectiveness and permanence in areas where the soil containing COCs would be excavated is rated as excellent. VOCs in soil at Building 406 would be removed by SVE and treated, enhancing the long-term effectiveness of this alternative. In areas where only covers and institutional controls are used, the adequacy and reliability of this alternative are very good. The adequacy and reliability of the institutional controls depend on monitoring and maintenance of the covers and other land use and deed restrictions to continue their effectiveness.

The overall rating for Alternative S-4 for long-term effectiveness and permanence is excellent.

5.1.4.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative S-4

Alternative S-4 includes excavation and off-site disposal of soil at Tier 1 and Tier 2 locations, placement of covers over contaminated soil, SVE, shoreline protection, and implementation of institutional controls. This alternative includes an SVE system in one geographic area that would reduce the volume of VOCs in soil through treatment, but does not result in parcel-wide treatment that would result in the destruction, transformation, or irreversible reduction in contaminant mobility. The overall rating for Alternative S-4 for the reduction of mobility, toxicity, and volume through treatment is good.

5.1.4.5. Short-Term Effectiveness: Alternative S-4

Under Alternative S-4, the community would be protected during implementation by containment controls such as dust suppression during excavation and cover installation, and use of covers over the hauling trucks during off-site transportation. The total volume of excavation is approximately 46,200 cubic yards, or more than 2,310 truckloads (20 cubic yards per truck). Risks to the community and current occupants may occur during excavation and transportation of contaminated soil; however, these risks would be minimized by implementing containment controls, such as monitoring for and suppression of dust during excavation, limited hours of operation, rules minimizing truck idling, and covers over the haul trucks during off-site transportation. Alternative S-4 would pose added risks to the community and current occupants by increased construction traffic. Clean, approved soil or asphalt would be imported to backfill the excavations, and haul trucks would cover their loads and adhere to a traffic plan to reduce noise and traffic concerns of the community.

Construction of the SVE system would be minimally intrusive, and its startup and operation could be implemented in a short period of time. SVE would be effective in rapidly reducing VOC concentrations in soil at Building 406; more so if combined with air sparging (see Alternative GW-4; Section 5.3.5).

Workers would be protected during soil excavation by implementing containment controls. Containment controls would include monitoring for and suppression of dust during excavation, stockpiling, and loading trucks and following health and safety protocols, including PPE and decontamination procedures. The

institutional controls would require installing and maintaining barriers, fences, and signs throughout the construction period. Health and safety requirements and PPE protocols would be enforced to minimize worker exposure during these activities. BMPs for construction would ensure that effects would be limited. The estimated time required to implement Alternative S-4 is approximately 2 years.

Similar to Alternatives S-2 and S-3, the GSR evaluation revealed that the environmental footprint related to the implementation of this alternative would primarily be associated with greenhouse gas emissions and energy use attributable to material consumption and equipment use during construction. The inclusion of excavation and off-site disposal of Tier 1 and Tier 2 locations does not contribute significantly to the environmental footprint associated with the installation of durable covers. A portion of Parcel E is industrial and contains existing covers and ruderal habitat, resulting in low-quality terrestrial habitat; therefore, the adverse environmental impact of implementing this alternative would be low. This alternative could be implemented in a short period of time (2 years), so the period during which workers and the environment would be exposed to short-term risks would be minimal.

The overall rating for Alternative S-4 for the short-term effectiveness, including implementing the institutional controls, is good.

5.1.4.6. Implementability: Alternative S-4

Implementability includes technical and administrative feasibility and availability of required resources. Alternative S-4 would be technically feasible, although significant site activity would occur during implementation. This alternative is easily implemented because excavating, hauling, backfilling, grading, installing covers and SVE systems, and repairing existing concrete and asphalt covers are conventional and commonplace technologies. In addition, the institutional controls are easy to administratively implement. The overall rating for Alternative S-4 for implementability is very good.

5.1.4.7. Cost: Alternative S-4

The total capital and O&M costs and parameters used to derive present worth costs for Alternative S-4 are presented in Table 5-1 and detailed in Appendix E. The overall rating for Alternative S-4 for cost is good.

5.1.4.8. Overall Rating: Alternative S-4

The overall rating for Alternative S-4 is very good. Under Alternative S-4, long-term exposure to COCs would be reduced through excavation of soils at Tier 1 and Tier 2 locations. VOCs in soil at Building 406 would be actively removed and treated using SVE and treatment technologies. Institutional controls would prevent exposure to all remaining COCs, and short-term exposure would be reduced through soil covers for all redevelopment blocks.

5.2. COMPARISON OF SOIL REMEDIAL ALTERNATIVES

This section compares the four soil alternatives. The discussion of each evaluation criterion generally proceeds from the alternative that best satisfies the criterion to the one that least satisfies the criterion. Table 5-2 summarizes the rating for each alternative and shows a comparison of each alternative's ratings for the two threshold and five balancing NCP evaluation criteria. Table 5-3 summarizes the evaluation of each alternative compared to the five balancing criteria.

5.2.1. Overall Protection of Human Health and the Environment

Overall protection of human health and the environment is a threshold criterion. Protection is not measured by degree; rather, each alternative is considered as either protective or not protective. Alternatives S-2, S-3, and S-4 are protective; Alternative S-1 is not protective. Alternatives S-2, S-3, and S-4 protect human health and the environment under the anticipated future land use of the parcel. Alternative S-1 does not address any risks at the site, thus it does not provide sufficient protection to human health or the environment.

5.2.2. Compliance with Applicable or Relevant and Appropriate Requirements

Compliance with ARARs is a threshold evaluation criterion. An alternative must either comply with ARARs or provide grounds for a waiver. Alternatives S-2, S-3, and S-4 comply with all of the pertinent ARARs. An evaluation of ARARs for Alternative S-1 is not applicable.

5.2.3. Long-Term Effectiveness and Permanence

Long term effectiveness and permanence of Alternative S-4 is rated the highest because it would remove the most COC-contaminated soil. The magnitude of residual risks remaining after the response action would be highest for Alternative S-2, which relies on covers to meet the RAOs, and lower for Alternatives S-3 and S-4, which implement excavations. Alternatives S-2, S-3, and S-4 would provide long-term effectiveness in meeting the RAOs through reliance on continual enforcement of deed restrictions to maintain covers and access restrictions. Alternative S-3 provides long-term effectiveness and permanence for soil contaminated with metals and organic chemicals, but relies on access restrictions for other COCs until the institutional controls are implemented. Alternative S-2 provides comprehensive soil coverage prior to development, but does not permanently remove any contamination; long-term effectiveness is good as long as the covers are maintained. Because no action would be taken under Alternative S-1, it does not provide any degree of long-term effectiveness.

5.2.4. Reduction of Mobility, Toxicity, or Volume through Treatment

Alternative S-4 would reduce both the mobility and volume of contaminated soil in a particular geographic area at the site, thus it is rated the highest (good). Alternatives S-1, S-2, and S-3 were all rated

as poor because they do not include treatment that would result in the destruction, transformation, or irreversible reduction in contaminant mobility.

5.2.5. Short-Term Effectiveness

Alternative S-1 has the least effect on the community, workers, or the environment during implementation because it includes no actions, so it was rated highest for short-term effectiveness. Alternative S-2 would similarly introduce minimal risk to the community, workers, or the environment because it does not include significant amounts of excavation, hauling, and disposal of contaminated soil. Alternatives S-3 and S-4 include removing and hauling large volumes of soil with contamination, which would pose potential risk to site workers, the community, and the environment. However, this risk is considered low since mitigation measures would be implemented to protect human health and the environment. Alternatives S-2, S-3, and S-4 would generate similarly sized environmental footprints, primarily associated with emissions and energy use from construction of the durable covers; however, the periods of construction for all three are relatively short (2 years) and would not significantly affect short-term effectiveness. Therefore, Alternatives S-3 and S-4 were rated equally as good with respect to short-term effectiveness.

5.2.6. Implementability

Alternatives S-2, S-3, and S-4 require implementation of institutional controls and active remediation. Installing covers and excavating soil (Alternatives S-3 and S-4) are standard technologies that are easy to implement and have been successfully implemented in the past at HPS. However, the large scale of the excavation operation decreases the implementability of Alternatives S-3 and S-4. Alternatives S-2, S-3, and S-4 all include protection of the entire Parcel E shoreline, which is equally implementable for each alternative. Alternative S-1 does not involve remedial technologies or institutional controls and is the easiest to implement.

5.2.7. Cost

Alternative S-1 requires no action; therefore, no costs are associated with this alternative. Alternative S-2 would incur relatively low costs ($35.2 million) because it includes no active remediation prior to property transfer. Alternatives S-3 and S-4 would incur higher costs ($48.7 million for Alternative S-3 and $50.2 million for Alternative S-4) because they all include excavation and off-site disposal of contaminated soil as a process options. Estimated capital and O&M costs for each alternative are summarized in Table 5-1.

5.2.8. Overall Rating of Soil Alternatives

An overall rating was assigned to each alternative (see Table 5-2). Alternative S-4 is rated very good overall for the two threshold and five balancing NCP evaluation criteria. Alternative S-3 is rated lower

mainly because it would be less effective in the long-term, as compared with Alternative S-4, because contaminated soil would not be removed at the Tier 2 locations. Alternative S-2 was rated very good overall, mainly because it would be relatively easy and inexpensive to implement and would not require any intrusive activities that could expose workers, the community, or the environment to risk in the short-term. The no-action alternative (Alternative S-1) was deemed not acceptable overall, because it does not satisfy the two threshold criteria.

5.3. DETAILED ANALYSIS OF GROUNDWATER ALTERNATIVES

This section evaluates each groundwater alternative in comparison with the two threshold and five balancing NCP evaluation criteria discussed in Section 5. Table 5-1 summarizes the costs for each alternative, and Table 5-4 summarizes each alternative's rating under the two threshold and five balancing NCP evaluation criteria.

5.3.1. Detailed Analysis of Alternative GW-1: No Action

Under Alternative GW-1, no response action would be taken. Groundwater at Parcel E would be left as is, without implementing any institutional controls, containment, removal, treatment, or other response actions.

5.3.1.1. Overall Protection of Human Health and the Environment: Alternative GW-1

Groundwater at Parcel E poses a risk to human health through the vapor intrusion pathway, and it poses a risk to aquatic wildlife through migration to San Francisco Bay. Alternative GW-1 does not provide remedial actions or institutional controls to (1) prevent direct exposure to, or reduce the amount of, COCs present in groundwater, or (2) to protect aquatic wildlife from potential migration of COECs to the bay. As a result, Alternative GW-1 is not protective of human health or the environment. The rating for Alternative GW-1 for overall protection of human health and the environment is not protective.

5.3.1.2. Compliance with ARARs: Alternative GW-1

There is no need to identify ARARs for the no-action alternative because ARARs apply to "any removal or remedial action conducted entirely on site" and "no action" is not a removal or remedial action. CERCLA § 121 (42 U.S.C. § 9621) cleanup standards for selection of a Superfund remedy, including the requirement to meet ARARs, are not triggered by the no-action alternative (EPA, 1991). Therefore, a discussion of compliance with ARARs is not appropriate.

5.3.1.3. Long-Term Effectiveness and Permanence: Alternative GW-1

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under the no-action alternative, contaminated groundwater presenting an unacceptable risk would not be reduced; therefore, this alternative would present an

unacceptable risk to human health. Because no treatment, engineering controls, or institutional controls would be implemented under this alternative, the adequacy and reliability of controls are poor. The rating for Alternative GW-1 for long-term effectiveness and permanence is not acceptable.

5.3.1.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative GW-1

Alternative GW-1 would not reduce the mobility, toxicity, or volume of hazardous substances at Parcel E because groundwater would not be treated, contained, or removed. The overall rating for Alternative GW-1 for the reduction of mobility, toxicity, or volume through treatment is poor.

5.3.1.5. Short-Term Effectiveness: Alternative GW-1

Because no response action would be taken, Alternative GW-1 would not present any new health risks to the community and current occupants. No workers would be exposed to health risks, and no adverse environmental effects would result from construction and implementation of Alternative GW-1. Alternative GW-1 would not require any implementation time. Based on this evaluation, the overall rating for Alternative GW-1 for short-term effectiveness is excellent.

5.3.1.6. Implementability: Alternative GW-1

Implementability includes technical and administrative feasibility and the availability of required resources. No construction or operation is required to implement this alternative. As a result, Alternative GW-1 is technically and administratively feasible and does not require any resources. The overall rating for Alternative GW-1 for implementability is excellent.

5.3.1.7. Cost: Alternative GW-1

No capital or O&M costs are associated with Alternative GW-1. The rating for Alternative GW-1 for costs is excellent.

5.3.1.8. Overall Rating: Alternative GW-1

Alternative GW-1 does not meet the threshold criteria; therefore, Alternative GW-1 is not acceptable.

5.3.2. Detailed Analysis of Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring

Alternative GW-2 consists of institutional controls and long-term groundwater monitoring.

5.3.2.1. Overall Protection of Human Health and the Environment: Alternative GW-2

Alternative GW-2 would protect human health because it would prevent direct exposure to contaminated groundwater and vapors through the implementation of institutional controls. The institutional controls would prevent human exposure to contaminated groundwater; however, active treatment of contamination in groundwater is not included in this alternative.

Ecological receptors are not present in the groundwater. No water quality criteria exist for groundwater to protect marine organisms in nearby surface water. The California Toxics Rule applies at the interface of San Francisco Bay and the A-aquifer, but not directly in the A-aquifer groundwater. Trigger levels for COECs in A-aquifer groundwater, developed in Appendix A, are exceeded in several A-aquifer monitoring wells at Parcel E. The trigger levels were developed to serve as location-specific comparison values for groundwater to identify when additional evaluation may be necessary. The trigger-level evaluation is considered overly conservative because trigger levels only account for hydrodynamic dispersion in groundwater transport and ignore attenuation in the tidal zone or attenuation from discharge to the bay. Further modeling or studies following additional monitoring may find that there is no impact to the bay. In the absence of site-specific hydrodynamic information, it is conservatively assumed that a potential remains for impact to the bay. Therefore, Alternative GW-2 may not be protective for the environment.

The rating for Alternative GW-2 for overall protection of human health and the environment is not protective.

5.3.2.2. Compliance with ARARs: Alternative GW-2

Alternative GW-2 complies with chemical-specific ARARs for groundwater because institutional controls would restrict activities that could expose humans to chemicals in groundwater, thereby blocking the exposure pathway to concentrations exceeding the PRGs. However, based on the trigger level evaluation, several A-aquifer locations at Parcel E may result in discharges to the bay at concentrations exceeding chemical-specific ARARs for surface water. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. Action-specific ARARs for groundwater monitoring would be met by developing and implementing appropriate work procedures. The overall rating for Alternative GW-2 for compliance with the ARARs is does not meet ARARs.

5.3.2.3. Long-Term Effectiveness and Permanence: Alternative GW-2

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative GW-2, risks from exposure to groundwater COCs would be reduced because institutional controls would limit exposure to groundwater by potential human receptors. The HHRA concluded that risk due to vapor intruding into buildings exists at the site (Barajas & Associates, Inc., 2008b). The potential exists for vapor to enter through future building slabs and utility lines. However, these risks would be reduced through implementation of institutional controls that would require new construction to incorporate vapor mitigation controls into the facility design. The potential risks from contaminated groundwater migrating to San Francisco Bay remains unchanged except by natural processes.

Natural processes are expected to reduce concentrations very slowly at Parcel E. Although the presence of microbial activity has been demonstrated at other locations at HPS, the data do not suggest that natural

processes alone would reduce COEC concentrations at Parcel E to below trigger levels within 30 years. The adequacy and reliability of this alternative depends primarily on the maintenance and enforcement of access restrictions. The reliability and adequacy of the long-term monitoring program and the reliability of natural processes also affect the effectiveness of this alternative.

A LUC RD document would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement for the institutional controls and the groundwater monitoring program. The control on natural processes would be established in the monitoring program; these controls may include sentry wells between plume source areas and the bay and the use of associated trigger levels for COECs.

Overall, the rating for Alternative GW-2 for the long-term effectiveness and permanence is poor.

5.3.2.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative GW-2

Alternative GW-2 would not reduce the mobility, toxicity, or volume of hazardous substances at Parcel E because groundwater would not be treated, contained, or removed. The overall rating for Alternative GW-2 for the reduction of mobility, toxicity, or volume through treatment is poor.

5.3.2.5. Short-Term Effectiveness: Alternative GW-2

Alternative GW-2 would not present any new risks to the community. Minimal health risks would be posed by the installation of monitoring wells to expand the existing well network. Minimal risk to workers would be posed during baseline groundwater sampling events, but proper PPE and appropriate health and safety protocols would minimize these risks. The GSR evaluation revealed that the small environmental footprint related to the implementation of long-term monitoring would be primarily associated with emissions, residual handling, and equipment use during well drilling activities. Although risks (to human health and the environment) exist from the groundwater contamination at the site, monitoring would allow for evaluation of those risks and would be used to ensure that institutional controls are effective in reducing the risk of exposure.

Based on this evaluation, the overall rating for Alternative GW-2 for short-term effectiveness is very good.

5.3.2.6. Implementability: Alternative GW-2

Implementability includes technical and administrative feasibility and the availability of required resources. Construction or O&M to implement Alternative GW-2 would be minimal; therefore, this alternative is technically and administratively feasible. Long-term groundwater monitoring is a routine activity and requires a moderate level of routinely available resources.

The overall rating for Alternative GW-2 for implementability is excellent.

5.3.2.7. Cost: Alternative GW-2

The total capital and O&M costs for Alternative GW-2 are presented in Table 5-1 and detailed in Appendix E. The capital costs to implement long-term monitoring and institutional controls are very low. Periodic monitoring costs would also be low, because the monitoring program would be optimized every few years to reduce unnecessary monitoring.

The overall rating of Alternative GW-2 for cost is very good.

5.3.2.8. Overall Rating: Alternative GW-2

Alternative GW-2 is not protective of human health and the environment, and it does not meet ARARs; therefore, it is rated as not acceptable.

5.3.3. Detailed Analysis of Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-3A consists of implementation of ISB to treat groundwater plumes containing organic chemicals, followed by MNA and institutional controls. This alternative also includes installation of groundwater diversion barrier (slurry wall) downgradient of the IR-02 Northwest metals plume. Site-wide groundwater monitoring would also be implemented under this alternative.

5.3.3.1. Overall Protection of Human Health and the Environment: Alternative GW-3A

Alternative GW-3A protects human health because it would reduce COC concentrations in groundwater at Parcel E. The environment would be protected through installation of a groundwater diversion structure (slurry wall), thus preventing migration of nearshore COEC contamination to San Francisco Bay. Until remediation goals are met, institutional controls would be implemented to prevent exposures to contaminated groundwater and vapors associated with groundwater. The overall rating for Alternative GW-3A for overall protection of human health and the environment is protective.

5.3.3.2. Compliance with ARARs: Alternative GW-3A

Chemical-specific ARARs for Alternative GW-3A would be met through active treatment, groundwater containment, and institutional controls to prevent exposure to COCs or COECs at unacceptable concentrations. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. Action-specific ARARs would be met through design of a treatment approach and developing and implementing appropriate work procedures. The overall rating for Alternative GW-3A for compliance with the ARARs is meets ARARs.

5.3.3.3. Long-Term Effectiveness and Permanence: Alternative GW-3A

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative GW-3A, short-term risks to

groundwater contamination would be reduced by preventing a complete exposure pathway to potential human receptors through institutional controls. Long-term risks would be reduced through treatment to achieve remediation goals. The adequacy and reliability of this alternative in the interim would depend on maintenance and enforcement of the access restrictions.

The potential for vapor intrusion currently exists at the site, and would continue if the site is redeveloped before completion of the remedy (that is, attainment of remediation goals). Some potential would exist for vapor to enter through building slabs and utility lines. However, these risks would be reduced through implementation of institutional controls that would require new construction to incorporate vapor mitigation controls into the facility design if redevelopment is to begin before completion of the remedy. A LUC RD would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement of the institutional controls and the groundwater monitoring program. The treatment of groundwater plumes would provide permanent risk reduction. Alternative GW-3A would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

The overall rating for Alternative GW-3A for the long-term effectiveness and permanence is very good.

5.3.3.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative GW-3A

Alternative GW-3A would reduce the toxicity and mobility of COCs and COECs and reduce the volume of contaminated groundwater at Parcel E. ISB would reduce the toxicity of organic COCs by degrading them to harmless compounds, although this process may be time-consuming at Building 406, where plume concentrations are highest at the site. Installation of the groundwater diversion structure (slurry wall) at IR-02 Northwest would reduce the mobility of chemicals in groundwater at that location. MNA would monitor the continued degradation of residual COCs by biodegradation and other processes after active bioremediation ends. The overall rating for Alternative GW-3A for the reduction of mobility, toxicity, or volume through treatment is very good.

5.3.3.5. Short-Term Effectiveness: Alternative GW-3A

Under Alternative GW-3A, and similar with the soil alternatives (including excavation), the community would be protected during implementation by containment controls such as dust suppression during excavation and use of covers over the hauling trucks during off-site transportation. Measures also would be implemented to protect site workers during construction activities.

Under Alternative GW-3A, the active treatment would not present health risks to the community and future occupants because the treatment is applied as an in-situ injection and the injected materials are not toxic. The risk from groundwater monitoring would be minimal and is less than the long-term monitoring proposed for Alternative GW-2 due to the potential for a shorter monitoring duration. Workers applying the treatment would not be exposed to contaminated groundwater because the active treatment is applied

as an in-situ injection. The risk to workers during groundwater baseline monitoring would be minimized through the use of proper handling of groundwater samples and appropriate PPE during sampling efforts. The GSR evaluation revealed that the environmental footprint related to implementation of ISB, slurry wall, MNA, and monitoring would be primarily associated with air emissions, residual handling, and equipment use during well drilling and slurry wall construction. Some environmental effects would be reduced through implementation of BMPs, such as use of best available emission control devices on drilling and construction equipment. Environmental impacts in the areas where the treatment would be injected are minor because of the industrial use of the areas. Similarly, the short-term increase in traffic during active treatment and monitoring would have minimal environmental effects. The overall rating for the short-term effectiveness is Alternative GW-3A is very good.

5.3.3.6. Implementability: Alternative GW-3A

Implementability includes technical and administrative feasibility and the availability of required resources. Groundwater diversion structures (slurry walls) are easy to implement. Also, a similar groundwater diversion structure has been successfully implemented in the past along the HPS shoreline.

Pilot studies at HPS demonstrated that injection treatment is feasible at HPS (Shaw, 2005 and 2011; TtEMI, 2003b; ITSI, 2005). Treatment requires a moderate level of resources. The major difficulty with implementing injection technologies during pilot studies at HPS has been mass transfer of the treatment substrate to the chemicals. Site-specific pilot studies would be required to determine design factors such as radii of influence. Data from the pilot studies, as well as the lithology of the treatment area, would be used to determine sufficient injection points for treatment additives to optimize their success.

Groundwater monitoring is a routine activity and requires a moderate level of resources. Monitoring would be required for each plume until concentrations of COCs meet remediation goals or until the plumes are stable.

The overall rating for Alternative GW-3A for implementability is very good.

5.3.3.7. Cost: Alternative GW-3A

The total capital and O&M costs for Alternative GW-3A are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. The costs for in-situ treatment are moderate to high for Alternative GW-3A.

The overall rating for Alternative GW-3A for cost of implementing is good.

5.3.3.8. Overall Rating: Alternative GW-3A

Alternative GW-3A meets ARARs and protects human health and the environment through active treatment, containment, and institutional controls. The environment is further protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. The alternative is easily implemented with minimal effect to the community, if proper protective measures are used throughout the construction process. Additionally, the alternative effectively reduces mobility, toxicity, and volume of chemicals through treatment. The overall rating for Alternative GW-3A is very good.

5.3.4. Detailed Analysis of Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-3B consists of implementation of ISB to treat organic chemicals in groundwater at all VOC plumes, except at the Building 406 TCE plume. At Building 406, ZVI would be implemented (instead of ISB) to treat the plume at that location. ISB and ZVI treatment would be followed by MNA and institutional controls. This alternative also includes installation of a groundwater diversion barrier (slurry wall) downgradient of the IR-02 Northwest metals plume. Site-wide groundwater monitoring would be implemented under this alternative.

5.3.4.1. Overall Protection of Human Health and the Environment: Alternative GW-3B

Alternative GW-3B protects human health because it would reduce COC concentrations in groundwater at Parcel E. The environment would be protected through installation of a groundwater diversion structure (slurry wall), thus preventing migration of nearshore COECs to San Francisco Bay. Until remediation goals are met, institutional controls would be implemented to prevent exposures to contaminated groundwater and vapors associated with groundwater. The overall rating for Alternative GW-3B for overall protection of human health and the environment is protective.

5.3.4.2. Compliance with ARARs: Alternative GW-3B

Chemical-specific ARARs pertinent to Alternative GW-3B would be met through active treatment of chemicals in groundwater and institutional controls to achieve acceptable risk levels. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. Action-specific ARARs would be met through design of a treatment approach and developing and implementing appropriate work procedures. The overall rating for Alternative GW-3B for compliance with the ARARs is meets ARARs.

5.3.4.3. Long-Term Effectiveness and Permanence: Alternative GW-3B

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative GW-3B, ZVI would be implemented at

the Building 406 TCE Plume because it is effective in treating the high-concentration VOCs that may be present at that plume.

Under Alternative GW-3B, short-term risks to groundwater contamination would be reduced by preventing a complete exposure pathway to potential human receptors through institutional controls. Long-term risks would be reduced through treatment to achieve remediation goals. The adequacy and reliability of this alternative in the interim would depend on maintenance and enforcement of the access restrictions.

The potential for vapor intrusion currently exists at the site, and would continue if the site is redeveloped before completion of the remedy (that is, attainment of remediation goals). Some potential would exist for vapor to enter through building slabs and utility lines. However, these risks would be reduced through implementation of institutional controls that would require new construction to incorporate vapor mitigation controls into the facility design if redevelopment is to begin before completion of the remedy. A LUC RD would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement of the institutional controls and the groundwater monitoring program. The treatment of groundwater plumes would provide permanent risk reduction. Alternative GW-3B would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

The overall rating for Alternative GW-3B for the long-term effectiveness and permanence is very good.

5.3.4.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative GW-3B

Alternative GW-3B would reduce the toxicity and mobility of COCs and COECs, and reduce the volume of contaminated groundwater at Parcel E. ISB and ZVI would reduce the toxicity of organic COCs by degrading them to harmless compounds. The installation of the groundwater diversion structure (slurry wall) at IR-02 Northwest would reduce the mobility of the contaminants in the site. MNA would monitor the continued degradation of residual COCs by biodegradation and other processes after active bioremediation ends. The overall rating for Alternative GW-3B for the reduction of mobility, toxicity, or volume through treatment is very good.

5.3.4.5. Short-Term Effectiveness: Alternative GW-3B

Under Alternative GW-3B, similar with the soil alternatives (including excavation), the community would be protected during implementation by containment controls such as dust suppression during excavation and use of covers over the hauling trucks during off-site transportation. Measures also would be implemented to protect site workers during construction activities.

Under Alternative GW-3B, the active treatment would not present health risks to the community and future occupants because the treatment is applied as an in-situ injection and the injected materials are not

toxic. The risk from groundwater monitoring would be minimal and is less than the long-term monitoring proposed for Alternative GW-2 due to the potential for a shorter monitoring duration. Workers applying the treatment would not be exposed to contaminated groundwater because the active treatment is applied as an in-situ injection. The risk to workers during groundwater baseline monitoring would be minimized through the use of proper handling of groundwater samples and appropriate PPE during sampling efforts. The GSR evaluation revealed that the environmental footprint related to implementation of ISB, ZVI, slurry wall, MNA, and monitoring would be primarily associated with air emissions, residual handling, and equipment use during well drilling and slurry wall construction. Some environmental effects would be reduced through implementation of BMPs, such as use of best available emission control devices on drilling and construction equipment. Environmental impacts in the areas where the injection treatment would be applied are minor because of the industrial use of the areas. Similarly, the short-term increase in traffic during active treatment and monitoring would have minimal environmental effect. The overall rating for the short-term effectiveness of Alternative GW-3B is very good.

5.3.4.6. Implementability: Alternative GW-3B

Implementability includes technical and administrative feasibility and the availability of required resources. Groundwater diversion structures (slurry walls) are easy to implement. Also, a similar groundwater diversion structure has been successfully implemented in the past along the HPS shoreline.

Pilot studies at HPS demonstrated that injection treatment is feasible at HPS (Shaw, 2005 and 2011; TtEMI, 2003; ITSI, 2005). Treatment requires a moderate level of resources. The major difficulty with implementing injection technologies during pilot studies at HPS has been mass transfer of the treatment substrate to the chemicals. Site-specific pilot studies would be required to determine design factors such as radii of influence. Data from the pilot studies, as well as the lithology of the treatment area, would be used to determine sufficient injection points for treatment additives to optimize their success.

Groundwater monitoring is a routine activity and requires a moderate level of resources. Monitoring would be required for each plume until concentrations of COCs meet remediation goals or until the plumes are stable.

The overall rating for Alternative GW-3B is very good.

5.3.4.7. Cost: Alternative GW-3B

The total capital and O&M costs for Alternative GW-3B are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. The costs for in-situ treatment are moderate to high for Alternative GW-3B. The overall rating for Alternative GW-3B for cost of implementing is poor.

5.3.4.8. Overall Rating: Alternative GW-3B

Alternative GW-3B meets ARARs and protects human health and the environment through active treatment, containment, and institutional controls. The environment is further protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. The alternative is easily implemented with minimal effect to the community, if proper protective measures are used throughout the construction process. Additionally, the alternative effectively reduces mobility, toxicity, and volume of chemicals through treatment. The inclusion of ZVI treatment in this alternative would be effective in treating high-concentration VOCs that may be present at the Building 406 TCE Plume. The overall rating for Alternative GW-3B is very good.

5.3.5. Detailed Analysis of Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-4 is intended for use in conjunction with Alternative S-4. Alternative GW-4 consists of implementation of ISB to treat organic chemicals in groundwater at all VOC plumes, except at the Building 406 TCE plume. At Building 406, air sparging would be implemented (instead of ISB) to supplement SVE under Alternative S-4 to treat the plume at that location. ISB and air sparging and treatment would be followed by MNA and institutional controls. This alternative also includes installation of groundwater diversion structure (slurry wall) downgradient of the IR-02 Northwest metals plume. Site-wide groundwater monitoring would be implemented under this alternative.

5.3.5.1. Overall Protection of Human Health and the Environment: Alternative GW-4

Alternative GW-4 protects human health because it would reduce COC concentrations in groundwater at Parcel E. The environment would be protected through installation of a groundwater diversion structure (slurry wall), thus preventing migration of nearshore COECs to San Francisco Bay. Until remediation goals are met, institutional controls would be implemented to prevent exposures to contaminated groundwater and vapors associated with groundwater. The overall rating for Alternative GW-4 for overall protection of human health and the environment is protective.

5.3.5.2. Compliance with ARARs: Alternative GW-4

Chemical-specific ARARs for Alternative GW-4 would be met through active treatment of chemicals in groundwater and institutional controls to achieve acceptable risk levels. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. Action-specific ARARs would be met through design of a treatment approach and developing and implementing appropriate work procedures. The overall rating for Alternative GW-4 for compliance with the ARARs is meets ARARs.

5.3.5.3. Long-Term Effectiveness and Permanence: Alternative GW-4

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative GW-4, air sparging, in conjunction with SVE, would be implemented at Building 406 to treat the most expansive plume at Parcel E. This technology is effective for accelerating the removal and treatment of VOCs in groundwater plumes. However, in heterogeneous soil, stripping dissolved-phase chemicals from groundwater could pose challenges in adequately capturing VOC emissions from the unsaturated zone.

Under Alternative GW-4, short-term risks to groundwater contamination would be reduced by preventing a complete exposure pathway to potential human receptors through institutional controls. Long-term risks would be reduced through treatment to achieve remediation goals. The adequacy and reliability of this alternative in the interim would depend on maintenance and enforcement of the access restrictions.

The potential for vapor intrusion currently exists at the site, and would continue if the site is redeveloped before completion of the remedy (that is, attainment of remediation goals). Some potential would exist for vapor to enter through building slabs and utility lines. However, these risks would be reduced through implementation of institutional controls that would require new construction to incorporate vapor mitigation controls into the facility design if redevelopment is to begin before completion of the remedy. A LUC RD would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement of the institutional controls and the groundwater monitoring program. The treatment of groundwater plumes would provide permanent risk reduction. Alternative GW-4 would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

The overall rating for Alternative GW-4 for long-term effectiveness and permanence is good.

5.3.5.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative GW-4

Alternative GW-4 would reduce the toxicity and mobility of COCs and COECs and reduce the volume of contaminated groundwater at Parcel E. Aerobic and anaerobic bioremediation (at all plumes other than the Building 406 TCE Plume) under Alternative GW-4 would degrade COCs to harmless compounds. Air sparging at Building 406 would remove VOCs; however, the presence of heterogeneous fill material could limit the effectiveness of the VOC removal and treatment if the injected air is distributed irregularly in the saturated zone. The installation of the groundwater diversion structure (slurry wall) at the IR-02 Northwest metals plume would reduce the mobility of chemicals at the site. MNA would monitor the continued degradation of residual COCs by biodegradation and other processes after active bioremediation ends. The overall rating for Alternative GW-4 for the reduction of mobility, toxicity, or volume through treatment is good.

5.3.5.5. Short-Term Effectiveness: Alternative GW-4

Under Alternative GW-4, similar with the soil alternatives (including excavation), the community would be protected during implementation by containment controls such as dust suppression during excavation and use of covers over the hauling trucks during off-site transportation. Measures also would be implemented to protect site workers during construction activities.

Under Alternative GW-4, the active treatment would not present health risks to the community and future occupants because the treatment is applied as an in-situ injection and the injected materials are not toxic. The risk from groundwater monitoring would be minimal and is less than the long-term monitoring proposed for Alternative GW-2 due to the potential for a shorter monitoring duration. Workers applying the treatment would not be exposed to contaminated groundwater because the active treatment is applied as an in-situ injection. The risk to workers during groundwater baseline monitoring would be minimized through the use of proper handling of groundwater samples and appropriate PPE during sampling efforts. The GSR evaluation revealed that Alternative GW-4 would produce a large environmental footprint because of the operation of the SVE and air sparging system in addition to implementation of ISB, slurry wall, MNA, and monitoring. Operation of the SVE and air sparging system contributes significantly to air emissions and energy usage because of the equipment use. Some environmental impacts would be reduced through implementation of BMPs, such as use of best available emission control devices on drilling and construction equipment and optimization of SVE and air sparging equipment operation. The short-term increase in traffic during active treatment and monitoring would have minimal environmental effect because of the industrial use of the areas. The overall rating for the short-term effectiveness is Alternative GW-4 is good.

5.3.5.6. Implementability: Alternative GW-4

Implementability includes technical and administrative feasibility and the availability of required resources. Groundwater diversion structures (slurry walls) are easy to implement. Also, a similar groundwater diversion structure has been successfully implemented in the past along the HPS shoreline.

Pilot studies at HPS demonstrated that injection treatment is feasible at HPS (Shaw, 2005 and 2011; TtEMI, 2003; ITSI, 2005). Treatment requires a moderate level of resources. The major difficulty with implementing injection technologies during pilot studies at HPS has been mass transfer of the treatment substrate to the chemicals. Site-specific pilot studies would be required to determine design factors such as radii of influence. Data from the pilot studies, as well as the lithology of the treatment area, would be used to determine a sufficient density of air sparging and SVE wells, as well as injection points for treatment additives, to optimize the success of the in-situ treatment.

Groundwater monitoring is a routine activity and requires a moderate level of resources. Monitoring would be required for each plume until concentrations of COCs meet remediation goals or until the plumes are stable.

The overall rating for Alternative GW-4 is very good.

5.3.5.7. Cost: Alternative GW-4

The total capital and O&M costs for Alternative GW-4 are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. The costs for in-situ treatment are moderate to high for Alternative GW-4. The overall rating for Alternative GW-4 for cost of implementing is poor.

5.3.5.8. Overall Rating: Alternative GW-4

Alternative GW-4 meets ARARs and protects human health and the environment through active treatment, containment, and institutional controls. The environment is further protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. However, the inclusion of air sparging (coupled with SVE) at the Building 406 TCE Plume poses several challenges. The performance of air sparging may be limited by the presence of heterogeneous soil, which poses challenges in effectively removing VOCs from groundwater and adequately capturing VOC emissions from the unsaturated zone. In addition, Alternative GW-4 would produce a large environmental footprint because of the operation of the SVE and air sparging system in addition to implementation of ISB, slurry wall, MNA, and monitoring. The alternative is readily implemented with minimal effect to the community, if proper protective measures are used throughout the construction process. The overall rating for Alternative GW-4 is good.

5.4. COMPARISON OF GROUNDWATER REMEDIAL ALTERNATIVES

This section compares the five groundwater alternatives. The discussion of each evaluation criterion generally proceeds from the alternative that best satisfies the criterion to the one that least satisfies the criterion. Table 5-4 summarizes the ratings for each alternative and shows a comparison of each alternative's ratings for the seven NCP evaluation criteria. Table 5-5 summarizes the evaluation of each alternative compared to the five balancing criteria.

5.4.1. Overall Protection of Human Health and the Environment

Overall protection of human health and the environment is a threshold criterion. Protection is not measured by degree; rather, each alternative is considered either protective or not protective. Alternatives GW-3A, GW-3B, and GW-4 are protective of human health and the environment. Alternative GW-2 is protective of human health but is not protective of aquatic wildlife. Alternative GW-1 is not protective. Alternatives GW-3A,

GW-3B, and GW-4 would accelerate the degradation of chemicals that would result in reducing the duration of implementation and allow for reduction in the longevity of some institutional controls over time.

5.4.2. Compliance with Applicable or Relevant and Appropriate Requirements

Compliance with ARARs is a threshold evaluation criterion. An alternative must either comply with ARARs or provide grounds for a waiver. Alternatives GW-3A, GW-3B, and GW-4 meet all of the pertinent ARARs. Alternative GW-2 does not meet all of the pertinent ARARs. An evaluation of ARARs for Alternative GW-1 is not applicable.

5.4.3. Long-Term Effectiveness and Permanence

Alternatives GW-3A and GW-3B would provide the highest level of long-term effectiveness and permanence because COCs and COECs would be degraded or immobilized using treatment technologies that have been successfully implemented at other HPS sites. Alternative GW-4 was rated slightly lower because the air sparging (proposed for the Building 406 TCE Plume) may be limited by the presence of heterogeneous soil, which poses challenges in adequately capturing VOC emissions from the unsaturated zone. Alternative GW-2 would provide a poor level of long-term effectiveness and permanence because human health risk would be addressed only through institutional controls and potential ecological risk may not be addressed at all. Alternative GW-1 would not provide an acceptable level of long-term effectiveness and permanence.

5.4.4. Reduction of Mobility, Toxicity, or Volume through Treatment

Alternatives GW-3A and GW-3B are rated the highest because they all reduce the toxicity and/or mobility of COCs and COECs, as well as the volume of contaminated groundwater by active treatment of COCs and COECs through both aerobic and anaerobic degradation. Alternative GW-4 was rated slightly lower because the air sparging (proposed for the Building 406 TCE Plume) may be limited by the presence of heterogeneous soil, which poses challenges in effectively removing and treating VOCs from groundwater. Alternatives GW-1 and GW-2 would not reduce the toxicity or volume of chemicals, other than through the natural recovery of the aquifer.

5.4.5. Short-Term Effectiveness

Alternative GW-1 has an excellent short-term effectiveness rating because no response actions are conducted under this alternative. Alternatives GW-3A, GW-3B, and GW-4 pose a greater risk to workers than Alternative GW-2 because they involve more aggressive field activities that would expose receptors to additional risks. However, the risks associated with implementing Alternatives GW-3A, GW-3B, and GW-4 could be mitigated through implementation of control measures during the construction period. Control measures have been implemented successfully at HPS in the past, and should not be considered a significant hindrance to these alternatives. Alternatives GW-3A and GW-3B would generate similarly

sized environmental footprints, primarily associated with emissions and energy from well drilling and slurry wall construction. Alternative GW-4 would produce a larger environmental footprint because air emissions would be released by operation of the SVE and air sparging system. Comparatively, Alternative GW-2 would produce a relatively small footprint because of the lack of construction-based field activity. Overall, none of the environmental footprints produced by these remedial alternatives would be considered large enough or would occur over a long enough period of time to be considered a hindrance to short-term effectiveness.

5.4.6. Implementability

Alternatives GW-1 and GW-2 have the highest rating because their implementation requires minimal to no construction. Alternatives GW-3A, GW-3B, and GW-4 are more complex to implement because they all include construction and implementation of in-situ treatment technologies.

5.4.7. Cost

Alternative GW-1 requires no action; therefore, no costs are associated with this alternative. Alternative GW-2 would incur low costs ($2.6 million) because it includes no active remediation prior to property transfer. Alternatives GW-3A, GW-3B, and GW-4 would incur high costs ($4.5 million for Alternative GW-3A, $5.7 million for Alternative GW-3B, and $5.9 million for Alternative GW-4) because they all include heavy construction and implementation of specialized treatment technologies. Estimated capital and O&M costs for each alternative are summarized in Table 5-1.

5.4.8. Overall Rating of Groundwater Alternatives

Alternatives GW-3A and GW-3B were assigned overall ratings of very good. Alternative GW-4 was assigned an overall rating of good; the lower rating for this alternative is attributed to the challenges and limitations of air sparging if implemented at the Building 406 TCE Plume. Alternatives GW-1 and GW-2 were rated not acceptable because they do not satisfy the threshold criteria.

Although Alternatives GW-3A and GW-3B were both rated very good, Alternative GW-3B is significantly more expensive to implement than Alternative GW-3A. The increased cost of Alternative GW-3B is attributed to the ZVI injection at the Building 406 TCE Plume. The ZVI injection is proposed because it would be more effective in treating the high-concentration VOCs that may be present at the Building 406 TCE Plume. As described in Section 2.1.3.4.2, the Navy has used ZVI at the Building 406 TCE Plume as part of a GWTS, and the post-injection groundwater data show that the ZVI has reduced TCE concentrations. The Navy continues to collect groundwater data at this plume and will evaluate the groundwater data during the RD to determine if the remaining VOC concentrations are high enough to warrant additional ZVI injection.

5.5. DETAILED ANALYSIS OF NAPL REMEDIAL ALTERNATIVES

This section evaluates each NAPL alternative for IR-03 in comparison with the two threshold and five balancing NCP evaluation criteria discussed in Section 5. Table 5-1 summarizes the costs for each alternative, and Table 5-6 summarizes each alternative's rating under the two threshold and five balancing NCP evaluation criteria.

5.5.1. Detailed Analysis of Alternative N-1: No Action

Under Alternative N-1, no response action would be taken. NAPL and associated contaminated soil and groundwater would be left as is, without implementing any institutional controls, containment, removal, treatment, or other response actions.

5.5.1.1. Overall Protection of Human Health and the Environment: Alternative N-1

NAPL at IR-03 poses a risk to human health. Alternative N-1 does not provide treatment or institutional controls to prevent direct exposure to NAPL present in soil or groundwater. As a result, Alternative N-1 is not protective of human health. The rating for Alternative N-1 for overall protection of human health and the environment is not protective.

5.5.1.2. Compliance with ARARs: Alternative N-1

There is no need to identify ARARs for the no-action alternative because ARARs apply to "any removal or remedial action conducted entirely on site" and "no action" is not a removal or remedial action. CERCLA § 121 (42 U.S.C. § 9621) cleanup standards for selection of a Superfund remedy, including the requirement to meet ARARs, are not triggered by the no-action alternative (EPA, 1991). Therefore, a discussion of compliance with ARARs is not appropriate.

5.5.1.3. Long-Term Effectiveness and Permanence: Alternative N-1

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under the no-action alternative, NAPL and associated soil and groundwater contamination would not be reduced; therefore, this alternative would present an unacceptable risk to human health and the environment. Because no treatment, engineering controls, or institutional controls would be implemented during this alternative, the adequacy and reliability of controls are poor. The rating for Alternative N-1 for long-term effectiveness and permanence is not acceptable.

5.5.1.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-1

Alternative N-1 would not reduce the mobility, toxicity, or volume of hazardous substances at Parcel E because NAPL and associated soil and groundwater contamination would not be treated, contained, or

removed. The overall rating for Alternative N-1 for the reduction of mobility, toxicity, or volume through treatment is poor.

5.5.1.5. Short-Term Effectiveness: Alternative N-1

Because no response action would be taken, Alternative N-1 would not present any new health risks to the community and current occupants. No workers would be exposed to health risks, and no adverse environmental effects would result from construction and implementation of Alternative N-1. Alternative N-1 would not require any implementation time. Based on this evaluation, the overall rating for Alternative N-1 for short-term effectiveness is excellent.

5.5.1.6. Implementability: Alternative N-1

Implementability includes technical and administrative feasibility and the availability of required resources. No construction or operation is required to implement this alternative. As a result, Alternative N-1 is technically and administratively feasible and does not require any resources. The overall rating for Alternative N-1 for implementability is excellent.

5.5.1.7. Cost: Alternative N-1

No capital or O&M costs are associated with Alternative N-1. The rating for Alternative N-1 for costs is excellent.

5.5.1.8. Overall Rating: Alternative N-1

Alternative N-1 does not meet the threshold criteria; therefore, Alternative N-1 is not acceptable.

5.5.2. Detailed Analysis of Alternatives N-2: Source Containment, Monitoring, and Institutional Controls

Alternative N-2 consists of a combination of source containment, long-term groundwater monitoring, and institutional controls.

5.5.2.1. Overall Protection of Human Health and the Environment: Alternative N-2

Alternative N-2 would protect human health and the environment by isolating the residual contamination using a vertical containment barrier (slurry wall) and a low-permeability surface cover (60-mil HDPE geomembrane cover). Through containment and long-term monitoring, this alternative would mitigate potential future exposure of humans and wildlife. The rating for Alternative N-2 for overall protection of human health is protective.

5.5.2.2. Compliance with ARARs: Alternative N-2

Alternative N-2 includes institutional controls and response actions. Both action- and chemical-specific ARARs associated with this alternative would be met. The location-specific ARARs identified for

protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative N-2 would meet ARARs. The overall rating for Alternative N-2 for compliance with ARARs is meets ARARs.

5.5.2.3. Long-Term Effectiveness and Permanence: Alternative N-2

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Alternative N-2 provides protection of human health and the environment because soil and NAPL zones that pose unacceptable risk would be covered and chemical migration would be limited through the use of a cover and a vertical barrier. In addition, risks related to NAPL and associated groundwater and soil contamination would be reduced, in the short-term, by preventing a complete exposure pathway to humans through institutional controls. The long-term adequacy and reliability of this alternative would also depend on maintenance and enforcement of the access restrictions. The reliability and adequacy of the long-term monitoring program and the reliability of natural processes also affect the effectiveness of this alternative. A LUC RD document would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement for the institutional controls and the groundwater monitoring program. Alternative N-2 would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

Overall, the rating for Alternative N-2 for long-term effectiveness and permanence is good.

5.5.2.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-2

Alternative N-2 includes containment of the NAPL source area using a cover and a vertical barrier (slurry wall), as well as institutional controls. However, this alternative does not include treatment that would result in the destruction, transformation, or irreversible reduction in contaminant mobility. Therefore, the overall rating for Alternative N-2 for the reduction of mobility, toxicity, and volume through treatment is poor.

5.5.2.5. Short-Term Effectiveness: Alternative N-2

Risks to the community may occur due to increased construction traffic during implementation of this alternative. Risk to workers that are constructing covers over known contaminated soil may occur. However, workers would adhere to a chemical- and activity-specific accident prevention and safety and health plans, which would include the assignment of appropriate PPE and protective exposure measures. The GSR evaluation revealed that the environmental footprint related to implementation of this alternative would be primarily associated with air emissions from the use of construction equipment to construct the slurry wall and cover. Some environmental impacts would be reduced through implementation of BMPs, such as use of best available emission control devices on construction

equipment. There would be a little effect from the time required to complete the response action because the activities would likely be completed in less than 1 year.

The overall rating for Alternative N-2 for short-term effectiveness, including implementing the institutional controls, is very good.

5.5.2.6. Implementability: Alternative N-2

Implementability includes technical and administrative feasibility and the availability of required resources. The construction of impermeable barriers (slurry walls) and geomembrane covers are standard remedial processes that have been implemented successfully at numerous sites nationwide. Similarly, the combination of impermeable barriers and covers are standard methods with a proven track record for preventing infiltration and mitigating migration of contamination. In addition, the institutional controls are administratively easy to implement.

The overall rating for Alternative N-2 for implementability is very good.

5.5.2.7. Cost: Alternative N-2

The total capital and O&M costs for Alternative N-2 are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. The costs to implement the vertical containment barriers and covers are moderate for Alternative N-2. The overall rating for Alternative N-2 for cost is very good.

5.5.2.8. Overall Rating: Alternative N-2

The overall rating for Alternative N-2 is good. The NAPL source (among other contaminants in soil and groundwater) would be contained on all sides through installation of a low-permeability cover and a vertical containment barrier (slurry wall) that would encircle the source area. This remedy could easily be implemented and would be effective in containing the contaminant source. Institutional controls would be implemented to prevent exposure to all COCs, and long-term monitoring would be implemented to verify that the integrity of the remedy is not compromised. Under this alternative, the entire NAPL source area (among other contaminants in soil and groundwater) would remain in place, presenting a potential long-term concern.

5.5.3. Detailed Analysis of Alternatives N-3: Source Removal or Treatment, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-3 consists of a combination of source removal or treatment, containment, MNA, and institutional controls.

5.5.3.1. Overall Protection of Human Health and the Environment: Alternative N-3

Alternative N-3 would protect human health and the environment by removing or treating most of the NAPL at IR-03 and isolating residual contamination using a vertical containment barrier (slurry wall) and a low-permeability soil cover (60-mil HDPE geomembrane cover). Through source removal/treatment, containment, and long-term monitoring, this alternative would limit potential future exposure of humans and wildlife. The rating for Alternative N-3 for overall protection of human health is protective.

5.5.3.2. Compliance with ARARs: Alternative N-3

Alternative N-3 includes institutional controls and response actions. Both action- and chemical-specific ARARs associated with this alternative would be met. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative N-3 would meet ARARs. The overall rating for Alternative N-3 for compliance with ARARs is meets ARARs.

5.5.3.3. Long-Term Effectiveness and Permanence: Alternative N-3

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative N-3, risks from exposure to NAPL in the subsurface, as well as other COCs and COECs in soil and groundwater, would be reduced through removal or treatment of the source to the extent practical. Additionally, soil and NAPL zones that pose unacceptable risk would be covered and contaminant migration would be limited through the use of a vertical containment barrier (slurry wall) and cover (geomembrane cover). Removal or treatment of the NAPL source area at IR-03 would reliably reduce risks. However, residual groundwater and soil contamination would remain in place and would be addressed through containment (i.e., slurry wall and geomembrane cover).

The long-term adequacy and reliability of this alternative would depend on maintenance and enforcement of the access restrictions. The reliability and adequacy of the long-term monitoring program and the reliability of natural processes also affect the effectiveness of this alternative. A LUC RD document would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement for the institutional controls and the groundwater monitoring program. Alternative N-3 would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

Overall, the rating for Alternative N-3 for long-term effectiveness and permanence is good.

5.5.3.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-3

The source treatment elements of Alternative N-3 (specifically the solidification/stabilization that may be implemented in conjunction with other removal technologies) would reduce the toxicity and mobility of

COCs and COECs in NAPL and soil at IR-03. Groundwater would not be actively treated, but MNA would monitor the natural degradation of residual COCs by biodegradation and other processes following removal or treatment of the NAPL source. The source treatment elements of Alternative N-3 would not reduce the volume of the NAPL source. The overall rating for Alternative N-3 for the reduction of mobility, toxicity, or volume through treatment is good.

5.5.3.5. Short-Term Effectiveness: Alternative N-3

Under Alternative N-3, installation and operation of the source removal or treatment elements would pose risk to workers, requiring mitigation. All of the workers would adhere to a chemical- and activity-specific accident prevention and safety and health plan, which would include the assignment of appropriate PPE, decontamination procedures, and protective exposure measures. Wastes generated by the remediation activities would be managed through a combination of off-site disposal and discharge of adequately pretreated groundwater to the POTW. In addition, vapor and dust emissions from the remediation activities would require monitoring and control to prevent unacceptable exposures. The risk from ongoing groundwater monitoring would be minimal. The GSR evaluation revealed that the environmental footprint related to implementation of this alternative would be primarily associated with the NAPL heating, extraction, and treatment operations that would result in greenhouse gas (GHG) emissions, energy use, water consumption, NO_x emissions, and SO_x emissions. Some environmental effects would be reduced through implementation of BMPs, such as optimization of heating operations.

NAPL removal or treatment under Alternative N-3 would be implemented in 3 years or less. Following NAPL removal or treatment, monitoring would be implemented to verify the integrity of the containment remedy and to track the rate of natural attenuation over time.

The overall rating for Alternative N-3 for the short-term effectiveness is very good.

5.5.3.6. Implementability: Alternative N-3

Implementability includes technical and administrative feasibility and the availability of required resources. Containment barriers (slurry walls) and covers (geomembrane covers) have been constructed successfully at numerous sites nationwide. Similarly, the combination of containment barriers and covers are standard methods with a proven track record for reducing infiltration and migration of contamination.

The site conditions at IR-03 pose challenges to cost-effectively implement NAPL source removal or treatment. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be further studied (through bench-scale or pilot-scale testing) and refined during the RD in a manner that addresses the implementation challenges.

Thermally-enhanced dual-phase extraction, which was used as the primary remediation technology to provide an upper bound of the level of effort (and corresponding cost) for NAPL source removal, has been successfully implemented for years in the oil industry and the environmental industry. Difficulties in implementation would be associated with installation of the electrical infrastructure required to power such a system. Currently, no sources of electricity are nearby that could provide adequate electrical power at the site, but power could be routed to the site from an off-site location.

There are no unusual monitoring requirements, and there is no shortage of equipment and specialists required for implementation. The overall rating for implementability of Alternative N-3 is very good.

5.5.3.7. Cost: Alternative N-3

The total capital and O&M costs for Alternative N-3 are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. The costs for NAPL source removal/treatment and containment are high for Alternative N-3. The overall rating for Alternative N-3 is good.

5.5.3.8. Overall Rating: Alternative N-3

Alternative N-3 meets ARARs and protects human health and the environment through source removal/treatment, containment, and institutional controls. The environment is further protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. This alternative can be implemented without significant effect to the community. Additionally, this alternative would reduce mobility and toxicity of contaminated NAPL and soil through treatment. The overall rating for Alternatives N-3 is good.

5.5.4. Detailed Analysis of Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-4A consists of source removal or treatment, groundwater treatment (by aerobic ISB), containment, MNA, and institutional controls.

5.5.4.1. Overall Protection of Human Health and the Environment: Alternative N-4A

Alternative N-4A would protect human health and the environment because it would remove or treat the NAPL contamination source and treat residual VOC contamination in groundwater, thus reducing potential future exposure of humans and wildlife. The rating for Alternative N-4A for overall protection of human health is protective.

5.5.4.2. Compliance with ARARs: Alternative N-4A

Alternative N-4A includes institutional controls and response actions. Both action- and chemical-specific ARARs associated with these alternatives would be met. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative N-4A would meet ARARs. The overall rating for Alternative N-4A for compliance with ARARs is meets ARARs.

5.5.4.3. Long-Term Effectiveness and Permanence: Alternative N-4A

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative N-4A, risks from exposure to NAPL in the subsurface, as well as other COCs and COECs in soil and groundwater, would be reduced through removal or treatment of the source to the extent practical and groundwater treatment by ISB. Additionally, soil and NAPL zones that pose unacceptable risk would be covered and contaminant migration reduced through the use of a vertical barrier (slurry wall) and cover (geomembrane). Removal or treatment of the NAPL source area and the treatment of VOCs in groundwater at IR-03 would reliably reduce risks. However, residual groundwater and soil contamination would remain in place and would be addressed through containment (i.e., slurry wall and geomembrane cover).

The long-term adequacy and reliability of this alternative would depend on maintenance and enforcement of the access restrictions. The reliability and adequacy of the long-term monitoring program and the reliability of natural processes also affect the effectiveness of this alternative. A LUC RD document would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement for the institutional controls and the groundwater monitoring program. Alternative N-4A would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

Overall, the rating for Alternative N-4A for the long-term effectiveness and permanence is good.

5.5.4.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-4A

The source treatment elements of Alternative N-4A (specifically the solidification/stabilization that may be implemented in conjunction with other removal technologies) would reduce the toxicity and mobility of COCs and COECs in NAPL and soil at IR-03. Aerobic bioremediation would degrade COCs in groundwater (primarily benzene) to non-toxic compounds. MNA would monitor the natural degradation of residual COCs by biodegradation and other processes after active remediation ends. The source treatment elements of Alternative N-4A would not reduce the volume of the NAPL source, but the aerobic bioremediation elements would reduce the toxicity and volume of groundwater contamination. The overall rating for Alternative N-4A for the reduction of mobility, toxicity, or volume through treatment is very good.

5.5.4.5. Short-Term Effectiveness: Alternative N-4A

Under Alternative N-4A, installation and operation of the source removal or treatment elements and implementation of ISB would pose risk to workers, requiring mitigation. All of the workers would adhere to a chemical- and activity-specific accident prevention and safety and health plan, which would include the assignment of appropriate PPE, decontamination procedures, and protective exposure measures. Wastes generated by the remediation activities would be managed through a combination of off-site disposal and discharge of adequately pretreated groundwater to the POTW. In addition, vapor and dust emissions from the remediation activities would require monitoring and control to prevent unacceptable exposures. The risk from ongoing groundwater monitoring would be minimal. The GSR evaluation revealed that the environmental footprint related to the implementation of this alternative would be primarily associated with the NAPL heating, extraction and treatment operations that would result in GHG emissions, energy use, water consumption, nitrogen oxide (NO_x) emissions, and sulfur oxide (SO_x) emissions. The inclusion of ISB would not significantly increase the environmental footprint of this alternative. Some environmental impacts would be reduced through implementation of BMPs, such as optimization of heating operations.

NAPL removal or treatment under Alternative N-4A would be implemented in 3 years or less. Following NAPL removal/treatment and ISB implementation, monitoring would be implemented to verify the integrity of the remedy and to track the rate of natural attenuation over time.

The overall rating for Alternative N-4A for the short-term effectiveness is very good.

5.5.4.6. Implementability: Alternative N-4A

Implementability includes technical and administrative feasibility and the availability of required resources. Containment barriers (slurry walls) and covers (geomembrane covers) have been constructed successfully at numerous sites nationwide. Similarly, the combination of containment barriers and covers are standard methods with a proven track record for reducing infiltration and migration of contamination.

The site conditions at IR-03 pose challenges to cost-effectively implement NAPL source removal or treatment. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be further studied (through bench-scale or pilot-scale testing) and refined during the RD in a manner that addresses the implementation challenges.

Thermally-enhanced dual-phase extraction, which was used as the primary remediation technology to provide an upper bound of the level of effort (and corresponding cost) for NAPL source removal, has been successfully implemented for years in the oil industry and the environmental industry. Difficulties in implementation would be associated with installation of the electrical infrastructure required to power

such a system. Currently, no sources of electricity are nearby that could provide adequate electrical power at the site, but power could be routed to the site from an off-site location.

Pilot studies at HPS demonstrated that injection treatment is feasible at HPS (Shaw, 2005; TtEMI, 2003; ITSI, 2005). ISB treatment requires a moderate level of resources. The major difficulty with implementing injection technologies during pilot studies at HPS has been mass transfer of the treatment substrate to the chemicals. Site-specific pilot studies would be required to determine design factors such as radii of influence. Data from the pilot studies, as well as the lithology of the treatment area, would be used to determine sufficient injection points for treatment additives to optimize their success.

There are no unusual monitoring requirements, and there is no shortage of equipment and specialists required for implementation. The overall rating for implementability of Alternative N-4A is very good.

5.5.4.7. Cost: Alternative N-4A

The total capital and O&M costs for Alternative N-4A are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. ISB implementation costs are moderate to high. The costs for NAPL source removal/treatment and containment are high for Alternative N-4A. The overall rating for Alternative N-4A is good.

5.5.4.8. Overall Rating: Alternative N-4A

Alternative N-4A meets ARARs and protects human health and the environment through source removal/treatment, groundwater treatment, containment, and institutional controls. The environment is further protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. This alternative can be implemented without significant effect to the community. Additionally, this alternative would reduce mobility, toxicity, and volume of contaminated NAPL, soil, and groundwater through treatment. The overall rating for Alternative N-4A is very good.

5.5.5. Detailed Analysis of Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-4B consists of source removal or treatment, groundwater treatment by steaming, containment, MNA, and institutional controls. Under this alternative, steaming would follow NAPL removal (using thermally-enhanced extraction) to address residual VOC contamination in groundwater.

5.5.5.1. Overall Protection of Human Health and the Environment: Alternative N-4B

Alternative N-4B would protect human health and the environment because it would remove or treat the NAPL contamination source and treat the residual VOC contamination in groundwater, thus reducing

potential future exposure of humans and wildlife. The rating for Alternative N-4B for overall protection of human health is protective.

5.5.5.2. Compliance with ARARs: Alternative N-4B

Alternative N-4B includes institutional controls and response actions. Both action- and chemical-specific ARARs associated with these alternatives would be met. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative N-4B would meet ARARs. The overall rating for Alternative N-4B for compliance with ARARs is meets ARARs.

5.5.5.3. Long-Term Effectiveness and Permanence: Alternative N-4B

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative N-4B, risks from exposure to NAPL in the subsurface, as well as other COCs and COECs in soil and groundwater, would be reduced through removal or treatment of the source to the extent practical and groundwater treatment by steaming. Additionally, soil and NAPL zones that pose unacceptable risk would be covered and contaminant migration reduced through the use of a vertical barrier and a cover. Removal or treatment of the NAPL source area and treatment of VOCs in groundwater at IR-03 would reliably reduce risks. However, residual groundwater and soil contamination would remain in place and would be addressed through containment (i.e., slurry wall and geomembrane cover).

The long-term adequacy and reliability of this alternative would depend on maintenance and enforcement of the access restrictions. The reliability and adequacy of the long-term monitoring program and the reliability of natural processes also affect the effectiveness of this alternative. A LUC RD document would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement for the institutional controls and the groundwater monitoring program. Alternative N-4B would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

Overall, the rating for Alternative N-4B for the long-term effectiveness and permanence is good.

5.5.5.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-4B

The source treatment elements of Alternative N-4B (specifically the solidification/stabilization that may be implemented in conjunction with other removal technologies) would reduce the toxicity and mobility of COCs and COECs in NAPL and soil at IR-03. Steaming (following thermally-enhanced NAPL extraction) would allow for extraction and treatment of COCs in groundwater. MNA would monitor the natural degradation of residual COCs by biodegradation and other processes after active remediation ends. The source treatment elements of Alternative N-4B would not reduce the volume of the NAPL

source, but the steaming process would reduce the toxicity and volume of groundwater contamination. The overall rating for Alternative N-4B for the reduction of mobility, toxicity, or volume through treatment is very good.

5.5.5.5. Short-Term Effectiveness: Alternative N-4B

Under Alternative N-4B, installation and operation of the source removal or treatment elements and implementation of steaming would pose risk to workers, requiring mitigation. All of the workers would adhere to a chemical- and activity-specific accident prevention and safety and health plan, which would include the assignment of appropriate PPE, decontamination procedures, and protective exposure measures. Wastes generated by the remediation activities would be managed through a combination of off-site disposal and discharge of adequately pretreated groundwater to the POTW. In addition, vapor and dust emissions from the remediation activities would require monitoring and control to prevent unacceptable exposures. The risk from ongoing groundwater monitoring would be minimal. The GSR evaluation revealed that the environmental footprint related to implementation of this alternative would be primarily associated with the dual-phase NAPL heating, extraction, treatment, and steaming operations that would result in GHG emissions, energy use, water consumption, NO_x emissions, and SO_x emissions. The emissions and energy use associated with steaming contributes significantly to the environmental footprint of this alternative. Some environmental effects would be reduced through implementation of BMPs, such as optimization of heating and steaming operations.

NAPL removal or treatment under Alternative N-4B would be implemented in 3 years or less. Following NAPL removal or treatment, active steaming of groundwater would be implemented for approximately 6 months to address residual dissolved VOCs in groundwater within the source area. Following active remediation, monitoring would be implemented to verify the integrity of the remedy and to track the rate of natural attenuation over time.

The overall rating for Alternative N-4B for the short-term effectiveness is good.

5.5.5.6. Implementability: Alternative N-4B

Implementability includes technical and administrative feasibility and the availability of required resources. Containment barriers (slurry walls) and covers (geomembrane covers) have been constructed successfully at numerous sites nationwide. Similarly, the combination of containment barriers and covers are standard methods with a proven track record for reducing infiltration and migration of contamination.

The site conditions at IR-03 pose challenges to cost-effectively implement NAPL source removal or treatment. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be

further studied (through bench-scale or pilot-scale testing) and refined during the RD in a manner that addresses the implementation challenges.

Thermally-enhanced dual-phase extraction, which was used as the primary remediation technology to provide an upper bound of the level of effort (and corresponding cost) for NAPL source removal, has been successfully implemented for years in the oil industry and the environmental industry. Difficulties in implementation would be associated with installation of the electrical infrastructure required to power such a system. Currently, no sources of electricity are nearby that could provide adequate electrical power at the site, but power could be routed to the site from an off-site location. Steaming, or high temperature thermal extraction, would increase the total energy requirements for this alternative, which could make implementation more difficult. However, equipment used for thermally-enhanced dual-phase extraction could easily be adapted to transition to treatment by steaming.

There are no unusual monitoring requirements, and there is no shortage of equipment and specialists required for implementation. The overall rating for implementability of Alternative N-4A is good.

5.5.5.7. Cost: Alternative N-4B

The total capital and O&M costs for Alternative N-4B are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. The costs for NAPL source removal/treatment followed by steaming and containment are high for Alternative N-4B. The overall rating for Alternative N-4B is good.

5.5.5.8. Overall Rating: Alternative N-4B

Alternative N-4B meets ARARs and protects human health and the environment through source removal/treatment, groundwater treatment, containment, and institutional controls. The environment is further protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. This alternative can be implemented without significant effect to the community, but groundwater treatment by steaming would increase the environmental footprint and pose implementation challenges. Additionally, this alternative would reduce mobility, toxicity, and volume of contaminated NAPL, soil, and groundwater through treatment. The overall rating for Alternatives N-4B is good.

5.5.6. Detailed Analysis of Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-5 consists of a combination of source removal by excavation in the unsaturated zone, followed by NAPL extraction or treatment in the saturated zone, groundwater treatment (by aerobic ISB), containment, MNA, and institutional controls.

5.5.6.1. Overall Protection of Human Health and the Environment: Alternative N-5

Alternative N-5 would protect human health and the environment by removing or treating the NAPL contamination source (including NAPL and NAPL-contaminated soil in the unsaturated zone), and treating residual VOC contamination in groundwater, thus reducing potential future exposure of humans and wildlife. The rating for Alternative N-5 for overall protection of human health is protective.

5.5.6.2. Compliance with ARARs: Alternative N-5

Alternative N-5 includes institutional controls and response actions. Both action- and chemical-specific ARARs associated with these alternatives would be met. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative N-5 would meet ARARs. The overall rating for Alternative N-5 for compliance with ARARs is meets ARARs.

5.5.6.3. Long-Term Effectiveness and Permanence: Alternative N-5

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative N-5, risks from exposure to NAPL in the subsurface, as well as other COCs and COECs in soil and groundwater, would be reduced through removal or treatment of the source to the extent practical and groundwater treatment by ISB. Additionally, soil and NAPL zones (in the saturated zone) that pose unacceptable risk would be covered and contaminant migration reduced through the use of a vertical barrier and a cover. Removal or treatment of the NAPL source area and treatment of VOCs in groundwater at IR-03 would reliably reduce risks. However, residual groundwater and soil contamination would remain in place and would be addressed through containment (i.e., slurry wall and geomembrane cover). It should be noted that only a fraction of the unsaturated zone soils contain NAPL. Much of the overburden at IR-03 is either clean fill (imported to be used as cover soil) or existing soil that was not in the area of the ponds. This fact reduces the benefit of excavating the entire unsaturated zone at IR-03.

The long-term adequacy and reliability of this alternative would depend on maintenance and enforcement of the access restrictions. The reliability and adequacy of the long-term monitoring program and the reliability of natural processes also affect the effectiveness of this alternative. A LUC RD document would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement for the institutional controls and the groundwater monitoring program. Alternative N-5 would allow revisions to the RD as needed during the implementation phase to maximize effectiveness of the response action.

Overall, the rating for Alternative N-5 for the long-term effectiveness and permanence is good.

5.5.6.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-5

The source treatment elements of Alternative N-5 (specifically the solidification/stabilization that may be implemented in conjunction with other removal technologies) would reduce the toxicity and mobility of COCs and COECs in NAPL and saturated zone soil at IR-03. Complete excavation of the unsaturated zone would not involve treatment to reduce the toxicity, mobility, or volume of the localized NAPL within this zone. Aerobic bioremediation would degrade COCs in groundwater (primarily benzene) to non-toxic compounds. MNA would monitor the natural degradation of residual COCs by biodegradation and other processes after active remediation ends. The source treatment elements of Alternative N-5 would not reduce the volume of the NAPL source, but the aerobic bioremediation elements would reduce the toxicity and volume of groundwater contamination. The overall rating for Alternative N-5 for the reduction of mobility, toxicity, or volume through treatment is very good.

5.5.6.5. Short-Term Effectiveness: Alternative N-5

Under Alternative N-5, installation and operation of the source removal or treatment elements and implementation of ISB would pose risk to workers, requiring mitigation. However, the most significant risk to site workers and the community would be associated with the excavation of the unsaturated zone soil. All of the workers would adhere to a chemical- and activity-specific accident prevention and safety and health plan, which would include the assignment of appropriate PPE, decontamination procedures, and protective exposure measures. Wastes generated by the remediation activities would be managed through a combination of off-site disposal and discharge of adequately pretreated groundwater to the POTW. In addition, vapor and dust emissions from the remediation activities would require monitoring and control to prevent unacceptable exposures. Radiological screening of soils would be implemented to minimize exposure. The risk from ongoing groundwater monitoring would be minimal. The GSR evaluation revealed that the environmental footprint related to implementation of this alternative would be primarily associated with the NAPL heating, extraction, and treatment operations that would result in GHG emissions, energy use, water consumption, NO_x emissions, and SO_x emissions. The unsaturated zone excavation and the ISB would not significantly increase the environmental footprint of this alternative. Some environmental impacts would be reduced through implementation of BMPs, such as optimization of heating operations.

NAPL removal or treatment under Alternative N-5 would be implemented in 3 years or less. Following NAPL removal/treatment, excavation of the unsaturated zone would be implemented in approximately 4 months. Upon completion of the excavation, residual groundwater would be treated using ISB. Following ISB implementation, monitoring would be implemented to verify the integrity of the remedy and to track the rate of natural attenuation over time.

The overall rating for Alternative N-5 for the short-term effectiveness is good.

5.5.6.6. Implementability: Alternative N-5

Implementability includes technical and administrative feasibility and the availability of required resources. Containment barriers (slurry walls) and covers (geomembrane covers) have been constructed successfully at numerous sites nationwide. Similarly, the combination of containment barriers and covers are standard methods with a proven track record for reducing infiltration and migration of contamination.

The site conditions at IR-03 pose challenges to cost-effectively implement NAPL source removal or treatment. Accordingly, this alternative incorporates a range of removal and treatment options to address the NAPL source. Table 4-7 identifies the removal and treatment options for IR-03, and briefly discusses the relative advantages and disadvantages of each technology. The NAPL remediation approach will be further studied (through bench-scale or pilot-scale testing) and refined during the RD in a manner that addresses the implementation challenges.

Thermally-enhanced dual-phase extraction, which was used as the primary remediation technology to provide an upper bound of the level of effort (and corresponding cost) for NAPL source removal, has been successfully implemented for years in the oil industry and the environmental industry. Difficulties in implementation would be associated with installation of the electrical infrastructure required to power such a system. Currently, no sources of electricity are nearby that could provide adequate electrical power at the site, but power could be routed to the site from an off-site location.

Excavation and hauling are considered conventional and commonplace technologies. Large-scale excavations to address contaminated soil at HPS have been successfully implemented in the past.

Pilot studies at HPS demonstrated that injection treatment is feasible at HPS (Shaw, 2005; TtEMI, 2003; ITSI, 2005). ISB treatment requires a moderate level of resources. The major difficulty with implementing injection technologies during pilot studies at HPS has been mass transfer of the treatment substrate to the chemicals. Site-specific pilot studies would be required to determine design factors such as radii of influence. Data from the pilot studies, as well as the lithology of the treatment area, would be used to determine sufficient injection points for treatment additives to optimize their success.

There are no unusual monitoring requirements, and there is no shortage of equipment and specialists required for implementation. The overall rating for implementability of Alternative N-5 is very good.

5.5.6.7. Cost: Alternative N-5

The total capital and O&M costs for Alternative N-5 are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. ISB implementation costs are moderate to high. The costs for NAPL source removal/treatment, unsaturated zone excavation, and containment are high for Alternative N-5. The overall rating for Alternative N-5 for cost is poor.

5.5.6.8. Overall Rating: Alternative N-5

Alternative N-5 meets ARARs and protects human health and the environment through source removal/treatment, groundwater treatment, containment, and institutional controls. The environment would be protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. Additionally, this alternative would reduce mobility, toxicity, and volume of contaminated NAPL, soil, groundwater through treatment. However, excavation and disposal would pose significant short-term risks to site workers and would be very expensive. These disadvantages are not offset by any improved long-term effectiveness because of the relatively low volume of unsaturated zone soils that contain NAPL. The overall rating for Alternatives N-5 is poor.

5.5.7. Detailed Analysis of Alternative N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls

Alternative N-6 consists of complete source removal by excavation of the unsaturated and saturated zones, MNA, and institutional controls.

5.5.7.1. Overall Protection of Human Health and the Environment: Alternative N-6

Alternative N-6 would protect human health and the environment by removing the contamination source through excavation, thereby reducing potential future exposure of humans and wildlife. The rating for Alternative N-6 for overall protection of human health is protective.

5.5.7.2. Compliance with ARARs: Alternative N-6

Alternative N-6 includes institutional controls and response actions. Both action- and chemical-specific ARARs associated with these alternatives would be met. The location-specific ARARs identified for protection of cultural, coastal, wetland, and biological resources at Parcel E would also be met. As a result, Alternative N-6 would meet ARARs. The overall rating for Alternative N-6 for compliance with ARARs is meets ARARs.

5.5.7.3. Long-Term Effectiveness and Permanence: Alternative N-6

The factors evaluated under long-term effectiveness and permanence include the magnitude of residual risks and adequacy and reliability of controls. Under Alternative N-6, risks from exposure to NAPL and associated soil and groundwater COCs would be reduced through removal of the source. Residual groundwater contamination would undergo MNA, but not active treatment. The long-term adequacy and reliability of this alternative is largely achieved through source removal. Adequacy and reliability would be confirmed through the long-term monitoring program. A LUC RD document would be prepared to guide implementation of deed restrictions and inspection for compliance and enforcement for the institutional controls and the groundwater monitoring program. Removal of the NAPL source area at IR-03 would provide permanent risk reduction and would eventually lead to clean closure of this site.

Overall, the rating for Alternative N-6 for the long-term effectiveness and permanence is very good.

5.5.7.4. Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-6

Alternative N-6 does not include treatment that would result in destruction, transformation, or irreversible reduction in contaminant mobility. MNA would monitor the natural degradation of residual COCs by biodegradation and other processes after active remediation ends; however, it is unlikely that significant natural degradation would occur. Therefore, the overall rating for Alternative N-6 for the reduction of mobility, toxicity, and volume through treatment is poor.

5.5.7.5. Short-Term Effectiveness: Alternative N-6

Under Alternative N-6, excavation activities would pose acute risk to workers, requiring mitigation. Excavating and hauling contaminated soil and media would pose potential risk to workers. If not implemented properly, deep excavation in saturated soil could cause slope failure hazards during excavation, which in turn could put site workers at risk. Proper engineering design and installation of a sheet-pile wall would minimize, but not eliminate, this risk. Multiple mitigation measures would be implemented to protect human health and the environment. All of the workers would adhere to a chemical- and activity-specific accident prevention and safety and health plan, which would include the assignment of appropriate PPE, decontamination procedures, and protective exposure measures. Excavated NAPL and soil would require off-site disposal. Significant risk to the bay would be associated with conducting a deep, large-scale excavation along the bay. The risk from ongoing groundwater monitoring would be minimal. The GSR evaluation revealed that the environmental footprint related to implementation of unsaturated and saturated zone excavation and MNA would be primarily associated with the very high risk of accident or fatality due to the high-hazard nature of the work and the emissions of particulate matter less than 10 micrometers due to heavy equipment use. Some environmental impacts would be reduced through implementation of a comprehensive worker safety monitoring program and BMPs.

Removal activities under Alternative N-6 would likely be implemented in approximately 1 year. The monitoring duration must demonstrate the effectiveness of the treatment and the permanent reduction of the COCs and COECs in groundwater. The time to meet remediation goals is anticipated to be less than 30 years, because the entire source area would be removed and no longer contributing to contamination.

The overall rating for Alternative N-6 for the short-term effectiveness is mainly due to the significant risk to the bay that would be associated with the proposed excavation. The overall rating for short-term effectiveness is poor.

5.5.7.6. Implementability: Alternative N-6

Implementability includes technical and administrative feasibility and the availability of required resources. Excavation and hauling are considered conventional and commonplace technologies.

Excavation into the saturated zone increases the complexity significantly; however, it is still a proven process. As stated above, if not implemented properly, deep excavation in saturated soil could cause slope failure hazards during excavation, which in turn could put site workers at risk. Proper engineering design and installation of a sheet-pile wall would minimize, but not eliminate, this risk.

Groundwater monitoring is a routine activity and requires a moderate level of resources. Groundwater monitoring would be required until concentrations of COCs meet remediation goals or until the plumes are stable. In addition, the institutional controls proposed for this alternative are easy to implement administratively. However, the overall rating for Alternative N-6 for implementability is poor.

5.5.7.7. Cost: Alternative N-6

The total capital and O&M costs for Alternative N-6 are presented in Table 5-1 and detailed in Appendix E. The costs to implement the institutional controls are low, and the cost to implement the monitoring program is moderate. The costs for excavation are very high for Alternative N-6. The overall rating for Alternative N-6 for cost is poor.

5.5.7.8. Overall Rating: Alternative N-6

Alternative N-6 meets ARARs and protects human health and the environment through source removal and institutional controls. Excavation and disposal would significantly reduce the mobility of contaminated soil at the site. The environment is further protected with a monitoring program that includes sentry wells to assess the migration of groundwater to San Francisco Bay. This alternative can be implemented without significant effect to the community, although large-scale excavations require a variety of control measures to be implemented to minimize exposure. This alternative would pose significant risk to site workers and the bay throughout the construction period. Also, this alternative would cost almost $22 million to implement, which is very high. The overall rating for Alternatives N-6 is poor.

5.6. COMPARISON OF NAPL REMEDIAL ALTERNATIVES

This section compares the seven NAPL alternatives. The discussion of each evaluation criterion proceeds from the alternative that best satisfies the criterion to the one that least satisfies the criterion. Table 5-6 summarizes the rating for each alternative and shows a comparison of each alternative's ratings for the two threshold and five balancing NCP evaluation criteria. Table 5-7 summarizes the evaluation of each alternative compared to the five balancing criteria.

5.6.1. Overall Protection of Human Health and the Environment

Overall protection of human health and the environment is a threshold criterion. Protection is not measured by degree; rather, each alternative is considered as either protective or not protective. Alternatives N-2 through N-6 are protective. Alternatives N-2 through N-6 protect human health and the

environment under the anticipated future land use of the parcel. Alternative N-1 does not address any risks at the site, thus it does not provide sufficient protection to human health and the environment.

5.6.2. Compliance with ARARs

Compliance with ARARs is a threshold evaluation criterion. An alternative must either comply with ARARs or provide grounds for a waiver. Alternatives N-2 through N-6 comply with all of the pertinent ARARs. An evaluation of ARARs for Alternative N-1 is not applicable.

5.6.3. Long-Term Effectiveness and Permanence

Alternative N-6 is rated the highest because it removes the entire NAPL source, which is the major source of soil and groundwater contamination at IR-03. Alternatives N-3, N-4A N-4B, and N-5 all incorporate actions to remove or treat the NAPL source to the extent practical, but may leave NAPL-contaminated soil in place to varying degrees. Alternatives N-3, N-4A N-4B, and N-5 also include treatment of contaminated groundwater. Alternative N-2 is rated lower because it does not include actions to remove or treat the NAPL source, and does not include treatment of contaminated groundwater. Alternatives N-2 through N-5 all rely on containment (by slurry wall and geomembrane cover) to contain contaminated soils and groundwater. Alternatives N-2 through N-6 would provide long-term effectiveness in meeting the RAOs through reliance on continual enforcement of deed restrictions.

Since no action would be taken under Alternative N-1, it does not provide a long-term effective or permanent solution to contamination at the site.

5.6.4. Reduction of Mobility, Toxicity, or Volume through Treatment

Alternatives N-3, N-4A, N-4B, and N-5 each include source treatment elements (specifically the solidification/stabilization that may be implemented in conjunction with other removal technologies) that would reduce the toxicity and mobility of COCs and COECs in NAPL and soil at IR-03. Alternatives N-4A, N-4B, and N-5 also include groundwater treatment that would reduce the mobility, toxicity, and volume of groundwater contamination. Alternatives N-4A, N-4B, and N-5 rank equally high with respect to this criterion. Alternative N-3 ranks slightly lower than Alternatives N-4A, N-4B, and N-5 because it involves no active groundwater treatment. Alternatives N-2 and N-6 rank lower than Alternatives N-3, N-4A, N-4B, and N-5 because these alternatives would not involve treatment. Alternative N-1 also ranks low because no treatment would be performed.

5.6.5. Short-Term Effectiveness

Alternative N-1 rates the highest because it includes no action and has the least effect on the workers, community, or the environment during implementation. Alternatives N-2, N-3, N-4A, and N-4B are ranked slightly lower because they introduce more risk to these receptors and produce progressively larger

environmental footprints, primarily due to air emissions and energy usage from equipment operations. However, they do not include large-scale excavation, hauling, and disposal of contaminated media like Alternatives N-5 and N-6, which produce large environmental footprints due to elevated fatality and accident risks. Alternative N-5 ranks slightly lower than Alternatives N-2, N-3, N-4A, and N-4B because of the short-term risks to site workers posed by excavating the unsaturated zone soil. Alternative N-6 ranks the lowest because excavating the entire NAPL source poses significantly increased short-term risks to site workers and significant risk to the bay.

5.6.6. Implementability

All alternatives are implementable. Implementability is rated highest for Alternative N-1 (the no-action alternative) because no action is required. Alternatives N-2 through N-5 involve removal or treatment of the NAPL using a combination of proven technologies that would be further studied (through bench-scale or pilot-scale testing) and refined during the RD in a manner that addresses the implementation challenges identified in Table 4-7. Alternatives N-4A and N-5 involve injection of substrate and nutrients for ISB, also a proven technology. Alternatives N-2 through N-5 require installation of a slurry wall and geomembrane cover, which are commonplace in the environmental industry and readily implementable. Alternative N-6 is the least implementable, mainly because of the significant challenges associated with conducting a deep excavation into the saturated zone within close proximity to San Francisco Bay.

5.6.7. Cost

Alternative N-1 requires no action; therefore, no costs are associated with this alternative. Alternative N-2 is the least costly ($1.7 million) because it is limited to containment, monitoring, and institutional controls. Alternatives N-3, N-4A, and N-4B include NAPL source removal and treatment, which is associated with high cost. Thermally-enhanced dual-phase extraction was used as the primary remediation technology to provide an upper bound of the level of effort (and corresponding cost) for NAPL source removal ($13.1 million, $14.7 million, and $16.2 million, respectively). Alternatives N-5 and N-6 include large-scale excavations, which significantly increase costs ($22.0 million and $21.8 million, respectively). Estimated capital and O&M costs for each alternative are summarized in Table 5-1.

5.6.8. Overall Rating

An overall rating was assigned to each alternative (see Table 5-6). Alternative N-4A was assigned an overall rating of very good. Alternatives N-2, N-3 and N-4B were assigned overall ratings of good because of lesser degrees of treatment (Alternatives N-2 and N-3) or because of issues related to short-term effectiveness and implementability (Alternative N-4B). Alternatives N-5 and N-6 were assigned overall ratings of poor because of issues related to short-term effectiveness and cost. For Alternative N-5, the issues related to short-term effectiveness and cost would not be offset by any improved long-term effectiveness because of the relatively low volume of unsaturated zone soils that contain NAPL. For

Alternative N-6, significant issues related to implementability (in addition to the issues related to short-term effectiveness and cost) would not offset the slight improvement in long-term effectiveness. Alternative N-1 was deemed unacceptable because it would not meet the threshold criteria.

Tables

Table 5-1. Summary of Costs for Soil, Groundwater, and NAPL Alternatives
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternative	Total Capital Cost	Total O&M Cost	Total Periodic Cost	Period of Analysis	Total Cost	Present Value
SOIL						
Alternative S-1: No Action	$0	$0	$0	32 years	$0	$0
Alternative S-2: Covers, ICs, and Shoreline Protection	$24,550,000	$2,842,000	$5,569,000	32 years	$39,553,000	$35,184,000
Alternative S-3: Excavation and Off-site Disposal of Tier 1 Locations, Followed by Covers, ICs, and Shoreline Protection	$36,066,000	$2,842,000	$5,472,000	32 years	$53,256,000	$48,719,000
Alternative S-4: Excavation and Off-site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, ICs, and Shoreline Protection	$37,312,000	$2,842,000	$5,472,000	32 years	$54,750,000	$50,191,000
GROUNDWATER						
Alternative GW-1: No Action	$0	$0	$0	32 years	$0	$0
Alternative GW-2: ICs and Long Term Groundwater Monitoring	$279,000	$2,604,000	$275,000	32 years	$3,790,000	$2,640,000
Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, MNA, and ICs	$1,163,000	$3,571,000	$275,000	32 years	$6,012,000	$4,511,000
Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, ZVI Reduction, MNA, and ICs	$2,065,000	$3,677,000	$275,000	32 years	$7,220,000	$5,662,000
Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, MNA, and ICs	$2,042,000	$3,961,000	$275,000	32 years	$7,534,000	$5,934,000

Table 5-1. Summary of Costs for Soil, Groundwater, and NAPL Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternative	Total Capital Cost	Total O&M Cost	Total Periodic Cost	Period of Analysis	Total Cost	Present Value
NAPL (IR-03)						
Alternative N-1: No Action	$0	$0	$0	32 years	$0	$0
Alternative N-2: Source Containment, MNA, and ICs	$1,098,000	$83,000	$343,000	31 years	$1,829,000	$1,659,000
Alternative N-3: Source Removal or Treatment, Containment, Groundwater Monitoring, and ICs	$11,234,000	$248,000	$343,000	34 years	$14,190,000	$13,116,000
Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, MNA, and ICs	$12,477,000	$559,000	$343,000	35 years	$16,056,000	$14,734,000
Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, MNA, and ICs	$14,110,000	$248,000	$343,000	35 years	$17,642,000	$16,240,000
Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, MNA, and ICs	$18,696,000	$559,000	$343,000	35 years	$23,519,000	$22,001,000
Alternative N-6: Source Removal by Excavation, MNA, and ICs	$17,889,000	$83,000	$343,000	31 years	$21,978,000	$21,800,000

Notes:

All costs rounded to the nearest $1,000.

Total cost includes a 20 percent contingency factor

Present Value based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html

ICs = institutional controls
MNA = monitored natural attenuation
NA = not applicable
NAPL = nonaqueous-phase liquid
O&M = operation and maintenance

Table 5-2. Comparative Analysis of Soil Remedial Alternatives for Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

ALTERNATIVES	Overall Protection of Human Health and the Environment [a]	Compliance with ARARs [a]	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost ($ Million)	Overall Rating by Alternative
Alternative S-1: No Action	Not Protective	Not Applicable	○	◐	●	●	$0	○
Alternative S-2: Covers, ICs, and Shoreline Revetment	Protective	Meets ARARs	◐	◐	◑	◑	$35.2	◑
Alternative S-3: Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, ICs, and Shoreline Revetment	Protective	Meets ARARs	◑	◐	◐	◑	$48.7	◐
Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, SVE, ICs, and Shoreline Revetment	Protective	Meets ARARs	◐	◐	◐	◑	$50.2	◑

Legend:

- ○ Not acceptable
- ◐ Poor
- ◐ Good
- ◑ Very Good
- ● Excellent

Notes:

a Overall protection of human health and the environment and compliance with ARARs are threshold criteria and alternatives are judged as either meeting or not meeting the criteria.

ARARs applicable or relevant and appropriate requirements
ICs institutional controls

Table 5-3. Summary of Comparative Analysis of Soil Alternatives
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Soil Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
	Parameters considered: ▪ Magnitude of residual risks ▪ Adequacy and reliability of release controls	Parameters considered: ▪ Anticipated capability to reduce toxicity, mobility, or volume of chemicals	Parameters considered: ▪ Exposure of the community during implementation ▪ Exposure of the workers during construction ▪ Environmental effects ▪ Time required to achieve RAOs	Parameters considered: ▪ Technical and administrative feasibility of implementing an alternative ▪ Availability of required resources and materials ▪ Ability to construct the technology ▪ Reliability of the technology ▪ Monitoring considerations ▪ Availability of equipment and specialists	Parameters considered: ▪ Capital costs ▪ Operations and maintenance costs
Alternative S-1: No Action	Not Acceptable	Poor	Excellent	Excellent	Excellent
	Not effective and not permanent because residual soils contamination above remediation goals is not addressed; no engineering controls to prevent exposure and no long-term management measures implemented.	Does not reduce the mobility, toxicity, or volume of chemicals in soil through treatment.	No short-term risk because no active remediation activities are proposed.	Readily implementable.	No costs incurred.

Table 5-3. Summary of Comparative Analysis of Soil Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Soil Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative S-2: Covers, ICs, and Shoreline Protection	Good	Poor	Very Good	Very Good	Very Good
	Effective in the long-term because covering soils reduces risks and cuts off exposure pathways, adequacy and reliability of ICs depend on monitoring and maintaining covers.	Does not reduce the mobility, toxicity, or volume of chemicals in soil through treatment.	Increased construction traffic may cause risk to community; constructing covers may cause risk to workers but less risk than excavation; environmental effects would be reduced through implementation of best management work practices; activities likely to be completed in 2 years.	Technically feasible and relatively easy to implement because technologies are conventional and commonplace; coordination of periodic cover maintenance and replacement for many years following installation may be challenging; ICs are easy to implement administratively.	$35.2 million
Alternative S-3 Excavation and Off-site Disposal of Tier 1 Locations, Followed by Covers, ICs, and Shoreline Protection	Very Good	Poor	Good	Very Good	Good
	Effective in the long-term because potential unacceptable risk from soils COCs are reduced through excavation and covers; exposure pathways prevented; adequacy and reliability of ICs depend on monitoring and maintenance of covers and other land use and deed restrictions.	Does not reduce the mobility, toxicity, or volume of chemicals in soil through treatment.	Risk to community may occur by excavating and transporting contaminated soils but minimized with containment controls; increased construction adds to risk to community; risk to workers would require mitigation; adverse environmental effects may occur from fugitive dust; environmental effect from covers will be low; time to complete is approximately 2 years.	Technically feasible although significant volume of activity; easily implemented because technologies are conventional commonplace; ICs easy to implement administratively.	$48.7 million

Table 5-3. Summary of Comparative Analysis of Soil Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Soil Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, ICs, Shoreline Protection, and SVE	Excellent	Good	Good	Very Good	Good
	Effective in the long-term because potential unacceptable risk from soils with non-ubiquitous metals and organic COCs are removed and residual risks from other COCs are reduced through covers; exposure pathways prevented; adequacy and reliability of ICs depend on monitoring and maintenance of covers and other land use and deed restrictions.	With the exception of SVE, does not reduce the mobility, toxicity, or volume of chemicals in soil through active remediation.	Risk to community may occur by excavating and transporting contaminated soils but minimized with containment controls; increased construction adds to risk to community; risk to workers would require mitigation; adverse environmental effects may occur from fugitive dust; environmental effect from covers will be low; time to complete is approximately 2 years.	Technically feasible although significant volume of activity; easily implemented because technologies are conventional commonplace; ICs easy to implement administratively.	$50.2 million

Notes:

1. = Based on net present value

COC = chemical of concern

IC = institutional control

RAO = remedial action objective

SVE = soil vapor extraction

Table 5-4. Comparative Analysis of Groundwater Remedial Alternatives for Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

ALTERNATIVES	Overall Protection of Human Health and the Environment [a]	Compliance with ARARs [a]	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost ($ Million)	Overall Rating by Alternative
Alternative GW-1: No Action	Not Protective	Not Applicable	○	◐	●	●	$0	○
Alternative GW-2: ICs and Long-Term Groundwater Monitoring	Not Protective	Does Not Meet ARARs	◐	◐	◑	●	$2.6	○
Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and ICs	Protective	Meets ARARs	◑	◑	◑	◑	$4.5	◑
Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and ICs	Protective	Meets ARARs	◑	◑	◑	◑	$5.7	◑
Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, Monitored Natural Attenuation, and ICs	Protective	Meets ARARs	◐	◐	◐	◑	$5.9	◐

Legend:

- ○ Not acceptable
- ◐ Poor
- ◐ Good
- ◑ Very Good
- ● Excellent

Notes:

a Overall protection of human health and the environment and compliance with ARARs are threshold criteria and alternatives are judged as either meeting or not meeting the criteria.

ARARs applicable or relevant and appropriate requirements
ICs institutional controls

Table 5-5. Summary of Comparative Analysis of Groundwater Alternatives
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
	Parameters considered: ▪ Magnitude of residual risks ▪ Adequacy and reliability of release controls	Parameters considered: ▪ Anticipated capability to reduce toxicity, mobility, or volume of chemicals	Parameters considered: ▪ Exposure of the community during implementation ▪ Exposure of the workers during construction ▪ Environmental effects ▪ Time required to achieve RAOs	Parameters considered: ▪ Technical and administrative feasibility of implementing an alternative ▪ Availability of required resources and materials ▪ Ability to construct the technology ▪ Reliability of the technology ▪ Monitoring considerations ▪ Availability of equipment and specialists	Parameters considered: ▪ Capital costs ▪ Operations and maintenance costs
Alternative GW-1: No Action	Not Acceptable	Poor	Excellent	Excellent	Excellent
	Unacceptable risk to human health; poor adequacy and reliability of controls.	Does not reduce the mobility, toxicity, or volume of chemicals in groundwater through treatment.	No short-term risk because no active remediation activities are proposed.	Readily implementable.	No costs incurred.

Table 5-5. Summary of Comparative Analysis of Groundwater Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative GW-2: ICs and Long-Term Groundwater Monitoring	Poor	Poor	Very Good	Excellent	Very Good
	Reduces risk by eliminating exposure pathway to potential human receptors; vapor entry through building slabs and utility lines mitigated through ICs specifying future construction practices. Does not reduce concentrations of COCs or COECs; adequacy and reliability depend on maintenance of access restrictions and the reliability and adequacy of long-term monitoring program. May not reduce potential risk to ecological receptors.	Does not reduce the mobility, toxicity, or volume of chemicals through treatment.	ICs implemented in less than 6 months; minimal risks to the community, workers, and the environment by monitoring well installation and groundwater sampling.	Technically and administratively feasible; long-term monitoring requires a moderate level of routinely available resources.	$2.6 million

Table 5-5. Summary of Comparative Analysis of Groundwater Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative GW-3A: Groundwater Containment, ISB, MNA, and ICs	Very Good	Very Good	Very Good	Very Good	Good
	Reduces risk by cleaning up groundwater. Eliminates exposure pathway to potential human receptors through ICs until completion of remedy; vapor entry through building slabs and utility lines mitigated through ICS specifying future construction practices; adequacy and reliability depend on maintenance and enforcement of access restrictions; includes permanent solutions not dependent on ICs in the long term.	Toxicity and volume of COCs and COECs reduced at the source; risk of mobility addressed through containment at Site IR-02 Northwest metals plume.	No health risks to community; minimal risk to workers during groundwater sampling; some potential for construction-related injuries during remediation; minor environmental effects; active treatment implemented in 3 years or less.	Slurry walls would be challenging to implement, and pre-design investigations would be required to identify subsurface obstructions. Injection treatment is feasible; treatment requires moderate level of resources.	$4.5 million

Table 5-5. Summary of Comparative Analysis of Groundwater Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative GW-3B: Groundwater Containment, ISB, ZVI Reduction, MNA, and ICs	Very Good	Very Good	Very Good	Very Good	Poor
	Reduces risk by cleaning up groundwater. Eliminates exposure pathway to potential human receptors through ICs until completion of remedy; vapor entry through building slabs and utility lines mitigated through ICs specifying future construction practices; adequacy and reliability depend on maintenance and enforcement of access restrictions; solutions not dependent on ICs in the long term.	Toxicity and volume of COCs and COECs reduced at the source; risk of mobility addressed through containment at Site IR-02 Northwest metals plume.	Risk to community may occur by transporting contaminated soils; minimized with containment controls. No health risks to community during treatment; minimal risk to workers during groundwater sampling; some potential for construction-related injuries during remediation; minor environmental effects; active treatment implemented in 3 years or less.	Slurry walls would be challenging to implement, and pre-design investigations would be required to identify subsurface obstructions. Injection treatment is feasible; treatment requires moderate level of resources; treatment period for Building 406 TCE Plume would be reduced to less than 1 year.	$5.7 million

Table 5-5. Summary of Comparative Analysis of Groundwater Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative GW-4: Groundwater Containment, ISB, Air Sparging, MNA, and ICs	Good	Good	Good	Very Good	Poor
	Reduces risk by cleaning up groundwater. Eliminates exposure pathway to potential human receptors through ICs until completion of remedy; vapor entry through building slabs and utility lines mitigated through ICs specifying future construction practices; stripping of dissolved phase contaminants from groundwater may be challenging in heterogeneous soils; adequacy and reliability depend on maintenance and enforcement of access restrictions; solutions not dependent on ICs in the long term.	Toxicity and volume of COCs and COECs reduced at the source; VOC removal and treatment efficiency affected by heterogeneous soils; risk of mobility addressed through containment at IR-02 Northwest metals plume	Risk to community may occur by transporting contaminated soil; minimized with containment controls. No health risks to community during treatment; minimal risk to workers during groundwater sampling; some potential for construction-related injuries during remediation; operation of the SVE and air sparging system contributes significantly to air emissions and energy usage because of the equipment use.	Slurry walls would be challenging to implement, and pre-design investigations would be required to identify subsurface obstructions. Injection treatment is feasible; treatment requires moderate level of resources; additional data would be required to determine a sufficient density of air sparging and SVE wells; to be implemented in conjunction with Alternative S-4.	$5.9 million

Notes:

1. = Based on net present value

AS = air sparging
COC = chemical of concern
COEC = chemical of ecological concern
IC = institutional control
ISB = in-situ bioremediation
MNA = monitored natural attenuation
RAO = remedial action objective
SVE = soil vapor extraction
ZVI = zero-valent iron

Table 5-6. Comparative Analysis of NAPL Remedial Alternatives for Parcel E

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

ALTERNATIVES	Overall Protection of Human Health and the Environment [a]	Compliance with ARARs [a]	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost ($ Million)	Overall Rating by Alternative
Alternative N-1: No Action	Not Protective	No	○	◐	●	●	$0	○
Alternative N-2: Source Containment, Long-Term Monitoring, and ICs	Protective	Meets ARARs	◐	◐	◕	◕	$1.7	◐
Alternative N-3: Source Removal or Treatment, Containment, MNA, and ICs	Protective	Meets ARARs	◐	◐	◕	◕	$13.1	◐
Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, MNA, and ICs	Protective	Meets ARARs	◐	◕	◕	◕	$14.7	◐
Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, MNA, and ICs	Protective	Meets ARARs	◐	◕	◐	◐	$16.2	◐
Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, MNA, and ICs	Protective	Meets ARARs	◐	◕	◐	◕	$22.0	◐
Alternative N-6: Source Removal by Excavation, MNA, and ICs	Protective	Meets ARARs	◕	◐	◐	◐	$21.8	◐

Legend:

- ○ Not acceptable
- ◐ Poor
- ◐ Good
- ◕ Very Good
- ● Excellent

Notes:

a Overall protection of human health and the environment and compliance with ARARs are threshold criteria and alternatives are judged as either meeting or not meeting the criteria.

ARARs applicable or relevant and appropriate requirements
ICs institutional controls

Table 5-7. Summary of Comparative Analysis of NAPL Alternatives
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

NAPL Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
	Parameters considered: ▪ Magnitude of residual risks ▪ Adequacy and reliability of release controls	Parameters considered: ▪ Anticipated capability to reduce toxicity, mobility, or volume of chemicals	Parameters considered: ▪ Exposure of the community during implementation ▪ Exposure of the workers during construction ▪ Environmental effects ▪ Time required to achieve RAOs	Parameters considered: ▪ Technical and administrative feasibility of implementing an alternative ▪ Availability of required resources and materials ▪ Ability to construct the technology ▪ Reliability of the technology ▪ Monitoring considerations ▪ Availability of equipment and specialists	Parameters considered: ▪ Capital costs ▪ Operations and maintenance costs
Alternative N-1: No Action	Not Acceptable	Poor	Excellent	Excellent	Excellent
	Unacceptable risk to human health; poor adequacy and reliability of controls.	Does not reduce the mobility, toxicity, or volume of chemicals in the environment through treatment.	No short-term risk because no active remediation activities are proposed.	Readily implementable.	No costs incurred.

Table 5-7. Summary of Comparative Analysis of NAPL Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

NAPL Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative N-2: Source Containment, Long-Term Monitoring, and Institutional Controls	Good	Poor	Very Good	Very Good	Very Good
	Effective in the long-term because containment reduces risks and cuts off exposure pathways, adequacy and reliability of ICs depend on monitoring and maintaining covers.	Risk of mobility addressed through containment around source area. Does not reduce the toxicity, or volume of chemicals in soil through treatment.	Increased construction traffic may cause risk to community; constructing covers may cause risk to workers; minor environmental footprint; activities likely to be completed in 1 year.	Slurry walls would be challenging to implement, and pre-design investigations would be required to identify subsurface obstructions; covers technically feasible and easily implemented; ICs are easy to implement administratively.	$1.7 million
Alternative N-3: Source Removal or Treatment, Containment, MNA, and ICs	Good	Good	Very Good	Very Good	Good
	Reduces risk through source removal/treatment and containment; adequacy and reliability depend on maintenance of deed restrictions and the reliability and adequacy of long-term monitoring program.	Source treatment elements reduce the toxicity and mobility of COCs and COECs in NAPL and soil.	Source removal or treatment may cause risk to workers that would require mitigation; moderate environmental footprint; source removal/treatment implemented in 3 years or less.	Slurry walls would be challenging to implement, and pre-design investigations would be required to identify subsurface obstructions; covers technically feasible and easily implemented; site conditions pose challenges to cost-effectively implementing source removal/treatment but challenges could be addressed by effectively using multiple technologies in combination.	$13.1 million

Table 5-7. Summary of Comparative Analysis of NAPL Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

NAPL Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by ISB, Containment, MNA, and ICs,	Good	Very Good	Very Good	Very Good	Good
	Reduces risk through source removal/treatment, groundwater treatment, and containment; adequacy and reliability depend on maintenance of deed restrictions and the reliability and adequacy of long-term monitoring program.	Mobility, toxicity and volume of COCs and COECs in NAPL, soil, and groundwater reduced through treatment.	Source removal or treatment may cause risk to workers requiring mitigation; moderate environmental footprint; source removal/treatment implemented in 3 years or less.	Slurry walls would be challenging to implement, and pre-design investigations would be required to identify subsurface obstructions; covers technically feasible and easily implemented; site conditions pose challenges to cost-effectively implementing source removal/treatment but challenges could be addressed by effectively using multiple technologies in combination.	$14.7 million
Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, MNA, and ICs	Good	Very Good	Good	Good	Good
	Same as Alternative N-4A.	Same as Alternative N-4A.	Source removal or treatment may cause risk to workers; increased environmental footprint due to energy demand of steaming process; source removal/treatment implemented in 3 years or less.	Site conditions pose challenges to cost-effectively implementing source removal/treatment but challenges could be addressed by effectively using multiple technologies in combination; steaming process could be more difficult to implement (due to increased energy demand).	$16.2 million

Table 5-7. Summary of Comparative Analysis of NAPL Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

NAPL Alternative	Long-Term Effectiveness and Permanence	Reduction of Mobility, Toxicity, or Volume through Treatment	Short-Term Effectiveness	Implementability	Cost[1]
Alternative N-5: Source Removal and NAPL Extraction/Treatment, Groundwater Treatment by ISB, Containment, MNA, and ICs	Good	Very Good	Good	Very Good	Poor
	Same as Alternative N-4A.	Same as Alternative N-4A.	Source removal or treatment may cause risk to workers requiring mitigation; risk to community may occur by excavating and transporting contaminated media, but minimized with containment controls; moderate environmental footprint; source removal/treatment implemented in 3 years or less.	Excavation and covers are technically feasible; slurry walls would be challenging to implement, and pre-design investigations would be required to identify subsurface obstructions; site conditions pose challenges to cost-effectively implementing source removal/treatment but challenges could be addressed by effectively using multiple technologies in combination.	$22.0 million
Alternative N-6: Source Removal by Excavation, MNA, and ICs	Very Good	Poor	Poor	Poor	Poor
	Effective in the long-term by reducing risk from COCs and COECs through excavation and off-site disposal; adequacy and reliability depend on maintenance of deed restrictions and the reliability and adequacy of long-term monitoring program (while aquifer recovers following removal).	Does not reduce the mobility, toxicity, or volume of chemicals in the environment through treatment.	Large-scale, deep excavation poses acute risk to workers and wildlife in bay requiring mitigation; risk to community may occur by excavating and transporting contaminated media, but minimized with construction controls; increased construction significant environmental footprint; removal implemented in approximately 1 year.	Excavation and off-site disposal are commonplace and feasible technologies, but significant challenges associated with deep, large-scale excavation along the shoreline of the bay; requires significant resources and planning to mitigate risks.	$21.8 million

Table 5-7. Summary of Comparative Analysis of NAPL Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes:

1. = Based on net present value

COCs = chemicals of concern

COECs = chemicals of ecological concern

ICs = institutional controls

ISB = in-situ bioremediation

MNA = monitored natural attenuation

NAPL = nonaqueous-phase liquid

RAOs = remedial action objectives

Section 6. References

Aqua Terra Technologies (ATT), 1991. "Environmental Sampling and Analyses Plan for Hunters Point Annex, San Francisco, California." Volumes I and II. July 31.

ARS Technologies, 2009. Telephone Conversation regarding ZVI Performance. Between Steve Chen, ARS Technologies, and John Sourial, Engineering/Remediation Resources Group, Inc. February.

Barajas & Associates, Inc., 2008a. "Final Feasibility Study Report for Parcel F, Hunters Point Shipyard, San Francisco, California." April 30.

Barajas & Associates, Inc., 2008b. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Battelle Laboratories, 1996. "Field Demonstration Report on Recycling Spent Sandblasting Grit into Asphaltic Concrete, Volume I: Field Demonstration Test Methods, Results, and Conclusions." January 11.

Battelle, Blasland, Bouck, & Lee, Inc., and Neptune & Company, 2005. "Final Hunters Point Shipyard Parcel F, Validation Study Report, San Francisco Bay, California." May 2.

Battelle and Woods Hole Group, 2001. "Hunters Point Shipyard Parcel F, Winter 2001 Sediment Dynamics Study Technical Memorandum." July 12.

California Environmental Protection Agency, 2005. "Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air." Interim Final. Prepared by Department of Toxic Substances Control. February 7. Available Online at: <http://www.dtsc.ca.gov/AssessingRisk/upload/HERD_POL_Eval_Subsurface_Vapor_Intrusion_interim_final.pdf>.

CE2-Kleinfelder Joint Venture, 2006. "Parcels C, D, and E Quarterly Groundwater Monitoring Report (October-December 2005), Hunters Point Shipyard, San Francisco, California." August (Revision 1).

CE2-Kleinfelder Joint Venture, 2007a. "Parcels C, D, and E Quarterly Groundwater Monitoring Report (January-March 2006) and Annual Report, Hunters Point Shipyard, San Francisco, California." March (Revision 1).

CE2-Kleinfelder Joint Venture, 2007b. "Parcels C, D, and E Quarterly Groundwater Monitoring Report (April-June 2006), Hunters Point Shipyard, San Francisco, California." April (Revision 1).

CE2-Kleinfelder Joint Venture, 2007c. "Parcels C, D, and E Quarterly Groundwater Monitoring Report (July-September 2006), Hunters Point Shipyard, San Francisco, California." May (Revision 1).

CE2-Kleinfelder Joint Venture, 2007d. "Parcels C, D, and E Quarterly Groundwater Monitoring Report (October-December 2006), Hunters Point Shipyard, San Francisco, California." August (Revision 1).

CE2-Kleinfelder Joint Venture, 2007e. "Parcels C, D, E, and E-2 Quarterly Groundwater Monitoring Report (January-March 2007) and Annual Report, Hunters Point Shipyard, San Francisco, California." November (Revision 1).

CE2-Kleinfelder Joint Venture, 2008a. "Semi-Annual Groundwater Monitoring Report (April 2007-September 2007), Hunters Point Shipyard, San Francisco, California." January.

CE2-Kleinfelder Joint Venture, 2008b. "Semi-Annual Groundwater Monitoring Report (October 2007-March 2008), Hunters Point Shipyard, San Francisco, California." July.

CE2-Kleinfelder Joint Venture, 2008c. "Summary of NAPL Results for Interface Probe Testing at HPS." September. Table posted on web portal at: <www.ce2corporation.com/hp_portal>.

CE2-Kleinfelder Joint Venture, 2009a. "Semi-Annual Groundwater Monitoring Report (April 2008-September 2008), Hunters Point Shipyard, San Francisco, California." February.

CE2-Kleinfelder Joint Venture, 2009b. "Semi-Annual Groundwater Monitoring Report (October 2008-March 2009), Hunters Point Shipyard, San Francisco, California." July.

CE2-Kleinfelder Joint Venture, 2010a. "Semi-Annual Groundwater Monitoring Report (April 2009-September 2009), Hunters Point Shipyard, San Francisco, California." February.

CE2-Kleinfelder Joint Venture, 2010b. "Semi-Annual Groundwater Monitoring Report (October 2009-March 2010), Hunters Point Shipyard, San Francisco, California." June.

Church, J.A., J.M. Gregory, P. Huybrechts, M. Kuhn, K. Lambeck, M.T. Nhuan, D. Qin, and P.L. Woodworth, 2001. "Changes in Sea Level." Chapter 11 in *Climate Change 2001: The Scientific Basis.* J.T. Houghton, Y. Ding, D.J. Griggs, M. Noguer, P. van der Linden, X. Dai, K. Maskell, and C.I. Johnson (eds). Contribution of Working Group 1 to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge. Available Online at: <http://www.grida.no/climate/ipcc_tar/wg1/index.htm>.

ChaduxTt, 2007, "Final Parcel B Technical Memorandum in Support of a Record of Decision Amendment, Hunters Point Shipyard, San Francisco, California." December 12.

ChaduxTt, 2010, "Final Memorandum, Approach for Developing Soil Gas Action Levels for Vapor Intrusion Exposure at Hunters Point Shipyard, San Francisco, California." April 30.

Department of Health Services (DHS), 1988. "Remedial Action Order, Docket No. HSA87/88-034RA." January 7.

Department of the Navy (Navy), 2003. Letter Requesting an Exemption for the A-aquifer from Consideration as a Municipal or Domestic Water Supply. To Ms. Julie Menack, San Francisco Bay Regional Water Quality Control Board. From Mr. Keith Forman, Navy Base Realignment and Closure Environmental Coordinator. August 11.

Navy, 2005a. Letter Regarding Change to a Portion of the Parcel D and E Boundary at Hunters Point Shipyard. From Keith Forman, Navy. To Michael Work, U.S. Environmental Protection Agency; Tom Lanphar, Department of Toxic Substances Control; and Jim Ponton, San Francisco Bay Regional Water Quality Control Board. February 11.

Navy, 2006a. "Final Action Memorandum for Time-Critical Removal Action of Radiological Materials in Soils, Debris, or Structures at Hunters Point Shipyard, San Francisco, California." April 21.

Navy, 2006b. "Hunters Point Shipyard BCT Meeting Minutes, June 20, 2006." Draft. BRAC PMO West. July 21.

Navy, 2006c. "Hunters Point Shipyard BCT Meeting Minutes, July 25, 2006." Draft. BRAC PMO West. August 18.

Navy, 2008. "Navy/Marine Corps Policy on Vapor Intrusion." Chief of Naval Operations. April 29.

Navy, 2009. Letter regarding Identification of State Applicable or Relevant and Appropriate Requirements for the Feasibility Study at Parcel E, Hunters Point Shipyard. From Keith Forman, Navy. To Thomas Lanphar, DTSC, and Erich Simon, San Francisco Regional Water Quality Control Board. January 16.

Navy, 2010. "Final Amended Action Memorandum, Time-Critical Removal Action for the PCB Hot Spot Area at Parcel E-2, Revision 2010, Hunters Point Shipyard, San Francisco, California." BRAC PMO West. February 5.

Navy and Department of Toxic Substances Control, 2000. "Memorandum of Agreement Between the United States Department of the Navy and the California [Environmental Protection Agency] Department of Toxic Substances Control." Signed March 10.

Navy, the Advisory Council on Historic Preservation, and State Historic Preservation Office, 2000. "Memorandum of Agreement Among the United States Navy, the Advisory Council on Historic Preservation and the California State Historic Preservation Office Regarding the Interim Leasing and Disposal of Historic Properties on the Former Hunters Point Naval Shipyard, San Francisco, California."

Navy, U.S. Environmental Protection Agency, California Department of Toxic Substances Control, and San Francisco Regional Water Quality Control Board, 1991. "Federal Facility Agreement for Naval Station Treasure Island, Hunters Point Annex." October.

Department of Toxic Substances Control (DTSC), 2009a. Letter regarding Identification of State Applicable or Relevant and Appropriate Requirements for the Draft Feasibility Study for Parcel E, Hunters Point Shipyard, San Francisco, California. From Ryan Miya, DTSC. To Keith Forman, Navy. March 5.

DTSC, 2009b. Letter regarding San Francisco Bay Conservation and Development Commission ARARs Request Response for the Parcel E Draft Feasibility Study, Hunters Point Shipyard, San Francisco, California. From Ryan Miya, DTSC. To Keith Forman, Navy. April 28.

EMCON Associates, Inc. (EMCON), 1987a. "Confirmation Study, Verification Step, Hunters Point Naval Shipyard (Disestablished), San Francisco, California." Volumes 1 through 4. March 19.

EMCON, 1987b. "Area Study for Asbestos-Containing Material and Organic and Inorganic Soil Contamination, Hunters Point Naval Shipyard (Disestablished), San Francisco, California." July 2.

Environmental Resources Management-West (ERM-West), 1988. "Fence-to-Fence Hazardous Waste Material Survey, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." July 2.

ERM-West, 1989. "Summary Report, Interim Cleanup of PCB-Contaminated Soils near Former Building 503, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November 15.

Engineering/Remediation Resources Group, Inc. and Radiological Survey and Remedial Services, LLC, 2011. "Draft Final Radiological Addendum to the Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California." November.

Federal Remediation Technologies Roundtable, 2005. Federal Remediation Technologies Roundtable Website. Accessed in January 2008. Available Online at: <http://www.frtr.gov>.

Geosphere, Inc. and CH2M Hill, Inc., 2006. "Maximum Allowable Concentration, Residual Saturation, and Free-Product Mobility, Technical Background Document and Recommendation." Prepared for Alaska Statement of Cooperation Working Group. September.

Ground-Water Remediation Technology Analysis Center, 1997. "Electrokinetics." July.

Harding and Lawson Associates (HLA), 1988. "Scoping Document, Remedial Investigation/Feasibility Study, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." August 4.

HLA, 1989a. "Final Draft Solid Waste Air Quality Assessment Test, Hunters Point Annex, San Francisco, California." August 4.

HLA, 1989b. "Preliminary Assessment Sites PA-12 through PA-18, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November 16.

HLA, 1990a. "Reconnaissance Activities Report, Remedial Investigation/Feasibility Studies, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." Volumes I, II, and III. August 9.

HLA, 1990b. "Preliminary Assessment Other Areas/Utilities, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." Volumes 1 and 2. October 19.

HLA, 1991. "Preliminary Draft Ecological Risk Assessment Data Summary Report." November.

HLA, 1994a. "Draft Construction Summary Report, Exploratory Excavation Removal Action, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." January 5.

HLA, 1994b. "Final Site Assessment Report, Potentially Contaminated Sites, Parcels B, C, D, and E, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." April 15.

HLA, 1994c. "Draft Final Site Inspection Report, Parcel D, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." May 30.

HLA, 1994d. "Draft Final Parcel E Site Inspection Report, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." July 22.

Innovative Technical Solutions, Inc. (ITSI) and Tetra Tech EM Inc., 2004. "Draft Stockpile Evaluation Report, Hunters Point Shipyard, San Francisco, California." February 9.

ITSI and others, 2004. "Metals Concentrations in Franciscan Bedrock Outcrops: Three Sites in the Hunters Point Shear Zone and Marin Headlands Terrane Subunits, Hunters Point Shipyard, San Francisco, California." March 17.

ITSI, 2005. "Final Zero-Valent Iron Injection Treatability Study Report, Building 272, Parcel C, Hunters Point Naval Shipyard, San Francisco, California." April.

ITSI, 2011. "Final Work Plan, Site Characterization and Bench-Scale Treatability Study for Installation Restoration Site 03, Parcel E, Hunters Point Shipyard, San Francisco, California." August.

International Technology Corporation (IT Corporation), 1997a. "Data Summary Report, Site IR-03, Hunters Point Shipyard, San Francisco CA." Revision 0. March 13.

IT Corporation, 1997b. "Construction Summary Report, Exploratory Excavation Removal Action, EFA West, Hunters Point Shipyard, San Francisco, California." July.

IT Corporation, 1997c. "Draft Field Summary Report, Storm Drain Sediment Removal Action, Hunters Point Shipyard, San Francisco, California." December.

IT Corporation, 1999. "Final Post-Construction Report, Site IR-03 Waste Oil Reclamation Ponds Removal Action, Sheet Pile Containment Barrier, Cap and Soil Cover, Hunters Point Naval Shipyard, San Francisco, California." July.

IT Corporation, 2002. "Draft Phase II Soil Vapor Extraction Treatability Study Report, Building 406, IR-36, Parcel E, Hunters Point Shipyard, San Francisco, California." June.

Interstate Technology and Regulatory Cooperation Work Group, 2000. "Dense Non-Aqueous Phase Liquids (DNAPLs): Review of Emerging Characterization and Remediation Technologies." June.

Kleinfelder, Inc. and CDM Federal Programs Corporation (CDM), 2006a. "Draft Fifth Quarter (January-March) 2005, Groundwater Sampling Report, Parcels C, D, and E, Hunters Point Shipyard, San Francisco, California." March 22.

Kleinfelder, Inc. and CDM, 2006b. "Draft Sixth Quarter (April-June) 2005, Groundwater Sampling Report, Parcels C, D, and E, Hunters Point Shipyard, San Francisco, California." April 17.

Kleinfelder, Inc. and CDM, 2006c. "Draft Seventh Quarter (July-September) 2005, Groundwater Sampling Report, Parcels C, D, and E, Hunters Point Shipyard, San Francisco, California." April 19 (Revised May 1, 2006).

Long, E.R., and L.G. Morgan, 1991. "The Potential for Biological Effects of Sediment-Sorbed Contaminants Tested in the National Status and Trends Program." National Oceanic and Atmospheric Administration, Technical Memorandum NOS OMA 52. Seattle, Washington. March.

Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995. "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments." *Environmental Management*. Volume 19. Number 1. Pages 81-97.

MARRS Services, Inc. and MACTEC Engineering and Consulting, 2008. "Storm Water Discharge Management Plan Update for the 2007/2008 Monitoring Year, Hunters Point Shipyard, San Francisco, California." September.

Meehl, G.A., T.F. Stocker, W. Collins, P. Friedlingstein, A. Gaye, J. Gregory, A. Kitoh, R. Knutti, J. Murphy, A. Noda, S. Raper, I. Watterson, A. Weaver, and Z.C. Zhao, 2007. "Global Climate Projections." Chapter 10 in *Climate Change 2007: The Physical Science Basis.* S. Solomon, D. Qin, and M. Manning (eds). Contribution of Working Group 1 to the Fourth Assessment Report of the IPCC. Cambridge University Press, Cambridge. Available Online at: <http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>.

Naval Energy and Environmental Support Activity, 1984, "Initial Assessment Study of Hunters Point Naval Shipyard (Disestablished), San Francisco, California." NEESA 13-059. October.

Naval Sea Systems Command, 2004. "Historical Radiological Assessment, Volume II, Use of General Radioactive Materials, 1939-2003, Hunters Point Shipyard, San Francisco, California." Prepared by Radiological Affairs Support Office. August 31. Available Online at: <https://portal.navfac.navy.mil/portal/page/portal/navfac/navfac_ww_pp/navfac_navfacsw_pp/environmental/hps-hra>.

PRC Environmental Management, Inc. (PRC), 1992. "Surface Confirmation Radiation Survey, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November 3.

PRC, 1994. "Phase 1A Ecological Risk Assessment, Volumes 1 to 3: Task Number 1, 2, and 3, Summary Report, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." July.

PRC, 1996a. "Draft Technical Memorandum, Radiation Investigation of Tidal Area Surrounding the Bay Area Landfill (IR-02), Hunters Point Annex, San Francisco, California." June 13.

PRC, 1996b. "Results of Subsurface Radiation Investigation in Parcels B and E, Draft Final Report, Volume I, Main Report, Appendices A, C, and D." July 12.

PRC, 1996c. "Estimation of Hunters Point Shipyard Groundwater Ambient Levels Technical Memorandum." September 16.

PRC, 1996d. "Phase 1B Ecological Risk Assessment, Part I, Nature and Extent of Contamination, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." September.

PRC, 1996e. "Phase 1B Ecological Risk Assessment, Part II, Risk Characterization, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California." November.

San Francisco District Attorney, 1986. "People of California -v- Triple A Machine Shop Inc., et al., Exhibit to People's Memorandum of Points and Authorities in Support of Temporary Restraining Order Construction Trust, and Appointment of Receiver filed by Arlo Smith, District Attorney, et al., in the Superior Court of the State of California, in and of the City of San Francisco."

San Francisco Redevelopment Agency (SFRA), 2010a. "Final Environmental Impact Report, Candlestick Point-Hunters Point Phase II." Volumes I through X. May 13.

SFRA, 2010b. "Redevelopment Plan for the Bayview Hunters Point Redevelopment Project." City and County of San Francisco. May 27.

SFRA, 2010c. "Hunters Point Shipyard Redevelopment Plan." City and County of San Francisco. August 3 (amendment to July 14, 1997, redevelopment plan).

San Francisco Regional Water Quality Control Board (Water Board), 1996, "Regional Board Supplemental Instruction to State Water Board, December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Fuel Sites." January 5.

Water Board, 1998. "Staff Report: Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments." May.

Water Board, 2003a. Letter Regarding Comments on PCB Cleanup Goals for Parcel F, South Basin, Feasibility Study Approach and PRG Development. From Naomi L. Feger, Water Board. To Keith S. Forman, Department of the Navy. February 18.

Water Board, 2003b. Letter Regarding Concurrence that A-aquifer Groundwater at Hunters Point Shipyard Meets Exemption Criteria in State Water Resources Control Board Resolution 88-63 for Sources of Drinking Water. From Curtis Scott, Water Board. To Keith Forman, Department of the Navy. September 25.

Water Board, 2007. "Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region." January. Available Online at: <http://www.waterboards.ca.gov/sanfranciscobay/basinplan.htm>.

Water Board, 2009. Letter regarding Identification of State Applicable or Relevant and Appropriate Requirements for the Feasibility Study at Parcel E, Hunters Point Shipyard, San Francisco, California. From Erich Simon, Water Board. To Keith Forman, Navy. March 5.

Shaw Environmental, Inc. (Shaw), 2005. "In Situ Sequential Anaerobic-Aerobic Bioremediation Treatability Study, Remedial Unit C5, Building 134, Installation Restoration Site 25, Hunters Point Shipyard, San Francisco, California." Final. November 23.

Shaw, 2007. "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California." December 21.

Shaw, 2009a. "Work Plan for the Parcel E Groundwater Treatability Study, Hunters Point Shipyard, San Francisco, California." July 27.

Shaw, 2009b. "Final Petroleum Hydrocarbon Corrective Action Plan, Revision 2009, Parcel E, Hunters Point Shipyard, San Francisco, California." July 31.

Shaw, 2011. "Final Parcel E Groundwater Treatability Study Technical Report, Hunters Point Shipyard, San Francisco, California." May 16.

Shaw Environmental, Inc. and others, 2005. "In Situ Anaerobic and Aerobic Bioremediation of a Mixed Chlorinated Organic Plume at the Hunters Point Shipyard." D. Leigh, B. Porter, W. Schaal, G. Christensen, G.P. Brooks. *In Situ and On Site Bioremediation. The 8th International Symposium*. Baltimore, Maryland. June.

State Water Resources Control Board (SWRCB), 1988. Resolution No. 88-63, "Sources of Drinking Water Policy Resolution."

SulTech, 2007. "Draft Parcels E and E-2 Shoreline Characterization Technical Memorandum, Hunters Point Shipyard, San Francisco, California." June 29.

Tetra Tech EC, Inc. (TtECI), 2005. "Final Project Work Plan, Time-Critical Removal Action for IR-02, Parcel E, Hunters Point Shipyard, San Francisco, California." November 10.

TtECI, 2007a. "Final Removal Action Completion Report, PCB Hot Spot Soil Excavation Site, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." October 31.

TtECI, 2007b. "Final Removal Action Completion Report, Metal Debris Reef and Metal Slag Area Excavation Sites, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." November 30.

TtECI, 2007c. "Final Removal Action Completion Report, IR-02 Northwest and Central, Parcel E, Hunters Point Shipyard, San Francisco, California." December 12.

TtECI, 2010. "Final Material Potentially Presenting an Explosive Hazard (MPPEH) Processing and Removal Completion Report, Hunters Point Shipyard, San Francisco, California." June 30.

Tetra Tech EM Inc. (TtEMI), 1998a. "Parcel E Feasibility Study, Draft Report, Hunters Point Shipyard, San Francisco, California." January.

TtEMI, 1998b. "Final Basewide Environmental Baseline Survey, Revision 01, Hunters Point Shipyard, San Francisco, California." September 4.

TtEMI, 2000. "Draft Phase IV Radiation Investigation Report, Hunters Point Shipyard, San Francisco, California." May 15.

TtEMI, 2001. "Parcel E Information Package Phase II Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." August 10.

TtEMI, 2002. "Revised Draft Petroleum Hydrocarbons Corrective Action Plan, Parcels C, D, and E, Hunters Point Shipyard, San Francisco, California." November 22.

TtEMI, 2003a. "Final Parcel E Nonstandard Data Gaps Investigation, Wetlands Delineation and Functions and Values Assessment, Parcels B and E, Hunters Point Shipyard, San Francisco, California." August 14.

TtEMI, 2003b. "Cost and Performance Report FEROX Injection Technology Demonstration, Parcel C, Remedial Unit C4, Hunters Point Shipyard, San Francisco, California." July 11.

TtEMI, 2004a. "Addendum to the Final Petroleum Hydrocarbon Corrective Action Plan, Parcel B, Hunters Point Shipyard, San Francisco, California." April 15.

TtEMI, 2004b. "Revised Final Parcel E Groundwater Summary Report, Phase III Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." May 11.

TtEMI, 2004c. "Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater Monitoring Program, Hunters Point Shipyard, San Francisco." August 20.

TtEMI, 2005a. "Parcels E and E-2 Standard Data Gaps Investigation, Data Summary Report (Revision 01), Hunters Point Shipyard, San Francisco, California." March 24.

TtEMI, 2005b. "Closeout Report, Time-Critical Removal Action for Parcel D Excavation Sites, Hunters Point Shipyard, San Francisco, California." May 13.

TtEMI and IT Corporation, 2001. "Parcel D Time-Critical Removal Action Closeout Report, Hunters Point Shipyard, San Francisco, California." December 6.

TtEMI and Levine Fricke Recon (LFR), 2000a. "Draft Final Ecological Risk Assessment Validation Study Report, Parcel E, Hunters Point Shipyard, San Francisco, California." March 14.

TtEMI and LFR. 2000b. "Draft Final Protective Soil Concentrations Technical Memorandum, Parcel E, Hunters Point Shipyard, San Francisco, California" March 14.

TtEMI, LFR, and Uribe & Associates, 1997. "Parcel E Remedial Investigation, Draft Final Report, Hunters Point Shipyard, San Francisco, California." October 27.

Tetra Tech FW, Inc., 2004a. "Final Biological Assessment, Parcel E, Hunters Point Shipyard, San Francisco, California." April 26.

Tetra Tech FW, Inc., 2004b. "Final Post-Construction Report, Decontaminate Process Equipment, Conduct Waste Consolidation, and Provide Asbestos Services in Parcels B, C, D, and E, Hunters Point Shipyard, San Francisco, California." November 2.

Tetra Tech FW, Inc., 2005a. "Draft Final Project Work Plan, PCB Hot Spot Soil Excavation Site, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." Revision 0. May 17.

Tetra Tech FW, Inc., 2005b. "Draft Final Removal Action Design and Implementation Work Plan, Metal Debris Reef and Metal Slag Areas, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." Revision 0. May 20.

TPA-CKY Joint Venture, 2005, "Draft Final Site Closeout Report, Total Petroleum Hydrocarbon Program Corrective Action Implementation, Soil Removal for Parcels B, C, D, and E, Hunters Point Shipyard, San Francisco, California." June.

U.S. Department of Defense (DoD), 2001. Memorandum from Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security) regarding Policy on Land Use Controls Associated with Environmental Restoration Activities. January 17.

DoD, 2004. Memorandum regarding "Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Record of Decision (ROD) and Post-ROD Policy." January 16.

DoD, 2009. "DoD Vapor Intrusion Handbook." Prepared by Tri-Service Environmental Risk Assessment Workgroup. January.

U.S. Environmental Protection Agency (EPA), 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA." Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01 and -02. EPA/540G-89/004. Available Online at: <http://www.epa.gov/superfund/policy/remedy/pdfs/540g-89004-s.pdf>.

EPA, 1990a. "National Oil and Hazardous Substances Pollution Contingency Plan." *Federal Register.* Volume 55, No. 46. p. 8,666. April 9.

EPA, 1990b. "Federal Facility Agreement for Treasure Island and Hunters Point." September 1; updated October 1991.

EPA, 1995. Memorandum regarding Land Use in the CERCLA Remedy Selection Process. From Elliott P. Laws, Assistant Administrator. To Director, Waste Management Division. OSWER Directive No. 9355.7-04. May 25. Available Online at: <http://www.epa.gov/fedfac/documents/land_use_cercla_remedy.htm>.

EPA, 1997a. "Best Management Practices (BMPs) for Soils Treatment Technologies." EPA 530-R-97-007. May.

EPA, 1997b. "Analysis of Selected Enhancements for Soil Vapor Extraction." EPA 542-R-97-007. September.

EPA, 1998a. Integrated Risk Information System (IRIS), Toxicity Information for Chromium IV. Available Online at: <http://www.epa.gov/ncea/iris/subst/0144.htm#quaoral>.

EPA, 1998b. "Evaluation of Subsurface Engineered Barriers at Waste Sites." EPA 542-R-98_005. August.

EPA, 1998c. "Field Applications of In Situ Remediation Technologies: Chemical Oxidation." EPA 542-R-98_008. September.

EPA, 1999a. Letter Regarding Revised Federal Agreement Schedules that Included an Attachment (Enclosure 5) Describing the Application of Federal Criteria for Determining Beneficial Uses of Groundwater. From Mr. Tom Huetteman, EPA Region 9. To Mr. Hank Gee, Naval Facilities Engineering Command, Engineering Field Activity West. May 12.

EPA, 1999b. "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites." Office of Solid Waste and Emergency Response (OSWER) Directive 9200.4-17P. April. Available Online at: <http://www.epa.gov/OUST/directiv/d9200417.pdf>.

EPA, 2000a. The OSWER publication on Land Use Controls. Available Online at: <http://www.epa.gov/oerrpage/superfund/action/ic/guide/index.htm>.

EPA, 2000b. "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study." EPA/540/R-00/002. Washington, D.C. July. Available Online at: <http://www.epa.gov/superfund/resources/remedy/costest.htm>.

EPA, 2000c. "Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups." OSWER 9355.0-74S-P. EPA 540-F-00-005. September. Available Online at: <http://epa.gov/superfund/policy/ic/guide/guide.pdf>.

EPA, 2000d. "Solidification/Stabilization Use at Superfund Sites." EPA 542-R-00-010. September. Available Online at: < http://www.epa.gov/tio/download/remed/ss_sfund.pdf >.

EPA, 2002. "OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)." EPA-530-D-02-004. November. Available Online at: <http://www.epa.gov/waste/hazard/correctiveaction/eis/vapor/complete.pdf>.

EPA, 2006. "In-Situ Treatment Technologies for Contaminated Soil." November. Available Online at: <http://www.clu-in.org/download/remed/542f06013.pdf>.

EPA, 2008. Region 3. 2008. Fish Tissue Screening Levels. May. Available Online at: <http://www.epa.gov/reg3hwmd/risk/human/index.htm>.

U.S. Soil Conservation Service, 1991. "Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California."

Wakabayashi, J., 1992. "Nappes, Tectonics of Oblique Plate and Convergence and Metamorphic Evolution Related to 140 Million Years of Continuous Subduction, Franciscan Complex, California." *Journal of Geology*. Volume 100. Pages 19-40.

Appendix A. Evaluation of Migration of Chemicals in Groundwater to the Aquatic Environment

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Attachment A2. Groundwater Data Summary *(Due to size, this attachment is provided on CD only.)*
Attachment A3. Aquatic Evaluation Maps

Acronyms and Abbreviations

µg/L	microgram per liter
AFs	attenuation factors
ARAR	applicable or relevant and appropriate requirement
Basin Plan	San Francisco Bay Basin (Region 2) Water Quality Control Plan
BGMP	basewide groundwater monitoring program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COECs	chemicals of potential concern
COPECs	chemicals of potential ecological concern
CTR	California Toxics Rule
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
GDGI	groundwater data gaps investigation
HGAL	Hunters Point groundwater ambient level
HPS	Hunters Point Shipyard
NAWQC	National Ambient Water Quality Criteria
NRWQC	National Recommended Water Quality Criteria
PCBs	polychlorinated biphenyls
RI	Remedial Investigation
SFRWQCB	San Francisco Regional Water Quality Control Board
SVOCs	semivolatile organic compounds
TCE	trichloroethene
TIZ	tidal influence zone
TMZ	tidal mixing zone

Acronyms and Abbreviations *(continued)*

TPH	total petroleum hydrocarbons
TtEMI	Tetra Tech EM Inc.
VOCs	volatile organic compounds
WBZ	water-bearing zone

Section A1. Introduction

This appendix summarizes an aquatic evaluation performed to determine whether chemicals in Parcel E groundwater could affect aquatic organisms in San Francisco Bay. The evaluation consists of two parts:

1. A screening evaluation that is a direct comparison of groundwater data against aquatic evaluation criteria. The screening evaluation is used primarily as a tool in identifying chemicals of potential ecological concern (COPECs) in A-aquifer groundwater that may pose a risk to aquatic organisms in San Francisco Bay.
2. A trigger-level evaluation to determine if chemical concentrations at the groundwater and bay interface pose risk to the aquatic environment. The trigger-level evaluation is a quantitative method used to calculate attenuation of chemicals as they migrate in A-aquifer groundwater, prior to discharging to San Francisco Bay. This trigger-level evaluation method was developed by the Department of the Navy for Hunters Point Shipyard (HPS), and has been used in other parcel evaluations (Parcels C and D) with regulatory agency concurrence.

Although no direct exposure pathway exists from B-aquifer or bedrock water-bearing zone (WBZ) groundwater to aquatic organisms in San Francisco Bay, groundwater data for the B-aquifer and bedrock WBZ were also evaluated to determine which chemicals detected at elevated concentrations at Parcel E could potentially migrate to the bay. This conservative measure was used to address the uncertainty of the lithologic conditions adjacent to and beyond the Parcel E and F boundaries. The available data show that the Bay Mud aquitard is continuous adjacent to and beyond the Parcel E boundary beneath the bay. The aquitard separates the permeable B-aquifer zones and the fractured bedrock WBZ from the surface waters of the bay offshore of Parcel E. Bay Mud deposits range from 5 to 76 feet thick under most of Parcel E; the aquitard is thickest in the southern portion of the parcel, along the shoreline.

The evaluations in this appendix consider both applicable or relevant and appropriate requirement (ARAR)-based surface water quality criteria and non-ARAR-based criteria for screening data at Parcel E. These criteria were considered to provide a comprehensive analysis based on agreements with the regulatory agencies and to maintain consistency with previous aquatic evaluations conducted at HPS (Parcels C and D). However, chemicals of ecological concern (COECs) are identified based on ARARs, as well as on the screening evaluation. Selection of screening criteria and development and evaluation of trigger levels are discussed in detail in Sections A2.3 and A2.5.

This evaluation supplements the "Nature and Extent of Chemicals in Groundwater" screening evaluation presented in the Parcel E Remedial Investigation (RI) Report (Barajas & Associates, Inc., 2008), which evaluated migration of chemicals off site, in the direction of San Francisco Bay.

This report is organized as follows:

- Section A1: Introduction
- Section A2: Aquatic Evaluation Methodology
- Section A3: Aquatic Evaluation Results
- Section A4: Conclusions and Recommendations
- Section A5: References

Figures and tables are provided following Section A5. Attachments providing supplementary information are presented at the end of this appendix and include:

- Attachment A1. Groundwater Modeling and Calculation of Attenuation Factors (Appendix G of the Final Revised Parcel D Feasibility Study Report; SulTech, 2007)
- Attachment A2. Groundwater Data Summary
- Attachment A3. Aquatic Evaluation Maps

Section A2. Aquatic Evaluation Methodology

A thorough analysis of existing groundwater data was conducted to provide the most conservative evaluation of the potential for chemicals in Parcel E groundwater to migrate to San Francisco Bay at concentrations that could affect surface waters. Existing data include data collected during past investigations (i.e., the RI, the groundwater data gaps investigations (GDGI) and during ongoing basewide groundwater monitoring program [BGMP]). The data evaluation included A- and B-aquifers and bedrock WBZ data.

All compiled data were initially screened against aquatic evaluation criteria, mainly comprising saltwater aquatic evaluation criteria. Chemicals detected in groundwater at concentrations exceeding the aquatic evaluation criteria were defined as COPECs. Data for COPECs exhibiting persistent and definable source areas were screened against trigger levels as a secondary evaluation (see Section A2.5 and Attachment A1) to determine if they should be considered a COEC. The following subsections describe the steps involved in the aquatic evaluation.

A2.1. COMPILATION OF GROUNDWATER DATA

All groundwater monitoring data collected at Parcel E from 1990 to October 2009 (when the data set was "locked" for the purposes of performing this aquatic evaluation) were compiled and tabulated by the following analytical groups:

- Anions
- Metals
- Volatile organic compounds (VOCs)
- Semivolatile organic compounds (SVOCs)
- Organochlorine pesticides
- Polychlorinated biphenyls (PCBs)
- Petroleum hydrocarbons

Data from wells located in Parcel E-2, along the western boundary of Parcel E, were also compiled for this evaluation because the regional groundwater flow direction in this area is to the southeast (from Parcel E-2 to Parcel E). Therefore, chemicals in groundwater may be migrating across this boundary and

warrant evaluation. Attachment A2 contains the tables that list comprehensive analytical results for samples collected between 1990 and October 2009.

A2.2. IDENTIFICATION OF CHEMICAL DETECTIONS IN GROUNDWATER

All monitoring well data were evaluated to identify all chemical concentrations exceeding reporting limits at Parcel E. Quantitative data, such as the number, location, range of reporting limits, and magnitude and frequency of detections, are presented in the tables in Attachment A2. It should be noted that the laboratory reporting limits for current, routinely used analytical methods are greater than the aquatic evaluation criteria for the following chemicals (or analytical groups):

- Cyanide
- Sulfide
- Organochlorine pesticides
- PCBs

As a result, screening criteria established in the BGMP Sampling and Analysis Plan (Tetra Tech EM Inc. [TtEMI], 2004b) were set at the project-required quantitation limits. Consistent with this approach, all chemicals that were detected at concentrations greater than the laboratory reporting limits and exceeding the aquatic evaluation criteria were included in this aquatic evaluation. As a conservative measure, chemicals that were identified and quantified at concentrations below the laboratory reporting limit, but greater than the aquatic evaluation criterion, were also presented for informational purposes.

A2.3. SELECTION OF AQUATIC EVALUATION CRITERIA

Aquatic evaluation criteria (also identified as surface water criteria) have been identified for other studies conducted at HPS; specifically, the Parcel D Feasibility Study (FS) (SulTech, 2007), Parcel C FS (SulTech, 2008), and Parcel E RI (Barajas & Associates, Inc., 2008). Table A-1 summarizes the aquatic evaluation criteria considered in this evaluation.

The criteria were primarily based on promulgated and recommended values for protection of saltwater aquatic life, derived from the following sources:

1. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) (San Francisco Bay Regional Water Quality Control Board [SFRWQCB], 2007)
2. California Toxics Rule (CTR) Priority Toxic Pollutants for the State of California (U.S. Environmental Protection Agency [EPA], 2000)

3. National Ambient Water Quality Criteria (NAWQC) (Central Valley Regional Water Quality Control Board, 2007)
4. National Recommended Water Quality Criteria (NRWQC) (EPA, 2006)

These criteria were developed to protect the environment, including aquatic organisms, from the negative effects of chemicals in surface water. The beneficial uses of groundwater do not include maintenance of freshwater or marine organisms because these organisms do not live in groundwater. Because no water quality criteria exist for groundwater and surface water quality criteria were deemed inappropriate for comparison with groundwater, the Navy developed alternative water quality criteria to evaluate the potential for chemicals in HPS groundwater to contaminate San Francisco Bay.

The Navy's evaluation of ARARs for water quality concluded that the state standards promulgated in Table 3-3 of the Basin Plan (SFRWQCB, 2007) and the federal standards promulgated in the CTR (EPA, 2000) are potential ARARs for the A-aquifer at Parcel E to be met at the interface of groundwater and San Francisco Bay. The Navy has further concluded that the guidelines for NAWQC and NRWQC are not ARARs for A-aquifer groundwater and the bay because other standards are better suited to Parcel E, including state standards in Table 3-3 of the Basin Plan and the federal standards developed for the state of California codified in the CTR. (Refer to Appendix B, Section B2.2.4 for a detailed discussion of ARARs for surface water.) All of these standards apply to surface water; none of them applies to groundwater. Therefore, these potential ARARs for surface water would be applied to surface water at the interface of A-aquifer groundwater and the bay, but would not be used to set cleanup standards for in-situ A-aquifer groundwater at Parcel E.

For the B-aquifer, the Navy identified federal and state maximum contaminant levels as potential ARARs. (Refer to Appendix B, Section B2.2.3 for a detailed discussion of groundwater ARARs.) These ARARs also would be protective of the discharge of B-aquifer groundwater to permeable zones underlying San Francisco Bay. Surface water criteria are not identified as potential ARARs for the interface of B-aquifer groundwater and the bay.

The most conservative (lowest) surface water criterion for each chemical was used in this evaluation, except for metals in A-aquifer groundwater. For metals in A-aquifer groundwater, the appropriate Hunters Point groundwater ambient level (HGAL) (PRC Environmental Management, Inc., 1996) was selected as the aquatic evaluation criterion, unless a surface water criterion exceeding the HGAL existed. In such a case, the most conservative (lowest) saltwater aquatic evaluation criterion above the HGAL was used as the aquatic evaluation criterion. Table A-2 summarizes the HGALs for the A-aquifer. HGALs are not applicable to the B-aquifer based on its potential beneficial uses (see Appendix F of the RI Report [Barajas & Associates, Inc., 2008] for the results of the A-aquifer and B-aquifer beneficial use evaluations).

Petroleum hydrocarbons are not classified as a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Title 42 United States Code Section 9601[14]), thus they are excluded from consideration under the CERCLA process unless commingled with hazardous substances regulated under CERCLA. A screening evaluation was conducted to identify areas where petroleum hydrocarbons are commingled with other inorganic and organic chemicals that are regulated under CERCLA. The aquatic evaluation criterion used for petroleum hydrocarbons in this evaluation is based on the HPS-specific methodology established under the petroleum program (Shaw Environmental, Inc., 2007). This methodology sums all total petroleum hydrocarbon (TPH) categories (diesel-range, gasoline-range, and motor-oil range) and compares the sum against a total TPH criterion, which ranges from 1,400 to 20,000 micrograms per liter (µg/L), depending on the distance from the shoreline.

A2.4. DATA SCREENING EVALUATION

The purpose of the data screening evaluation is to identify chemicals in groundwater that could migrate to San Francisco Bay at concentrations exceeding aquatic evaluation criteria. Such chemicals are considered COPECs and should be evaluated further.

The data evaluation focused on A-aquifer wells located within the tidal influence zone (TIZ) (Figure A-1), which is consistent with past requests from SFRWQCB (2006). The TIZ was defined as the area where the maximum tidal fluctuation exceeds 0.10 foot in the A-aquifer based on data collected during the Phase III GDGI (TtEMI, 2004a). It should be noted that the TIZ, which is defined by groundwater level (pressure) responses to tidal fluctuations in San Francisco Bay, is not the same as the tidal mixing zone (TMZ), where bay water flows in and out during a tidal cycle so that A-aquifer groundwater physically mixes with bay water. Past studies have shown that the TIZ extends farther inland than the TMZ (TtEMI, 2004a); therefore, the data evaluation presented herein is adequately conservative to assess potential exposure to aquatic organisms in the bay. For completeness, the evaluation also compares concentrations in A-aquifer wells located inland of the TIZ and B-aquifer wells against the corresponding aquatic evaluation criterion.

This evaluation was refined by evaluating the magnitude of the chemical concentrations relative to aquatic evaluation criteria. Figures A3-1 through A3-30 (in Attachment A3) present data from both the A- and B-aquifers for each chemical—or, in the case of PCBs and petroleum hydrocarbons, summed chemical—that has at least one detected concentration exceeding the corresponding aquatic evaluation criterion. For wells with data that exceeded aquatic evaluation criteria, a data table is included on the figure to display the magnitude and temporal distribution of those exceedances.

The aquatic evaluation was performed for the following analytical groups: anions, metals, VOCs, SVOCs, pesticides, PCBs, and petroleum hydrocarbons. If potential contamination was identified in groundwater, the figures were further used to determine if the potential contamination:

- is short-lived or persistent over time (for example, whether or not the concentrations that exceeded aquatic evaluation criteria were detected during the last four sampling rounds);
- is variable, increasing, or decreasing over time;
- is present over a contiguous area or occurs in scattered or single unrelated locations; or
- significantly exceeds the aquatic evaluation criteria (that is, greater than 10 times the criteria).

Data were evaluated based on the factors listed above and using a weight-of-evidence approach to identify COPECs that warrant further assessment in the trigger-level evaluation.

A2.5. TRIGGER-LEVEL EVALUATION

The trigger-level evaluation identifies COECs that should be addressed by the FS. The nearest surface water body to Parcel E, where CTR is applicable, is San Francisco Bay. Elevated concentrations of chemicals in groundwater at Parcel E could affect surface water quality as contaminated groundwater migrates and discharges to the bay.

To address the potential effects of groundwater contamination on the bay, the Navy developed trigger levels for various inland locations to ensure surface water quality criteria are not exceeded where groundwater at Parcel E discharges to the bay. The trigger levels are intended to serve as conservative comparison values for groundwater to indicate when additional evaluation may be necessary. The development of trigger levels was initially performed for Parcel D evaluations (Parcel D FS; SulTech, 2007). The trigger-level evaluation methodology has also been applied at Parcel C (Parcel C FS; SulTech, 2008). The development of the trigger levels is discussed in Attachment A1 (Appendix G from the Parcel D FS; SulTech, 2007).

Site-specific data for select COPECs were evaluated against trigger levels, where appropriate, to determine which are COECs and thus need to be addressed in the FS and remedial design. The trigger-level evaluation, including the theoretical assumptions behind the evaluation and the evaluation methodology, are described in the following subsections.

A2.5.1. Trigger-Level Evaluation Theory

At HPS, attenuation of chemical and metal concentrations occurs in groundwater as it migrates through three different zones: (1) the area of groundwater transport to the TMZ, (2) the TMZ, and (3) the bay discharge zone.

As chemicals migrate from an inland source area through soil and groundwater, they are subjected to physical, chemical, and biological processes that tend to reduce their concentrations. These processes include sorption of chemicals to soil particles, volatilization, hydrodynamic dispersion and molecular diffusion, and chemical and biological transformations. The magnitudes by which chemical

concentrations are reduced depend on a number of physical, chemical, and biological factors, including groundwater flow gradients, which may vary across Parcel E. For example, as groundwater moves through the TIZ and approaches the TMZ, the tidal influence would be expected to decrease the groundwater flow gradient, and consequently increase the residence time during which chemical concentrations would be reduced through physical, chemical, and biological processes. For simplicity and conservatism, this trigger-level evaluation does not account for potential reductions in groundwater flow gradients within the TIZ and further study would be needed to evaluate its potential effect. Such studies are not needed to support the Parcel E FS, but may be considered during the remedial design.

Additional reduction in chemical concentrations takes place in the TMZ near the shoreline. The TMZ is where bay waters move inland through the aquifer, mixing with groundwater. The net discharge of groundwater may not be changed by tidal influence, but rising tides introduce bay water into the aquifer so that concentrations of chemicals in groundwater that discharge during low tide are reduced by mixing of bay water and groundwater in the aquifer in this zone.

Finally, as groundwater discharges to the bay, concentrations of chemicals are further reduced due to dilution with bay water.

The processes described above needed to be accounted for to compare groundwater concentrations originating from inland source areas with aquatic evaluation criteria protective of bay organisms. To make this comparison, the Navy developed HPS-specific trigger levels. The development of trigger levels takes an extremely conservative approach because it does not account for attenuation in the TMZ or attenuation from discharge to the bay. Hydrodynamic dispersion in the inland contaminant transport zone was the only mechanism used to establish the attenuation factors (AFs), which were used to calculate the trigger levels. Therefore, the trigger levels likely overestimate the potential effects from chemicals and metals migrating in groundwater to San Francisco Bay.

For the purposes of this evaluation, and to maintain consistency with past HPS trigger-level evaluations (Parcels D and C), the AFs for the TMZ and for the bay discharge zone were assumed to be 1 (no attenuation). These assumptions provide a highly conservative approach that conforms to agreements made with regulatory agencies.

As part of the development of the Revised Parcel D FS Report (SulTech, 2007), the Navy developed a modeling approach to provide conservative estimates of the maximum concentrations in groundwater expected at the point of discharge (San Francisco Bay). The analytical solute transport model BIOSCREEN (EPA, 1997) was used to predict these maximum discharge concentrations and to then calculate AFs. The summary of the modeling evaluation from the Revised Parcel D FS is included as Attachment A1.

The modeling confirmed that the amount of attenuation caused by hydrodynamic dispersion during groundwater transport can be significant at HPS, and that the greater the travel distance to the ecological receptor, the greater the AF. Results of the groundwater modeling effort were nomographs (Attachment A1, Figure G-1) that assign specific AFs for any chemical or metal found in HPS groundwater based on plume width and distance to the aquatic organisms in San Francisco Bay. The nomograph information presented in Attachment A1 was used to assign AFs and calculate trigger levels for this evaluation.

A2.5.2. Trigger-Level Evaluation Methodology

Trigger-level evaluations were only performed for chemicals that have exhibited inland sources of elevated concentrations with the potential to migrate to San Francisco Bay from Parcel E. The approach for assigning AFs and trigger levels and evaluating COPEC against trigger levels for Parcel E is presented below.

1. Wells identified in the screening evaluation as having persistent chemical or metal concentrations exceeding aquatic evaluation criteria were assigned AFs. Chemical data from wells located within the TIZ were not evaluated because the nomographs specify AFs of 1 for small distances from the shoreline, which produces an evaluation corresponding to the initial screening against aquatic evaluation criteria.
2. Source area width for each chemical and metal was estimated using the following methodology:
   a. If contamination is persistent and limited to a single well, the plume width was assumed to be 40 feet (the narrowest plume width represented by the nomographs). Also, the centerline of the plume was assumed to be perpendicular to the shoreline and passing through the center of the well.
   b. If contamination is persistent in multiple wells adjacent to each other, and the source area is believed to exceed a width of 360 feet, the plume width was assumed to be 360 feet. This distance corresponds to the widest plume width represented by the nomographs. Also, the center of the plume was assumed to be perpendicular to the shoreline and passing through the well with the highest and most persistent detected concentrations.
   c. If contamination is present in multiple wells adjacent to each other, but is limited to a source area width of less than 360 feet, then the plume width is assumed to be the distance between the wells at the edges of the contamination, plus an additional 20 feet on either side. Also, the center of the plume was assumed to be perpendicular to the shoreline and passing through the well with the highest and most persistent detected concentrations.
3. The chemical migration distance was measured as the distance from the center of plume to the TMZ, which was conservatively assumed to be located 50 feet inland from the shoreline. As stated above, an AF of 1 was assumed for the area between the TMZ boundary and the bay shoreline; therefore, that distance was not included in the measurement of the transport zone, where attenuation is assumed to occur.

4. Using the nomograph curve for the chosen source area width, the AF was selected by finding the intercept of the migration distance along the curve and reading off the associated AF along the y (vertical) axis.
5. Once the AF was determined, it was rounded down to the nearest whole number to produce a conservative usable AF.
6. The trigger level for each defined chemical or metal source area was then calculated by multiplying the AF by the applicable aquatic evaluation criterion.
7. Groundwater data in the identified source area were then rescreened against the associated trigger level, and results were evaluated to determine if the source area could potentially pose negative effects to surface water quality and aquatic organisms.

The approach for assigning AF described above is consistent with the approach used to evaluate other parcels at HPS. The trigger-level evaluation is considered overly conservative because trigger levels only account for hydrodynamic dispersion in groundwater transport and ignore attenuation in the TMZ or attenuation from discharge to the surface water body. For this reason, trigger levels are only intended to serve as comparison values for groundwater to chemicals and metals in groundwater that may pose a risk to aquatic organisms. During future remedial design efforts for Parcel E, the Navy may choose to perform more quantitative analyses and modeling to refine the identification of COECs and specify risk-based remediation goals for groundwater affecting surface water.

Section A3. Aquatic Evaluation Results

This section describes the results of the screening evaluation of each chemical that exceeded its corresponding aquatic evaluation criterion at least once. This section also describes the aquatic evaluation results for each of the chemicals included in the trigger-level evaluation. As stated above, trigger-level evaluations were only performed for chemicals that have exhibited elevated concentrations at inland sources with the potential to migrate to San Francisco Bay from Parcel E.

This section is organized by analytical group (i.e., metals, VOCs, SVOCs, PCBs and pesticides, and petroleum hydrocarbons). Within each group, chemicals are evaluated separately. Within the evaluation of each chemical, detected concentrations are generally discussed for individual wells or groups of wells by redevelopment block. Data for each chemical are compared with the aquatic evaluation criteria applicable to each aquifer.

Attachment A2 includes data tables summarizing all chemical results derived from the groundwater monitoring events conducted at Parcel E through October 2009. Attachment A3 contains figures showing mapped data for each chemical that was detected at concentrations exceeding the applicable aquatic evaluation criterion at least once during the sampling history of Parcel E. These figures were used to evaluate the presence and persistence of chemicals in Parcel E groundwater and the potential for those chemicals to migrate to the bay at concentrations that may affect aquatic organisms in the bay.

A3.1. METALS

As shown on Figures A3-1 through A3-8 in Attachment A3, the following metals have been detected at concentrations exceeding their respective aquatic evaluation criteria: arsenic, cadmium, copper, lead, mercury, nickel, silver, and zinc. Results of the analysis of data for these metals are presented below. Figure A-2 summarizes all wells at Parcel E where metals in groundwater may be migrating to the bay at concentrations that may affect aquatic organisms in the bay.

A3.1.1. Arsenic (Figure A3-1)

Screening Evaluation. The aquatic evaluation criterion for arsenic in the A-aquifer, B-aquifer, and bedrock WBZ is 36 µg/L. Arsenic exceeded its aquatic evaluation criterion in samples from 10 Parcel E wells and 1 Parcel E-2 well located outside the western border of Parcel E. Three of the 11 wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation of arsenic is summarized below.

Arsenic exceeded its aquatic evaluation criterion (36 µg/L) in one sample from each of the following wells located between 100 and 1,100 feet from the bay:

- IR02MW-B1 (one duplicate sample)
- IR04MW31A
- IR12MW18A
- IR12MW20A
- IR12MW21A
- IR15MW10F

During at least two or more subsequent sampling events at the wells listed above, arsenic was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, arsenic is not considered a COPEC at these wells that could affect aquatic organisms in the bay.

Arsenic exceeded its A-aquifer aquatic evaluation criterion (36 µg/L) in multiple samples from each of the following wells:

- **IR02MW173A:** From 1992 to 1996, arsenic exceeded its aquatic evaluation criteria in all four samples (including one duplicate sample) collected from well IR02MW173A. The exceedances ranged from 49.6 to 75.7 µg/L. Well IR02MW173A is located between 100 and 150 feet from San Francisco Bay. No subsequent groundwater samples from well IR02MW173A have been analyzed for arsenic. Arsenic in groundwater near well IR02MW173A may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR03MWO-1:** In 1992, arsenic exceeded its aquatic evaluation criteria in all four samples (including one duplicate sample) collected from well IR03MWO-1. The exceedances ranged from 138 to 1,180 µg/L. Well IR03MWO-1 is located between 150 and 200 feet from San Francisco Bay. No subsequent groundwater samples from well IR03MWO-1 have been analyzed for arsenic. Arsenic in groundwater near well IR03MWO-1 may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR04MW36A:** From 1991 to 2009, arsenic exceeded its aquatic evaluation criterion in 24 of 26 samples (including two duplicate samples) collected from well IR04MW36A. The exceedances ranged from 40.1 to 244 µg/L. This well is located in the small, 0.98-acre area that was moved from Parcel E-2 to Parcel E (in August 2012) and is located more than 1,000 feet from San Francisco Bay. Arsenic has never exceeded the aquatic evaluation criterion in samples from wells surrounding IR04MW36A, indicating that contamination near this well is localized and is attenuated within approximately 120 feet in all directions. However, it is assumed that arsenic in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

- **IR05MW85A:** In 1992, arsenic exceeded its aquatic evaluation criterion in groundwater samples collected from well IR05MW85A. The exceedances ranged from 83.6 to 148 µg/L. This well is located approximately 1,400 feet from San Francisco Bay. Arsenic was detected at concentrations less than the aquatic evaluation criterion in six subsequent samples (including one duplicate sample) collected from this well in 1995, 1996, 2001, and 2002. Arsenic in groundwater near well IR05MW85A is not expected to be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **PA50MW05A:** In 1993, 1995, and 1996, arsenic exceeded its aquatic evaluation criterion in four groundwater samples (including one duplicate sample) collected from PA50MW05A. The exceedances ranged from 36.8 to 42.7 µg/L. This well is located approximately 200 feet from San Francisco Bay. In 2001 (the most recent sampling event), arsenic was detected at a concentration of 28.6 µg/L in one sample collected from this well. However, it is assumed that arsenic in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Based on this screening evaluation results, arsenic is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at four Parcel E wells: IR02MW173A, IR03MWO-1, IR04MW36A, and PA50MW05A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for arsenic because arsenic in groundwater is potentially migrating to San Francisco Bay from onshore locations at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW173A	75.7	40	70	1	36	36	YES
IR03MWO-1	1,180	40	125	1	36	36	YES
IR04MW36A	244	40	1,060	26	36	936	NO
PA50MW05A	42.7	40	200	1	36	36	YES

Based on the trigger-level evaluation results, arsenic concentrations detected at IR02MW173A, IR03MWO-1, and PA50MW05A exceeded their respective trigger levels. Therefore, arsenic should be considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of these wells.

A3.1.2. Cadmium (Figure A3-2)

Screening Evaluation. The aquatic evaluation criterion for cadmium in the A-aquifer, B-aquifer, and bedrock WBZ is 8.8 µg/L. Cadmium exceeded its aquatic evaluation criterion (8.8 µg/L) in one sample each from the following Parcel E wells located between 75 and 1,000 feet from the bay, with 3 of the 10 wells located within 250 feet of the Parcel E shoreline.

- IR02MW101A2
- IR02MW114A1
- IR02MW114A3
- IR02MW141A (one duplicate sample)
- IR02MW373A
- IR02MWB-3
- IR14MW10A
- IR14MW12A
- IR04MW40A
- IR36MW135A

During two or more subsequent sampling events at the wells listed above, cadmium was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, cadmium is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.1.3. Copper (Figure A3-3 and Table A2-1)

Screening Evaluation. The aquatic evaluation criteria for copper in the A-aquifer, B-aquifer, and bedrock WBZ are 28.0, 3.1, and 3.1 µg/L, respectively. Copper exceeded its aquatic evaluation criterion in samples from 27 Parcel E wells. Sixteen of the 27 wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation of copper is summarized below.

Copper exceeded its aquatic evaluation criterion (28.0 µg/L for the A-aquifer or 3.1 µg/L for the B-aquifer and bedrock WBZ) in one sample from each of the following wells located between 60 and 1,600 feet from the bay:

- IR02MW114A2
- IR02MW147A
- IR02MW149A
- IR02MW210B
- IR02MWB-2
- IR02MWB-3
- IR03MW218A2
- IR03MW224A
- IR08MW37A
- IR08MW38A
- IR11MW27A
- IR15MW10F
- PA36MW04A
- PA50MW10A (one duplicate sample)

During all subsequent sampling events at the wells listed above, copper was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, copper is not considered a COPEC for these wells.

In addition to those one-time exceedances listed above, copper exceeded its aquatic evaluation criterion in a single sample, with one or fewer subsequent sampling events, for the following wells:

- **IR03MW226A:** In 1992, copper exceeded its A-aquifer aquatic evaluation criterion in a single sample collected from well IR03MW226A in July 1992. The exceedance was 824 µg/L. This well is located approximately 70 feet from San Francisco Bay. Copper was detected in one subsequent sample collected the following month at a concentration of 6.4 µg/L, which is less than the A-aquifer aquatic evaluation criterion. No subsequent samples were collected from this well, so it is assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR36MW123B:** In 1996, copper exceeded its B-aquifer aquatic evaluation criterion in a single sample collected from well IR36MW123B. The exceedance was 8.2 µg/L. This well is located approximately 1,600 feet from San Francisco Bay. No subsequent samples were collected from this well, so it is assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Copper exceeded its aquatic evaluation criterion (28.0 µg/L for the A-aquifer or 3.1 µg/L for the B-aquifer and the bedrock WBZ) in multiple samples from each of the following wells:

- **IR02MWB-1:** Between 1992 and 2006, copper exceeded its A-aquifer aquatic evaluation criterion in two samples collected from well IR02MWB-1. The exceedances were 60.4 and 90.7 µg/L. This well is located approximately 80 feet from San Francisco Bay. Since the last exceedance, seven subsequent samples have been collected from well IR02MWB-1, and all copper concentrations were less than the A-aquifer aquatic evaluation criterion.
- **IR02MW126A:** Between 1992 and 2007, copper exceeded its A-aquifer aquatic evaluation criterion in 10 samples collected from IR02MW126A. The exceedances ranged from 31.9 to 1,000 µg/L. This well is located approximately 120 feet from San Francisco Bay. During nine subsequent sampling events, copper was not detected at concentrations exceeding the A-aquifer aquatic evaluation criterion. However, because exceedances persisted in this well during 2006 and 2007 sampling events, it is assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR02MW141A:** In 1992, copper exceeded its A-aquifer aquatic evaluation criterion in three samples (including one duplicate sample) collected from well IR02MW141A. The exceedances ranged from 36.2 to 19,800 µg/L. This well is located within 200 feet of San Francisco Bay. During all subsequent sampling events, copper was detected at concentrations less than the A-aquifer aquatic evaluation criterion.

- **IR02MW300A:** Between 1996 and 2005, copper exceeded its A-aquifer aquatic evaluation criterion in seven samples from well IR02MW300A. The exceedances ranged from 31.3 to 114 µg/L. This well is located at the southernmost tip of Parcel E, within 100 feet of San Francisco Bay. After the Metal Debris Reef removal action performed at this location in 2007, this well was replaced with well IR02MW301A.
- **IR02MW301A:** Between 2007 and 2009, eleven samples (including 2 duplicate samples) have been collected from IR02MW301A. Copper was not detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in any of the samples.
- **IR02MW373A:** Between 1996 and 2002, copper exceeded its A-aquifer aquatic evaluation criterion in five samples collected from well IR02MW373A. The exceedances ranged from 241 to 1,300 µg/L. This well is located approximately 240 feet from San Francisco Bay. In October 2008 and May 2009, two additional samples were collected from this well. Copper was detected at a concentration exceeding its A-aquifer aquatic evaluation criterion in 2009. Because exceedances persisted at IR02MW373A, it is assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR03MW228B:** In 1992, copper exceeded its B-aquifer aquatic evaluation criterion in two samples collected from well IR03MW228B. The exceedances were 5.2 and 6.4 µg/L. This well is located approximately 90 feet from San Francisco Bay. Copper was not detected in only two subsequent samples collected from this well in 2002 (including one duplicate sample), so it is assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the B-aquifer aquatic evaluation criterion.
- **IR03MW342A:** Between 1992 and 2006, copper exceeded its A-aquifer aquatic evaluation criterion in five samples collected from well IR03MW342A. The exceedances ranged from 56.2 to 422 µg/L. This well is located within 100 feet of San Francisco Bay. During nine subsequent sampling events (including one duplicate sample), copper was detected at concentrations less than the A-aquifer aquatic evaluation criterion.
- **IR03MWO-1:** In 1992, copper exceeded its A-aquifer aquatic evaluation criterion in a single sample collected from well IR03MWO-1 in July 1992. The exceedance was 3,240 µg/L. This well is located approximately 175 feet from San Francisco Bay. Copper was detected in one subsequent sample collected the following month at a concentration of 2.2 µg/L, which is less than the A-aquifer aquatic evaluation criterion. No subsequent samples were collected from this well, so it is assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR05MW85A:** In 1992, copper exceeded its A-aquifer aquatic evaluation criterion in four groundwater samples (including two duplicate samples) collected from IR05MW85A. The exceedances ranged from 31.8 to 53.5 µg/L. This well is located approximately 1,400 feet from San Francisco Bay. During subsequent sampling events from 1995 through 2009, copper concentrations in samples collected from well IR05MW85A have not exceeded the A-aquifer aquatic evaluation criteria.

- **IR15MW09F:** Between 1992 and 1996, copper exceeded its bedrock WBZ aquatic evaluation criterion in three samples collected from well IR15MW09F. The exceedances ranged from 7.5 to 11.2 µg/L. This well is approximately 500 feet from San Francisco Bay. Since 1996, no samples have been collected at this well. Although the bedrock WBZ is not hydraulically connected to the bay, it is conservatively assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **PA36MW03A:** Between 1996 and 2002, copper exceeded its A-aquifer aquatic evaluation criterion in four groundwater samples collected from PA36MW03A. The exceedances ranged from 127 to 366 µg/L. This well is located approximately 1,400 feet from San Francisco Bay. In July 2008, March 2009, and April 2009, three additional samples were collected from this well. Copper was detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in all of these samples, with a maximum concentration of 412 µg/L in April 2009. Because exceedances persisted at PA36MW03A, it is assumed that elevated concentrations of copper in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Based on this screening evaluation, copper is only considered a COPEC that potentially affects aquatic organisms in San Francisco Bay, at five Parcel E wells: IR02MW126A, IR02MW373A, IR03MW226A, IR03MW228B, IR03MWO-1, IR15MW09F, IR36MW123B, and PA36MW03A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for copper because copper in groundwater is potentially migrating to San Francisco Bay from onshore locations at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW126A	1,000	200	70	1	28	28	YES
IR02MW373A	1,300	200	150	1	28	28	YES
IR03MW226A	824	40	20	1	28	28	YES
IR03MW228B	6.4	150	40	1	3.1	3.1	YES
IR03MWO-1	3,240	40	125	1	28	28	YES
IR15MW09F	11.2	40	500	6	3.1	18.6	NO
PA36MW03A	412	100	1,350	20	28	560	NO
IR36MW123B	8.2	40	1,550	54	3.1	167.4	NO

Based on the trigger-level evaluation results, concentrations detected at IR02MW126A, IR02MW373A, IR03MW226A, IR03MW228B, and IR03MWO-1exceeded their respective trigger levels for copper.

Therefore, copper should be considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of these wells. However, the potential for exposure from aquatic organisms to copper in well IR03MW228B is considered unlikely because, as stated in Section A1, no apparent direct exposure pathways exist to aquatic organisms in San Francisco Bay based on the presence of continuous Bay Mud aquitard along the Parcel E shoreline, which separates the more permeable B-aquifer zones from the surface waters of the bay offshore of Parcel E.

A3.1.4. Lead (Figure A3-4 and Table A2-2)

Screening Evaluation. The aquatic evaluation criteria for lead in the A-aquifer, B-aquifer, and bedrock WBZ are 14.4, 8.1, and 8.1 µg/L, respectively. Lead exceeded its aquatic evaluation criterion in samples from 22 Parcel E wells. Fourteen of the 22 wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Lead exceeded its aquatic evaluation criterion (14.4 µg/L for the A-aquifer or 8.1 µg/L for the B-aquifer and bedrock WBZ) in one sample from each of the following wells located between 25 and 2,000 feet from San Francisco Bay:

- IR02MW126A
- IR02MW141A (one duplicate sample)
- IR02MWB-2
- IR02MWB-3
- IR03MW218A2
- IR04MW40A
- IR05MW77A (one duplicate sample)
- IR14MW10A
- IR15MW06A
- IR15MW07A
- PA50MW05A (one duplicate sample)
- PA50MW10A (one duplicate sample)

During all subsequent sampling events at the wells listed above, lead was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, lead is not considered a COPEC for these wells.

In addition to those one-time exceedances listed above, lead exceeded its aquatic evaluation criterion in a single sample, with one or fewer subsequent sampling events, for the following wells:

- **IR02MW127B:** In August 1992, lead exceeded its B-aquifer aquatic evaluation criterion in one sample collected from well IR02MW127B. The exceedance was 8.2 µg/L. This well is located approximately 275 feet from San Francisco Bay. Because no subsequent sampling events were completed, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the B-aquifer aquatic evaluation criterion.

- **IR02MW175A:** In July 2008, lead exceeded its A-aquifer aquatic evaluation criterion in one sample collected from well IR02MW175A. The exceedance was 18.4 µg/L. This well is located approximately 235 feet from San Francisco Bay. Lead was not detected in one subsequent sample collected in March 2009, and none of the several samples collected between January 1992 and April 2008 exhibited lead detections that exceeded the A-aquifer aquatic evaluation criterion. Because only one subsequent sample has been collected from IR02MW175A, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR02MW179A:** In July 2008, lead exceeded its A-aquifer aquatic evaluation criterion in one sample collected from well IR02MW179A. The exceedance was 14.7 µg/L. This well is located approximately 25 feet from San Francisco Bay. None of the previous samples collected between January 1992 and April 2008 exhibited lead detections that exceeded the A-aquifer aquatic evaluation criterion. Lead was not detected in one subsequent sample collected in March 2009. Because only one subsequent sample has been collected from IR02MW179A, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR02MW209A:** In July 2008, lead exceeded its A-aquifer aquatic evaluation criterion in one sample collected from well IR02MW209A. The exceedance was 17.1 µg/L. This well is located approximately 75 feet from San Francisco Bay. Lead was not detected in one subsequent sample collected in March 2009, and none of the several samples collected between January 1992 and April 2008 exhibited lead detections that exceeded the A-aquifer aquatic evaluation criterion. Because only one subsequent sample has been collected from IR02MW209A, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR02MW301A:** In July 2008, lead exceeded its A-aquifer aquatic evaluation criterion in one sample and its duplicate sample collected from well IR02MW301A. The exceedances were 18.3 and 16.5 µg/L. This well is located approximately 100 feet from San Francisco Bay. Lead was not detected in one subsequent sample collected in March 2009. Because only one subsequent sample has been collected from IR02MW301A, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR03MW218A1:** In July 1992, lead exceeded its A-aquifer aquatic evaluation criterion in one sample collected from well IR03MW218A1. The exceedance was 23.4 µg/L. This well is located approximately 75 feet from San Francisco Bay. Because no subsequent samples have been collected from IR03MW218A1, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.

- **IR03MW226A:** In July 1992, lead exceeded its A-aquifer aquatic evaluation criterion in one sample collected from well IR03MW226A. The exceedance was 613 µg/L. Lead was not detected in the duplicate sample collected on the same date, nor in the sample collected the following month. This well is located approximately 70 feet from San Francisco Bay. Because no subsequent samples have been collected from IR03MW226A (due to the presence of NAPL), it is assumed that lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR03MWO-1:** In July 1992, lead exceeded its aquatic evaluation criterion in one sample collected from well IR03MWO-1. The exceedance was 65 µg/L. This well is located approximately 175 feet from San Francisco Bay. Lead was not detected in one subsequent sample collected 1 month later. Because no subsequent samples have been collected from IR03MWO-1, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.

Lead exceeded its A-aquifer aquatic evaluation criterion (14.4 µg/L) in multiple samples from each of the following wells:

- **IR02MW373A:** Between 1996 and 2009, lead exceeded its A-aquifer aquatic evaluation criterion in six of eight samples collected from well IR02MW373A. The exceedances ranged from 17.4 to 35.2 µg/L. This well is located within 250 feet of San Francisco Bay. Because of the persistent exceedances at IR02MW373A, it is assumed that elevated concentrations of lead in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR03MW342A:** In 1992, lead exceeded its A-aquifer aquatic evaluation criterion in two samples collected from well IR03MW342A. The exceedances were 92.5 and 324 µg/L. Lead was not detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in any of the 24 subsequent samples collected (through April 2008) from well IR03MW342A.

Based on this screening evaluation, lead is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at nine Parcel E wells: IR02MW127B, IR02MW175A, IR02MW179A, IR02MW209A, IR02MW301A, IR02MW373A, IR03MW218A, IR03MW226A, and IR03MWO-1.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for lead because lead in groundwater is potentially migrating to San Francisco Bay from an onshore location at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW127B	8.2	40	215	2	8.1	16.2	NO
IR02MW175A	18.4	40	235	2	14.4	28.8	NO
IR02MW179A	14.7	40	25	1	14.4	14.4	YES
IR02MW209A	17.1	40	75	1	14.4	14.4	YES
IR02MW301A	18.3	40	100	1	14.4	14.4	YES
IR02MW373A	35.2	40	175	1	14.4	14.4	YES
IR03MW218A	23.4	150	25	1	14.4	14.4	YES
IR03MW226A	613	150	20	1	14.4	14.4	YES
IR03MWO-1	65	40	175	1	14.4	14.4	YES

Based on the trigger-level evaluation results, concentrations detected at IR02MW179A, IR02MW209A, IR02MW301A, IR02MW373A, IR03MW218A, IR03MW226A, and IR03MWO-1 exceeded the trigger level for lead. Lead is considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of wells IR02MW373A, IR03MW218A, IR03MW226A, and IR03MWO-1. The lead concentrations in wells IR02MW179A, IR02MW209A, and IR02MW301A are not attributed to site contamination because (1) they do not significantly exceed the HGAL (14.4 µg/L) and are generally consistent with variations in naturally occurring concentrations identified at other HPS sites; (2) the low lead concentrations were reported at wells located hydraulically upgradient and downgradient of the primary contaminant source (i.e., the Metal Debris Reef), which was previously removed; and (3) the lead concentrations in July 2008 represent a temporal anomaly because lead has not exceeded the HGAL at any of these wells (as well as former well IR02MW300A) during numerous sampling events performed since 1992.

A3.1.5. Mercury (Figure A3-5)

Screening Evaluation. The aquatic evaluation criteria for mercury in the A-aquifer, B-aquifer, and bedrock WBZ are 0.60, 0.25, and 0.25 µg/L, respectively. Mercury exceeded its aquatic evaluation criterion in samples from 10 Parcel E wells. Seven of the 10 wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Mercury exceeded its aquatic evaluation criterion (0.60 µg/L for the A-aquifer or 0.025 µg/L for the B-aquifer and bedrock WBZ) in one sample from each of the following wells located between 75 and 1,000 feet from San Francisco Bay:

- IR02MW141A (one duplicate sample)
- IR02MW209A
- IR02MWB-2
- IR02MWB-3
- IR03MW342A
- IR14MW09A
- IR08MW37A

During all subsequent sampling events at the wells listed above, mercury was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, mercury is not considered a COPEC for these wells.

In addition to those one-time exceedances listed above, mercury exceeded its aquatic evaluation criterion in a single sample, with one or fewer subsequent sampling events, for the following wells:

- **IR03MW226A:** In July 1992, mercury exceeded its A-aquifer aquatic evaluation criterion in one sample collected from well IR03MW226A. The exceedance was 0.8 µg/L. Mercury was not detected in the sample collected the following month. This well is located approximately 75 feet from San Francisco Bay. No subsequent samples were collected from IR03M226A, so it is conservatively assumed that mercury in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR03MWO-1:** In July 1992, mercury exceeded its aquatic evaluation criterion in one sample collected from well IR03MWO-1. The exceedance was 1.2 µg/L. Mercury was not detected in the sample collected the following month. This well is located approximately 175 feet from San Francisco Bay. No subsequent samples were collected from IR03MWO-1, so it is assumed that mercury in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Mercury exceeded its A-aquifer aquatic evaluation criterion (0.60 µg/L) in multiple samples from the following well:

- **IR05MW85A:** Between 1992 and 2008, mercury exceeded its A-aquifer aquatic evaluation criterion in 10 groundwater samples (including two duplicate samples) collected from well IR05MW85A. The exceedances ranged from 0.77 to 11 µg/L. This well is located approximately 1,400 feet from San Francisco Bay. Mercury exceeded its A-aquifer aquatic evaluation criterion in the most recent (April 2008) sample collected at IR05MW85A; as a result, it is assumed that elevated concentrations of mercury in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.

Based on this screening evaluation, mercury is only considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at three Parcel E wells: IR03MW226A, IR03MWO-1, and IR05MW85A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for mercury because mercury in groundwater is potentially migrating to San Francisco Bay from an onshore location at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR03MW226A	0.8	150	25	1	0.6	0.6	YES
IR03MWO-1	1.2	40	125	1	0.6	0.6	YES
IR05MW85A	11	40	1,350	44	0.6	26.4	NO

Based on the trigger-level evaluation results, concentrations detected at IR03MW226A and IR03MWO-1 exceed the trigger level for mercury at this well. Therefore, mercury is considered a COEC that potentially affects aquatic organisms in the bay downgradient of this well.

A3.1.6. Nickel (Figure A3-6 and Table A2-3)

Screening Evaluation. The aquatic evaluation criteria for nickel in the A-aquifer, B-aquifer, and bedrock WBZ are 96.5, 8.2, and 8.2 µg/L, respectively. Nickel exceeded its aquatic evaluation criterion in samples from 20 Parcel E wells. Nine of the 20 wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Nickel exceeded its A-aquifer aquatic evaluation criterion (96.5 µg/L) in one sample from each of the following wells located between 75 and 1,100 feet from San Francisco Bay:

- IR02MW89A
- IR02MW93A
- IR02MW101A1
- IR02MW114A2
- IR02MW141A (one duplicate sample)
- IR02MW298A
- IR02MWB-3
- IR03MW226A
- IR03MW342A
- IR04MW35A
- IR04MW40A (one duplicate sample)
- IR14MW09A (one duplicate sample)
- IR14MW12A

During all subsequent sampling events at the wells listed above, nickel was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, nickel is not considered a COPEC for these wells.

In addition to those one-time exceedances listed above, nickel exceeded its aquatic evaluation criterion in a single sample, with two or fewer subsequent sampling events, for the following wells:

- **IR02MWB-5:** In March 2001, nickel exceeded its aquatic evaluation criterion in one sample collected from well IR02MWB-5. The exceedance was 3,430 µg/L. This well is located approximately 75 feet from San Francisco Bay. Nickel was not detected in two samples collected at IR02MWB-5 in July and September 2002. No subsequent samples were collected from IR02MWB-5, so it is assumed that nickel in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR03MW226A:** In July 1992, nickel exceeded its aquatic evaluation criterion in one sample collected from well IR03MW226A. The exceedance was 146 µg/L. This well is located approximately 75 feet from San Francisco Bay. Nickel was not detected in one sample collected at IR03MW226A in August 1992. No subsequent samples were collected from R03MW226A, so it is assumed that nickel in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Nickel exceeded its aquatic evaluation criterion (96.5 µg/L for the A-aquifer or 8.2 µg/L for the B-aquifer and bedrock WBZ) in multiple samples from each of the following wells:

- **IR02MW373A:** Between 1996 and 2002, nickel exceeded its A-aquifer aquatic evaluation criterion in five samples from IR02MW373A. The exceedances ranged from 452 to 1,460 µg/L. This well is located approximately 240 feet from San Francisco Bay. In October 2008 and May 2009, two additional samples were collected from this well. Nickel was detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in both samples. Because exceedances persisted at IR02MW373A, it is assumed that elevated concentrations of nickel in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR02MWB-1:** Between 1992 and 2001, nickel exceeded its A-aquifer aquatic evaluation criterion in five samples (including two duplicate samples) from IR02MWB-1. The exceedances ranged from 198 to 1,470 µg/L. Well IR02MWB-1 is located approximately 80 feet from San Francisco Bay. During 19 subsequent sampling events at this well, nickel has not exceeded the A-aquifer aquatic evaluation criterion.
- **IR02MWB-2:** Between 1992 and 2004, nickel exceeded its A-aquifer aquatic evaluation criterion in seven samples from IR02MWB-2. The exceedances ranged from 120 to 1,720 µg/L. This well is located approximately 80 feet from San Francisco Bay. In September 2008 and March 2009, two additional samples were collected from this well. Nickel was detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in both of the samples. Because exceedances persisted at IR02MWB-2, it is assumed that elevated concentrations of nickel in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.

- **IR03MWO-1:** In 1992, nickel exceeded its A-aquifer aquatic evaluation criterion in three samples (including one duplicate sample) from IR03MWO-1. The exceedances ranged from 237 to 1,140 µg/L. This well is located approximately 180 feet from San Francisco Bay. Nickel was not detected in the most recent sample (August 1992) collected from this well. No data, however, have been collected from this well since 1992. Because of the persistence of exceedances at IR03MWO-1 and the lack of recent data, it is assumed that elevated concentrations of nickel in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR12MW18A:** Between 1992 and 2002, nickel exceeded its A-aquifer aquatic evaluation criterion in nine samples (including three duplicate samples) collected from IR12MW18A. The exceedances ranged from 122 to 214 µg/L. This well is located approximately 800 feet from San Francisco Bay. In 2008 and 2009, six additional samples were collected from this well. Nickel was detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in all six samples. Because of the persistence of exceedances at IR12MW18A, it is assumed that elevated concentrations of nickel in groundwater near this well may be migrating to the bay at concentrations exceeding the A-aquifer aquatic evaluation criterion.
- **IR15MW09F:** Between 1992 and 1996, nickel exceeded its bedrock WBZ aquatic evaluation criterion in three samples collected from well IR15MW09F. The exceedances ranged from 8.9 to 26.4 µg/L. This well is located approximately 500 feet from San Francisco Bay. Since 1996, no samples were collected from this well. As a result, it is assumed that elevated concentrations of nickel in groundwater near this well may be migrating to the bay at concentrations exceeding the bedrock WBZ aquatic evaluation criterion.

Based on this screening evaluation, nickel is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at seven Parcel E wells: IR02MW373A, IR02MWB-2, IR02MWB-5, IR03MW226A, IR03MWO-1, IR12MW18A, and IR15MW09F.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for nickel because nickel in groundwater is potentially migrating to San Francisco Bay from onshore locations at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW373A	1,460	190	190	1	96.5	96.5	YES
IR02MWB-2	1,720	50	30	1	96.5	96.5	YES
IR02MWB-5	3,430	40	25	1	96.5	96.5	YES
IR03MW226A	146	40	25	1	96.5	96.5	YES
IR03MWO-1	1,140	40	130	1	96.5	96.5	YES
IR12MW18A	214	70	750	6	96.5	579	NO
IR15MW09F	26.4	40	500	6	8.2	49.2	NO

Based on the trigger-level evaluation results, concentrations detected at IR02MW373A, IR02MWB-2, IR02MWB-5, IR03MW226A, and IR03MWO-1 exceed their respective trigger levels for nickel. Therefore, nickel is considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of these wells.

A3.1.7. Silver (Figure A3-7)

Screening Evaluation. The aquatic evaluation criteria for silver in the A-aquifer, B-aquifer, and bedrock WBZ are 7.43, 0.38, and 0.38 µg/L, respectively. Silver exceeded its aquatic evaluation criterion in samples from four Parcel E wells. Two of the four wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Silver exceeded its aquatic evaluation criterion (7.43 µg/L for the A-aquifer or 0.38 µg/L for the B-aquifer and bedrock WBZ) in one sample from each of the following wells located between 100 and 1,600 feet from San Francisco Bay.

- IR02M141A (one duplicate sample)
- IR02M300A

IR15MW07A During all subsequent sampling events at the wells listed above, silver was not detected at concentrations exceeding aquatic evaluation criteria. Based on the low frequency of detection, silver is not considered a COPEC for these wells.

In addition to those one-time exceedances listed above, silver exceeded its aquatic evaluation criterion in a single sample, with two or fewer subsequent sampling events, for the following well:

- **IR36MW123B:** In March 1996, silver exceeded its B-aquifer aquatic evaluation criterion in one sample collected from well IR36MW123B. The exceedance was 0.68 µg/L. This well is located approximately 1,600 feet from San Francisco Bay. Silver was not detected in two subsequent samples collected in April and June 1996. No subsequent samples were collected from IR36MW123B, so it is assumed that silver in groundwater near this well may be migrating to the bay at concentrations exceeding the B-aquifer aquatic evaluation criterion.

Based on this screening evaluation, silver is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at one Parcel E well: IR36MW123B.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for silver because silver in groundwater is potentially migrating to San Francisco Bay from onshore locations at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR36MW123B	0.68	40	1,550	54	0.38	20.52	NO

Based on the trigger-level evaluation results, concentrations detected at IR36MW123B did not exceed their respective trigger levels for silver. Therefore, silver is not considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of these wells.

A3.1.8. Zinc (Figure A3-8 and Table A2-4)

Screening Evaluation. The aquatic evaluation criterion for zinc in the A-aquifer, B-aquifer, and bedrock WBZ is 81 µg/L. Zinc exceeded its aquatic evaluation criterion in samples from 15 Parcel E wells and 1 Parcel E-2 well located outside the western border of Parcel E. Twelve of the 16 wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation of zinc is summarized below.

Zinc exceeded its aquatic evaluation criterion (81 µg/L) in two or fewer samples from each of the following wells located between 60 and 1,600 feet from San Francisco Bay:

- IR01MW367A
- IR02MW375A
- IR02MWB-1
- IR02MWB-2
- IR02MWB-3 (one duplicate)
- IR03MW218A2
- IR03MW342A
- IR38MW02A (one duplicate sample)
- PA50MW10A (one duplicate sample)

During all subsequent sampling events at the wells listed above, zinc was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, zinc is not considered a COPEC for these wells that potentially affects aquatic organisms in the bay.

In addition to those exceedances listed above, zinc exceeded its aquatic evaluation criterion in a single sample, with only one subsequent sampling event, for the following well:

- **IR03MWO-1:** In July 1992, zinc exceeded its aquatic evaluation criterion in one sample collected from well IR03MWO-1. The exceedance was 2,400 µg/L. This well is located approximately 175 feet from San Francisco Bay. Zinc was not detected in one subsequent sample collected 1 month later. Because only one subsequent sample has been collected from IR03MWO-1, it is assumed that elevated concentrations of zinc in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Zinc exceeded its aquatic evaluation criterion (81 µg/L) in multiple samples from each of the following wells:

- **IR02MW126A:** Between 1992 and 2008, zinc exceeded its aquatic evaluation criterion in 18 groundwater samples from IR02MW126A. The exceedances ranged from 120 to 2,320 µg/L. This well is located approximately 120 feet from San Francisco Bay. During five subsequent sampling events (in 2008 and 2009), zinc concentrations did not exceed the aquatic evaluation criterion. Because of the consistently high concentrations detected during earlier sampling events, it is assumed that elevated concentrations of zinc in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR02MW141A:** In 1992, zinc exceeded its aquatic evaluation criterion in six groundwater samples (including three duplicate samples) from IR02MW141A. The exceedances ranged from 121 to 31,100 µg/L. This well is located approximately 180 feet from San Francisco Bay. During three subsequent sampling events (in 2001 and 2002), zinc concentrations did not exceed the aquatic evaluation criterion.
- **IR03MW226A:** In 1992, zinc exceeded its aquatic evaluation criterion in three samples (including one duplicate sample) from IR03MW226A. The exceedances ranged from 93.3 µg/L to 1,180 µg/L. This well is located approximately 75 feet from the bay. Zinc was not detected above its aquatic evaluation criterion in the most recent sample (August 1992) collected from this well; however, no samples have been collected since the August 1992 sample. Because of the lack of recent data and the fact that only one subsequent sample has been collected from this well, it is assumed that elevated concentrations of zinc in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR02MW300A:** Between 1992 and 2005, zinc consistently exceeded its aquatic evaluation criterion in nine samples from well IR02MW300A. The exceedances ranged from 87.9 to 182 µg/L. This well is located approximately 90 feet from the bay. In 2007, a removal action was performed at this well, which is located at the Metal Debris Reef; subsequently, this well was replaced with well IR02MW301A. Zinc was not detected in five samples collected from IR02MW301A (between May 2007 and April 2008).
- **IR02MW373A:** Between 1996 and 2002, zinc exceeded its aquatic evaluation criterion in five groundwater samples from IR02MW373A. The exceedances ranged from 2,970 to 9,970 µg/L. This well is approximately located 240 feet from San Francisco Bay. In October 2008 and May 2009, two additional samples were collected from this well. Zinc was detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in both of these samples. Because exceedances persisted at IR02MW373A, it is assumed that elevated concentrations of zinc in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

- **PA36MW03A:** Between 1996 and 2002, zinc exceeded its aquatic evaluation criterion in four samples collected from PA36MW03A. The exceedances ranged from 365 to 1,340 µg/L. This well is located approximately 1,400 feet from San Francisco Bay. In July 2008, March 2009, and April 2009, three additional samples were collected from this well. Zinc was detected at concentrations exceeding its A-aquifer aquatic evaluation criterion in all three samples. Because exceedances persisted at PA36MW03A, it is assumed that elevated concentrations of zinc in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Based on this screening evaluation, zinc is only considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at five Parcel E wells: IR02MW126A, IR02MW373A, IR03MW226A, IR03MWO-1, and PA36MW03A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for zinc because zinc in groundwater is potentially migrating to San Francisco Bay from onshore locations at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW126A	2,320	140	75	1	81	81	YES
IR02MW373A	9,970	140	175	1	81	81	YES
IR03MW226A	1,180	40	25	1	81	81	YES
IR03MWO-1	2,400	40	175	1	81	81	YES
PA36MW03A	1,340	120	1,550	20	81	1,620	NO

Based on the trigger-level evaluation results, zinc concentrations detected at IR02MW126A, IR02MW373A, IR03MW226A, and IR03MWO-1 exceed their respective trigger levels for zinc. Therefore, zinc is considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of these wells.

A3.2. VOLATILE ORGANIC COMPOUNDS

As shown on Figures A3-9 through A3-12 in Attachment A3, the following VOCs have been detected at concentrations exceeding their respective aquatic evaluation criteria: benzene, chlorobenzene, ethylbenzene, and trichloroethene (TCE). Results of the analysis of these VOCs and data are presented below. This analysis reveals that no wells at Parcel E contain VOCs in groundwater that may be migrating to San Francisco Bay at concentrations that could affect aquatic organisms in the bay, so a summary figure to depict the wells was not created.

A3.2.1. Benzene (Figure A3-9)

Screening Evaluation. The aquatic evaluation criterion for benzene in the A-aquifer, B-aquifer, and bedrock WBZ is 700 µg/L. Benzene exceeded its aquatic evaluation criterion (700 µg/L) in a single sample (1,500 µg/L) collected from one Parcel E well (IR39MW21A) in 1994. This well is located approximately 600 feet from San Francisco Bay. Benzene was not detected at concentrations above its aquatic evaluation criterion during 13 subsequent sampling events (from January 1996 through October 2009). Based on this screening evaluation, benzene is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.2.2. Chlorobenzene (Figure A3-10)

Screening Evaluation. The aquatic evaluation criterion for chlorobenzene in the A-aquifer, B-aquifer, and bedrock WBZ is 129 µg/L. Chlorobenzene exceeded its aquatic evaluation criterion (129 µg/L) in two samples (including one duplicate sample) (130 and 150 [duplicate] µg/L) from one Parcel E well (IR03MW225A) in 1992. This well is located within 100 feet of the Parcel E shoreline. Chlorobenzene was not detected at concentrations above the aquatic evaluation criterion during two subsequent sampling events, which occurred in 1996. Based on this screening evaluation, chlorobenzene is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.2.3. Ethylbenzene (Figure A3-11)

Screening Evaluation. The aquatic evaluation criterion for ethylbenzene in the A-aquifer, B-aquifer, and bedrock WBZ is 86 µg/L. Ethylbenzene exceeded its aquatic evaluation criterion (86 µg/L) in one sample each (550 and 110 µg/L) from two Parcel E wells (IR39MW21A and IR56MW39A) in 1994 and 1996. These wells are located approximately 600 and 1,400 feet, respectively, from San Francisco Bay. During subsequent sampling events at both wells, ethylbenzene was not detected at concentrations exceeding the aquatic evaluation criterion. As a result, ethylbenzene is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.2.4. Trichloroethene (Figure A3-12)

Screening Evaluation. The aquatic evaluation criterion for arsenic in the A-aquifer, B-aquifer, and bedrock WBZ is 400 µg/L. From 1996 to 2009, TCE exceeded its aquatic evaluation criterion (400 µg/L) in eight samples from one Parcel E well (IR36MW125A). The exceedances ranged from 500 to 7,600 µg/L. This well is located approximately 1,350 feet from San Francisco Bay. Because of the persistence of exceedances at IR36MW125A, it is assumed that elevated concentrations of TCE in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion. As a result, TCE is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for TCE because TCE in groundwater is potentially migrating to San Francisco Bay from an onshore location at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR36MW125A	7,600	40	1,350	40	400	16,000	NO

Based on the trigger-level evaluation results, TCE concentrations detected at IR36MW125A do not exceed the trigger level. Therefore, TCE is not a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of this well.

A3.3. SEMIVOLATILE ORGANIC COMPOUNDS

As shown on Figures A3-13 through A3-15, the following SVOCs have been detected at concentrations exceeding their respective aquatic evaluation criteria: fluorene, pentachlorophenol, and phenanthrene. Results of the analysis of data for these SVOCs are presented below. This analysis reveals that no wells at Parcel E contain SVOCs in groundwater that may be migrating to San Francisco Bay at concentrations that could affect aquatic organisms in the bay, so a summary figure to depict the wells was not created.

A3.3.1. Fluorene (Figure A3-13)

Screening Evaluation. The aquatic evaluation criterion for fluorine in the A-aquifer, B-aquifer, and bedrock WBZ is 60 µg/L. Fluorene exceeded its aquatic evaluation criterion (60 µg/L) in a single sample (100 µg/L) collected from one Parcel E well (IR12MW21A) in 1992. This well is located approximately 1,300 feet from San Francisco Bay. During subsequent sampling events (1992 and 1996), fluorene was not detected in this well. As a result, fluorene is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.3.2. Pentachlorophenol (Figure A3-14)

Screening Evaluation. The aquatic evaluation criterion for pentachlorophenol in the A-aquifer, B-aquifer, and bedrock WBZ is 7.9 µg/L. Pentachlorophenol exceeded its aquatic evaluation criterion (7.9 µg/L) in one sample each (33 and 25 µg/L) from two Parcel E wells (IR02MW183A and IR39MW23A) in 1992 and 2004. These wells are located approximately 200 and 700 feet, respectively, from San Francisco Bay. During subsequent sampling events at both wells, pentachlorophenol was either not detected or detected at concentrations less than the aquatic evaluation criterion. As a result, pentachlorophenol is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.3.3. Phenanthrene (Figure A3-15)

Screening Evaluation. The aquatic evaluation criterion for phenanthrene in the A-aquifer, B-aquifer, and bedrock WBZ is 60 µg/L. Phenanthrene exceeded its aquatic evaluation criterion (60 µg/L) in one sample each (210 and 69 µg/L) from two Parcel E wells (IR12MW21A and IR03MWO-1) in 1992. These wells are located approximately 1,200 and 175 feet, respectively, from San Francisco Bay. During subsequent sampling events at both wells, phenanthrene was either not detected or detected at concentrations less than the aquatic evaluation criterion. As a result, phenanthrene is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4. POLYCHLORINATED BIPHENYLS AND PESTICIDES

As shown in Figures A3-16 through A3-29, the following PCBs and pesticides have been detected at concentrations exceeding their respective aquatic evaluation criteria: Aroclor-1221, Aroclor-1242, Aroclor-1254, Aroclor-1260, 4,4'-dichlorodiphenyldichloroethane (DDD), 4,4'-dichlorodiphenyl-dichloroethene (DDE), 4,4'-dichlorodiphenyltrichloroethane (DDT), alpha-chlordane, dieldrin, endosulfan I, endosulfan II, endrin, heptachlor, and heptachlor epoxide. Results of the analysis of these PCBs and pesticides and data are presented below. Figure A-3 summarizes all wells at Parcel E where PCBs and pesticides in groundwater may be migrating to San Francisco Bay at concentrations that may affect aquatic organisms in the bay.

A3.4.1. Aroclor-1221 (Figure A3-16)

Screening Evaluation. The aquatic evaluation criterion for Aroclor-1221 in the A-aquifer, B-aquifer, and bedrock WBZ is 0.03 µg/L. Aroclor-1221 exceeded its aquatic evaluation criterion (0.03 µg/L) in a single sample from one Parcel E well (IR03MW218A2). The single exceedance (0.5 µg/L) was measured in March 2005. This well is located approximately 70 feet from San Francisco Bay. Since March 2005, Aroclor-1221 has not been detected in this well during 12 subsequent sampling events (between June 2005 and June 2008). As a result, Aroclor-1221 is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4.2. Aroclor-1242 (Figure A3-17)

Screening Evaluation. The aquatic evaluation criterion for Aroclor-1242 in the A-aquifer, B-aquifer, and bedrock WBZ is 0.03 µg/L. Aroclor-1242 exceeded its aquatic evaluation criterion (0.03 µg/L) in a single sample from one Parcel E well (IR02MW141A). The single exceedance (2.3 µg/L) was measured in May 1992. This well is located approximately 190 feet from San Francisco Bay. Since May 1992, Aroclor-1242 has not been detected in this well during five subsequent sampling events (between July 1992 and September 2002). As a result, Aroclor-1242 is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4.3. Aroclor-1254 (Figure A3-18)

Screening Evaluation. The aquatic evaluation criterion for Aroclor-1254 in the A-aquifer, B-aquifer, and bedrock WBZ is 0.03 µg/L. Aroclor-1254 exceeded its aquatic evaluation criterion in samples from six Parcel E wells. Five of these six wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Aroclor-1254 exceeded its aquatic evaluation criterion (0.03 µg/L) in one sample from each of the following wells:

- IR02MW141A
- IR03MW218A2

During all subsequent sampling events at the wells listed above, Aroclor-1254 was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, Aroclor-1254 is not considered a COPEC for these wells.

In addition to those one-time exceedances listed above, Aroclor-1254 exceeded its aquatic evaluation criterion in a single sample with no subsequent sampling events, for the following wells:

- **IR02MW146A:** In 1996, Aroclor-1254 exceeded its aquatic evaluation criterion (0.03 µg/L) in a single sample collected from IR02MW146A. The exceedance was 0.24 µg/L. This well is located approximately 130 feet from the bay. Since 1996, no samples have been collected from the well. Because of the lack of recent data from the well, it is assumed that elevated concentrations of Aroclor-1254 in groundwater near the well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR03MW225A:** In 1996, Aroclor-1254 exceeded its aquatic evaluation criterion (0.03 µg/L) in a single sample collected from IR03MW225A. The exceedance was 1.2 µg/L. This well is located approximately 80 feet from the bay. Since 1996, no samples have been collected from the wells. Because of the lack of recent data from the well, it is assumed that elevated concentrations of Aroclor-1254 in groundwater near the well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Aroclor-1254 exceeded its aquatic evaluation criterion (0.03 µg/L) in multiple samples from each of the following wells:

- **IR02MW372A:** Between 1995 and 2001, Aroclor-1254 exceeded its aquatic evaluation criterion (0.03 µg/L) in all four samples collected from IR02MW372A. The exceedances ranged from 1 to 35 µg/L. This well is located approximately 265 feet from San Francisco Bay. Since 2001, no samples have been collected from well IR02MW372A. Because of the persistence of exceedances at IR02MW372A and the lack of recent data, it is assumed that elevated concentrations of Aroclor-1254 in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR02MWB-3:** In 1992, Aroclor-1254 exceeded its aquatic evaluation criterion (0.03 µg/L) in five samples (including two duplicate samples) collected from IR02MWB-3. The exceedances ranged from 10 to 40 µg/L. This well is located approximately 60 feet from San Francisco Bay. Aroclor-1254 was not detected in the most recent sample collected from this well in March 2001; however, no subsequent samples were collected. Because of the persistence of exceedances at IR02MWB-3 and the lack of recent data, it is assumed that elevated concentrations of Aroclor-1254 in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Based on this screening evaluation, Aroclor-1254 is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at four Parcel E wells: IR02MW146A, IR02MW372A, IR02MWB-3, and IR03MW225A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for Aroclor-1254 because Aroclor-1254 in groundwater is potentially migrating to San Francisco Bay from onshore locations at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW146A	0.24	40	80	1	0.03	0.03	YES
IR02MWB-3	40	40	10	1	0.03	0.03	YES
IR02MW372A	35	40	215	2	0.03	0.06	YES
IR03MW225A	1.2	40	30	1	0.03	0.03	YES

Based on the trigger-level evaluation results, concentrations detected at IR02MW146A, IR02MW372A, IR02MWB-3, and IR03MW225A exceed their respective trigger levels for Aroclor-1254. Therefore, Aroclor-1254 is considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of these wells.

A3.4.4. Aroclor-1260 (Figure A3-19)

Screening Evaluation. The aquatic evaluation criterion for Aroclor-1260 in the A-aquifer, B-aquifer, and bedrock WBZ is 0.03 µg/L. Aroclor-1260 exceeded its aquatic evaluation criterion in samples from 16 Parcel E wells. Twelve of the 16 wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Aroclor-1260 exceeded its aquatic evaluation criterion (0.03 µg/L) in one sample from each of the following wells located between 80 and 1,700 feet from San Francisco Bay:

- IR02MWB-5
- IR03MW218A2
- IR05MW73A
- IR39MW21A
- IR72MW32A

During all subsequent sampling events at the wells listed above, Aroclor-1260 was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, Aroclor-1260 is not considered a COPEC for these wells.

In addition to those one-time exceedances listed above, Aroclor-1260 exceeded its aquatic evaluation criterion in a single sample with no subsequent sampling events, for the following wells:

- **IR02MW146A:** Between 1992 and 1996, Aroclor-1260 exceeded its aquatic evaluation criterion in a single sample from well IR02MW146A. The exceedance was 0.24 µg/L and occurred in May 1996 (the last sample collected from this well). This well is located in the oily liquid waste disposal area at IR-03, at approximately 125 feet from San Francisco Bay. Aroclor-1260 was not detected in IR02MW146A in four previous samples, including one duplicate sample. Because of the lack of recent data, it is assumed that elevated concentrations of Aroclor-1260 in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR03MW218A1:** In 1992, Aroclor-1260 exceeded its aquatic evaluation criterion in a single sample from well IR03MW218A1. The exceedance was 32 µg/L. This well is located in the oily liquid waste disposal area at IR-03, approximately 75 feet from San Francisco Bay. No subsequent samples were collected from the well. Because of the magnitude of the exceedance at IR03MW218A1 and the lack of recent data, it is assumed that elevated concentrations of Aroclor-1260 in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Aroclor-1260 exceeded its aquatic evaluation criterion (0.03 µg/L) in multiple samples from each of the following wells:

- **IR02MW126A, IR02MW141A, and IR02MW373A:** Between 1992 and 1996, Aroclor-1260 exceeded its aquatic evaluation criterion in samples from wells IR02MW126A, IR02MW141A, and IR02MW373A. The exceedances ranged from 0.5 to 5.1 µg/L. These wells are located within 250 feet of San Francisco Bay. During subsequent sampling events at IR02MW126A (three samples), IR02MW141A (four samples, including one duplicate sample), and IR02MW373A (four samples), Aroclor-1260 was not detected in any of the samples. Because Aroclor-1260 was not detected at concentrations exceeding the aquatic evaluation criterion during subsequent sampling events at the wells listed above, Aroclor-1260 is not considered a COPEC for these wells.
- **IR03MW224A and IR03MW371A:** Between 1992 and 2004, Aroclor-1260 exceeded its aquatic evaluation criterion in samples from wells IR03MW224A and IR03MW371A. The exceedances ranged from 0.06 to 1.5 µg/L. These wells are located in the oily liquid waste disposal area at IR-03, within approximately 300 feet of San Francisco Bay. Aroclor-1260 was not detected in IR03MW224A (in 15 subsequent samples, including one duplicate sample) and in IR03MW371A (in two subsequent samples, including one duplicate sample). Because Aroclor-1260 was not detected at concentrations exceeding the aquatic evaluation criterion during subsequent sampling events at the wells listed above, Aroclor-1260 is not considered a COPEC for these wells; however, future monitoring for Aroclor-1260 at these wells is recommended to evaluate conditions upgradient and downgradient of wells IR03MW225A and IR03MWO-1.
- **IR03MW225A and IR03MW226A:** Between 1992 and 1996, Aroclor-1260 exceeded its aquatic evaluation criterion in samples from wells IR03MW225A and IR03MW226A. The exceedances ranged from 1.8 to 12 µg/L. These wells are located in the oily liquid waste disposal area at IR-03, within 100 feet of San Francisco Bay. No subsequent samples were collected from wells IR03MW225A or IR03MW226A and analyzed for Aroclor-1260. Because of the magnitude of exceedances at IR03MW225A and IR03MW226A, and the lack of recent data, it is assumed that elevated concentrations of Aroclor-1260 in groundwater near these wells may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR03MWO-1:** In July 1992, Aroclor-1260 was measured at the highest concentration (290 µg/L) ever detected at Parcel E in a sample from well IR03MWO-1. This maximum exceedance was preceded by a concentration of 33 µg/L (48 µg/L in the duplicate sample), collected in January 1992. This well is located in the oily liquid waste disposal area, approximately 175 feet from San Francisco Bay. Aroclor-1260 was not detected in the subsequent sample (collected in August 1992). Because of the magnitude of exceedances at IR03MWO-1 and the lack of recent data, it is assumed that elevated concentrations of Aroclor-1260 in groundwater near these wells may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.
- **IR08MW42A:** In 1991, Aroclor-1260 exceeded its aquatic evaluation criterion in three samples (including one duplicate sample) collected from well IR08MW42A. The exceedances ranged from 1.1 to 4.4 µg/L. This well, which was decommissioned after 1994, was located approximately 1,100 feet from San Francisco Bay. Aroclor-1260 was not detected in any of the four subsequent sampling events from November 1993 through August 1994. Because Aroclor-1260 was not detected at concentrations exceeding the aquatic evaluation criterion during subsequent sampling events at the well IR08MW42A, Aroclor-1260 is not considered a COPEC for this well.

Based on this screening evaluation, Aroclor-1260 is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at five Parcel E wells: IR02MW146A, IR03MW218A1, IR03MW225A, IR03MW226A, and IR03MWO-1.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for Aroclor-1260 because Aroclor-1260 in groundwater is potentially migrating to San Francisco Bay from onshore locations at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW146A	0.24	40	80	1	0.03	0.03	YES
IR03MW218A1	32	300	30	1	0.03	0.03	YES
IR03MW225A	3.8	300	30	1	0.03	0.03	YES
IR03MW226A	8.8	300	30	1	0.03	0.03	YES
IR03MWO-1	290	300	125	1	0.03	0.03	YES

Based on the trigger-level evaluation results, concentrations detected at IR02MW146A, IR03MW218A1, IR03MW225A, IR03MW226A, and IR03MWO-1 exceed their respective trigger levels for Aroclor-1260. Therefore, Aroclor-1260 is considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of these wells.

A3.4.5. 4,4'-DDD (Figure A3-20)

Screening Evaluation. The aquatic evaluation criterion for 4,4'-DDD in the A-aquifer, B-aquifer, and bedrock WBZ is 0.001 µg/L. 4,4'-DDD exceeded its aquatic evaluation criterion (0.001 µg/L) in two or fewer samples from each of the following wells located between approximately 100 and 950 feet from San Francisco Bay:

- IR02MW97A (one duplicate sample)
- IR02MW300A
- IR02MW372A
- IR02MW373A
- IR03MW342A
- IR12MW17A
- PA36MW06A

During all subsequent sampling events at the wells listed above, 4,4'-DDD was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, 4,4'-DDD is not considered a COPEC that potentially affects aquatic organisms in the bay.

A3.4.6. 4,4'-DDE (Figure A3-21)

Screening Evaluation. The aquatic evaluation criterion for 4,4'-DDE in the A-aquifer, B-aquifer, and bedrock WBZ is 0.001 µg/L. 4,4'-DDE exceeded its aquatic evaluation criterion (0.001 µg/L) in samples from five Parcel E wells. Two of these five wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

4,4'-DDE exceeded its aquatic evaluation criterion (0.001 µg/L) in one sample from each of the following wells located between approximately 225 and 950 feet from San Francisco Bay:

- IR02MW97A (one duplicate sample)
- IR02MW373A
- PA36MW06A

During all subsequent sampling events at the wells listed above, 4,4'-DDE was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, 4,4'-DDE is not considered a COPEC for these wells.

4,4'-DDE exceeded its aquatic evaluation criterion (0.001 µg/L) in multiple samples from each of the following wells:

- **IR02MW300A:** Between 1992 and 2004, 4,4'-DDE exceeded its aquatic evaluation criterion in three samples collected from IR02MW300A. The exceedances ranged from 0.01 µg/L to 0.24 µg/L. This well is located approximately 100 feet from San Francisco Bay. 4,4'-DDE was not detected in the most recent sample collected in March 2005 or in the three samples collected prior to the last exceedance (in March 1996 and June and September 2004). These non-detections demonstrate that 4,4'-DDE is not persistent at this location. No additional samples were collected from this well after 2005. After the Metal Debris Reef removal action was performed at this location in 2007, this well was replaced with well IR02MW301A.
- **IR02MW372A:** Between 1996 and 2002, 4,4'-DDE exceeded its aquatic evaluation criterion in five samples collected from IR02MW372A. The exceedances ranged from 0.03 µg/L to 1.2 µg/L. This well is located approximately 265 feet from the bay. Since 2002, no samples were collected from this well. Because of the persistence of exceedances at IR02MW372A and the lack of recent data, it is assumed that elevated concentrations of 4,4'-DDE in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Based on this screening evaluation, 4,4'-DDE is only considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at one Parcel E well: IR02MW372A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for 4,4'-DDE because 4,4'-DDE in groundwater is potentially migrating to San Francisco Bay from an onshore location at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW372A	1.2	40	210	2	0.001	0.002	YES

Based on the trigger-level evaluation results, concentrations detected at IR02MW372A exceed the trigger level for 4,4'-DDE at this well. Therefore, 4,4'-DDE should be considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of this well.

A3.4.7. 4,4'-DDT (Figure A3-22)

Screening Evaluation. The aquatic evaluation criterion for 4,4'-DDT in the A-aquifer, B-aquifer, and bedrock WBZ is 0.001 µg/L. 4,4'-DDT exceeded its aquatic evaluation criterion (0.001 µg/L) in three or fewer samples from each of the following wells located between approximately 75 and 1,500 feet from San Francisco Bay:

- IR02MW97A (two duplicate samples)
- IR02MW300A
- IR02MW372A
- IR02MWB-3
- IR12MW17A
- IR39MW21A
- PA36MW03A (one duplicate sample)
- PA36MW04A
- PA36MW06A

During all subsequent sampling events at the wells listed above, 4,4'-DDT was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, 4,4'-DDT is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4.8. Alpha-Chlordane (Figure A3-23)

Screening Evaluation. The aquatic evaluation criterion for alpha-chlordane in the A-aquifer, B-aquifer, and bedrock WBZ is 0.004 µg/L. Alpha-chlordane exceeded its aquatic evaluation criterion in samples from four Parcel E wells. One of the four wells with exceedances is located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Alpha-chlordane exceeded its aquatic evaluation criterion (0.004 µg/L) in two or fewer samples from each of the following wells located between approximately 100 and 1,500 feet from San Francisco Bay:

- IR02MW300A
- IR36MW15A (one duplicate sample)
- IR39MW21A

During all subsequent sampling events at the wells listed above, alpha-chlordane was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, alpha-chlordane is not considered a COPEC for these wells.

Alpha-chlordane exceeded its aquatic evaluation criterion (0.004 µg/L) in multiple samples from the following well:

- **IR02MW372A:** Between 1996 and 2002, alpha-chlordane exceeded its aquatic evaluation criterion in three samples (including one duplicate sample) collected from IR02MW372A. The exceedances ranged from 0.0088 to 0.03 µg/L. This well is located approximately 265 feet from San Francisco Bay. Since the last exceedance in 2002, no additional samples were collected from this well. Because of the lack of recent data, it is assumed that elevated concentrations of alpha-chlordane in groundwater near these wells may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Based on this screening evaluation, alpha-chlordane is considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at one Parcel E well: IR02MW372A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for alpha-chlordane because alpha-chlordane in groundwater is potentially migrating to San Francisco Bay from an onshore location at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
IR02MW372A	0.03	40	210	2	0.004	0.008	YES

Based on the trigger-level evaluation results, concentrations detected at IR02MW372A exceed the trigger level for alpha-chlordane. Therefore, alpha-chlordane is considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of this well.

A3.4.9. Dieldrin (Figure A3-24)

Screening Evaluation. The aquatic evaluation criterion for dieldrin in the A-aquifer, B-aquifer, and bedrock WBZ is 0.0019 µg/L. Dieldrin exceeded its aquatic evaluation criterion (0.0019 µg/L) in multiple samples from three Parcel E wells. One of the three wells with exceedances is located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

- **IR02MW300A and IR39MW21A:** Dieldrin exceeded its aquatic evaluation criterion in two or fewer samples from wells IR02MW300A (one sample) and IR39MW21A (three samples, including one duplicate sample). The exceedances ranged from 0.01 to 0.05 µg/L. These wells are located approximately 90 and 600 feet, respectively, from San Francisco Bay. During subsequent sampling events at both wells, dieldrin was not detected at concentrations exceeding the aquatic evaluation criterion.
- **IR02MW372A:** Between 1996 and 2002, dieldrin exceeded its aquatic evaluation criterion (0.0019 µg/L) in multiple samples from well IR02MW372A. The exceedances ranged from 0.01 to 0.69 µg/L. This well is located approximately 260 feet from San Francisco Bay. During a subsequent sampling event at this well (with a primary and duplicate sample), dieldrin was not detected at concentrations exceeding the aquatic evaluation criterion.

Based on the frequency of detection at these three wells, dieldrin is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4.10. Endosulfan I (Figure A3-25)

Screening Evaluation. The aquatic evaluation criterion for endosulfan I in the A-aquifer, B-aquifer, and bedrock WBZ is 0.0087 µg/L. In 2004, Endosulfan I exceeded its aquatic evaluation criterion (0.0087 µg/L) in one sample each from wells IR39MW21A and IR02MW300A. The exceedances were 0.0095 and 0.01 µg/L. Well IR39MW21A is located approximately 650 feet from San Francisco Bay, and well IR02MW300A is located approximately 100 feet from the bay. During previous and subsequent sampling events at both wells, endosulfan I was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, endosulfan I is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4.11. Endosulfan II (Figure A3-26)

Screening Evaluation. The aquatic evaluation criterion for endosulfan II in the A-aquifer, B-aquifer, and bedrock WBZ is 0.0087 µg/L. Endosulfan II exceeded its aquatic evaluation criterion (0.0087 µg/L) in samples from wells PA36MW04A (one sample in 2002), IR02MW372A (two samples in 1996), and IR02MW300A (one sample in 2004). The three wells are located between 100 and 1,500 feet from San Francisco Bay. During previous and subsequent sampling events at all three wells, endosulfan II was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of

detection, endosulfan II is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4.12. Endrin (Figure A3-27)

Screening Evaluation. The aquatic evaluation criterion for endrin in the A-aquifer, B-aquifer, and bedrock WBZ is 0.0023 µg/L. Endrin exceeded its aquatic evaluation criterion (0.0023 µg/L) in samples from wells PA36MW04A (one sample in 1993), IR39MW21A (one sample in 2002), IR02MW372A (two samples in 1996), and IR02MW300A (one sample in 2004). The four wells are located between 100 and 1,500 feet from San Francisco Bay. During previous and subsequent sampling events at all four wells, endrin was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, endrin is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.4.13. Heptachlor (Figure A3-28)

Screening Evaluation. The aquatic evaluation criterion for heptachlor in the A-aquifer, B-aquifer, and bedrock WBZ is 0.0036 µg/L. Heptachlor exceeded its aquatic evaluation criterion (0.0036 µg/L) in multiple samples from four Parcel E wells. None of the wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

- **IR02MW372A, PA36MW07A, and PA39MW21A:** Heptachlor exceeded its aquatic evaluation criterion in one sample each from wells PA36MW07A, PA39MW21A, and IR02MW372A. The exceedances were 0.03 µg/L (in 2001), 0.13 µg/L (in 1993), and 0.01 µg/L (in 2002) respectively. These wells are located approximately 260, 1,290, and 650 feet from San Francisco Bay. During subsequent sampling events at all three wells, heptachlor was not detected at concentrations exceeding the aquatic evaluation criterion.
- **PA36MW04A:** In 2002, heptachlor exceeded its aquatic evaluation criterion in two samples collected from PA36MW04A. The exceedances were 0.01 and 0.0088 µg/L. This well is located approximately 1,270 feet from San Francisco Bay. Since 2002, no samples were collected from this well. Because of the lack of recent data, it is assumed that elevated concentrations of heptachlor in groundwater near this well may be migrating to the bay at concentrations exceeding the aquatic evaluation criterion.

Based on this screening evaluation, heptachlor is only considered a COPEC that potentially affects aquatic organisms in San Francisco Bay at one Parcel E well: PA36MW04A.

Trigger-Level Evaluation. A trigger-level evaluation was conducted for heptachlor because heptachlor in groundwater is potentially migrating to San Francisco Bay from an onshore location at concentrations that could potentially affect aquatic organisms in the bay. The following table summarizes the results of the trigger-level evaluation.

Well ID No.	Maximum Concentration (µg/L)	Source Area Width (feet)	Migration Distance (feet)	Attenuation Factor (from nomograph)	Aquatic Criterion (µg/L)	Trigger Level (µg/L)	Concentration Exceeds Trigger Level?
PA36MW04A	0.01	40	1,220	34	0.0036	0.1224	NO

Based on the trigger-level evaluation results, concentrations detected at PA36MW04A do not exceed the trigger level for heptachlor. Therefore, heptachlor is not considered a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of this well.

A3.4.14. Heptachlor Epoxide (Figure A3-29)

Screening Evaluation. The aquatic evaluation criterion for heptachlor epoxide in the A-aquifer, B-aquifer, and bedrock WBZ is 0.0036 µg/L. Heptachlor epoxide exceeded its aquatic evaluation criterion in samples from five Parcel E wells. Two of these five wells with exceedances are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Heptachlor epoxide exceeded its aquatic evaluation criterion (0.0036 µg/L) in one sample from each of the following wells located between 45 and 1,100 feet from San Francisco Bay:

- IR02MW300A
- IR03MW370A
- IR12MW17A
- IR39MW21A

During all previous and subsequent sampling events at the wells listed above, heptachlor epoxide was not detected at concentrations exceeding the aquatic evaluation criterion.

In 1996 and 2001, heptachlor epoxide exceeded its aquatic evaluation criterion (0.0036 µg/L) in three samples from well IR02MW372A. The exceedances were 0.2, 0.39, and 0.02 µg/L. This well is located approximately 260 feet from San Francisco Bay. During all subsequent sampling events at IR02MW372A, heptachlor epoxide was not detected at concentrations exceeding the aquatic evaluation criterion.

Based on the low frequency of detection, heptachlor epoxide is not considered a COPEC that potentially affects aquatic organisms in San Francisco Bay.

A3.5. PETROLEUM HYDROCARBONS

As shown on Figure A3-30 in Attachment A3, petroleum hydrocarbons have been detected at concentrations exceeding the aquatic evaluation criterion for total TPH (i.e., the sum of TPH fractions).

Results of the analysis of data for total TPH are presented below. Figure A-4 summarizes all locations at Parcel E where petroleum hydrocarbons in groundwater may be migrating to San Francisco Bay at concentrations that may affect aquatic organisms in the bay.

A3.5.1. Total TPH (Figure A3-30)

Screening Evaluation. Detected concentrations of total TPH were compared with aquatic evaluation criteria assigned as a function of well distance from the Parcel E shoreline (Shaw Environmental, Inc., 2007). The concentrations evaluated increased as the distance from the shoreline increased, as shown on Figure A-4 and Figure A3-30 in Attachment A3. The aquatic evaluation criteria for total TPH in the A-aquifer, B-aquifer, and bedrock WBZ are as follows:

- 1,400 µg/L for wells 0 to 25 feet from the shoreline
- 1,467 µg/L for wells 25 to 50 feet from the shoreline
- 2,092 µg/L for wells 50 to 75 feet from the shoreline
- 3,216 µg/L for wells 75 to 100 feet from the shoreline
- 4,839 µg/L for wells 100 to 125 feet from the shoreline
- 6,949 µg/L for wells 125 to 150 feet from the shoreline
- 9,539 µg/L for wells 150 to 175 feet from the shoreline
- 12,604 µg/L for wells 175 to 200 feet from the shoreline
- 16,145 µg/L for wells 200 to 225 feet from the shoreline
- 20,000 µg/L for wells greater than 225 feet from the shoreline

Total TPH concentrations exceeded their distance-dependent aquatic evaluation criteria in 16 Parcel E wells. Ten of these 16 wells are located within 250 feet of the Parcel E shoreline. The screening evaluation results are summarized below.

Total TPH exceeded its aquatic evaluation criteria in one sample from each of the following wells:

- **IR39MW21A** (33,100 µg/L exceeded the distance-dependent aquatic evaluation criteria [20,000 µg/L] for wells located more than 250 feet from the shoreline)
- **IR02MW146A** (13,600 µg/L exceeded the distance-dependent aquatic evaluation criteria [4,839 µg/L] for wells located between 100 and 125 feet from the shoreline)
- **IR12MW21A** (400,000 µg/L exceeded the distance-dependent aquatic evaluation criteria [20,000 µg/L] for wells located more than 250 feet from the shoreline)
- **IR14MW13A** (302,000 and 214,700 µg/L [duplicate sample] exceeded the distance-dependent aquatic evaluation criteria [20,000 µg/L] for wells located more than 250 feet from the shoreline)

- **IR36MW12A** (24,500 µg/L exceeded the distance-dependent aquatic evaluation criteria [20,000 µg/L] for wells located more than 250 feet from the shoreline)
- **IR56MW39A** (20,200 and 27,300 µg/L [duplicate sample] exceeded the distance-dependent aquatic evaluation criteria [20,000 µg/L] for wells located more than 250 feet from the shoreline)

Total TPH exceeded its aquatic evaluation criteria in two samples from IR15MW08A (74,000 and 49,000 µg/L [duplicate sample] and 66,700 µg/L). The concentrations exceeded the distance-dependent aquatic evaluation criteria [20,000 µg/L] for wells located more than 250 feet from the shoreline)

During all subsequent sampling events at the wells listed above, total TPH was not detected at concentrations exceeding distance-dependent aquatic evaluation criteria. Based on the low frequency of detection, total TPH is not considered a COPEC for these wells.

Total TPH exceeded its distance-dependent aquatic evaluation criteria in samples collected from several wells (IR02MW173A, IR03MW218A1, IR03MW218A2, IR03MW225A, IR03MW226A, IR03MW369A, IR03MW370A, IR03MW371A, and IR03MWO-1) located within the oily liquid waste disposal area at IR-03. The exceedances ranged from 3,600 to 560,000 µg/L. All wells at IR-03 with exceedances are located between 10 and 200 feet from the bay. Because of the persistence and magnitude of the exceedances detected in IR02MW173A, IR03MW218A1, IR03MW218A2, IR03MW225A, IR03MW226A, IR03MW369A, IR03MW370A, IR03MW371A, and IR03MWO-1, it is assumed that elevated concentrations of total TPH in groundwater near these wells may be migrating to the bay at concentrations exceeding distance-dependent aquatic evaluation criteria. Based on the screening evaluation, TPH is considered a COEC that potentially affects aquatic organisms in San Francisco Bay at nine Parcel E wells: IR02MW173A, IR03MW218A1, IR03MW218A2, IR03MW225A, IR03MW226A, IR03MW369A, IR03MW370A, IR03MW371A, and IR03MWO-1. No trigger-level evaluation was performed on data from these wells because the distance-dependent aquatic evaluation criteria assigned to total TPH already account for attenuation during migration to the bay.

Section A4. Conclusions and Recommendations

Table A-3 summarizes the results of the screening and trigger-level evaluations for each of the chemicals identified as COECs in this aquatic evaluation, as well as the wells and areas recommended for further monitoring and evaluation. Based on the results of the screening and trigger-level evaluations, the following chemicals were identified as COECs present in groundwater that may potentially affect aquatic organisms in San Francisco Bay:

- Metals: arsenic, copper, lead, mercury, nickel, and zinc
- PCBs and Pesticides: Aroclor-1254, Aroclor-1260, 4,4'-DDE, and alpha-chlordane
- Petroleum Hydrocarbons: Total TPH

Figures A-2, A-3, and A-4 identify the locations where metals, PCBs and pesticides, and TPH are persistent and regularly exceeded their respective aquatic criteria. Based on the results of this evaluation, the Navy recommends further monitoring and evaluation of the areas of concern listed in Table A-3 and shown on Figures A-2, A-3, and A-4 because it is possible that COECs in groundwater are migrating to San Francisco Bay from the locations of specific wells at concentrations that are potentially harmful to aquatic organisms and the environment.

Remedial action may be required to reduce source concentrations contributing to groundwater contamination in some of these areas of concern. In some areas, long-term monitoring and natural attenuation may suffice. The results of this evaluation were considered during development of remedial design options in this FS Report.

Section A5. References

Barajas & Associates, Inc., 2008. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Central Valley Regional Water Quality Control Board, 2007. "A Compilation of Water Quality Goals." Prepared by Jon B. Marshack, D. Env. Senior Environmental Specialist. August.

PRC Environmental Management, Inc., 1996. "Estimation of Hunters Point Shipyard Groundwater Ambient Levels Technical Memorandum." September 16.

San Francisco Regional Water Quality Control Board (SFRWQCB), 2006. Letter Regarding Groundwater Criteria, Points of Compliance, and Next Steps for Hunters Point Shipyard. From James Ponton, SFRWQCB. To Keith Forman, Department of the Navy. March 16.

SFRWQCB. 2007. "Water Quality Control Plan, San Francisco Bay Region." Current Version of "Electronic Basin Plan" at http://www.waterboards.ca.gov/sanfranciscobay/ basinplan.htm (accessed March 28, 2007). January.

Shaw Environmental, Inc., 2007. "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California." December 21.

SulTech, 2007. "Final Revised Feasibility Study for Parcel D, Hunters Point Shipyard, San Francisco, California." November 30.

SulTech, 2008. "Final Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California." July 31.

Tetra Tech EM Inc. (TtEMI), 2004a. "Revised Final Parcel E Groundwater Summary Report, Phase III Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." May 11.

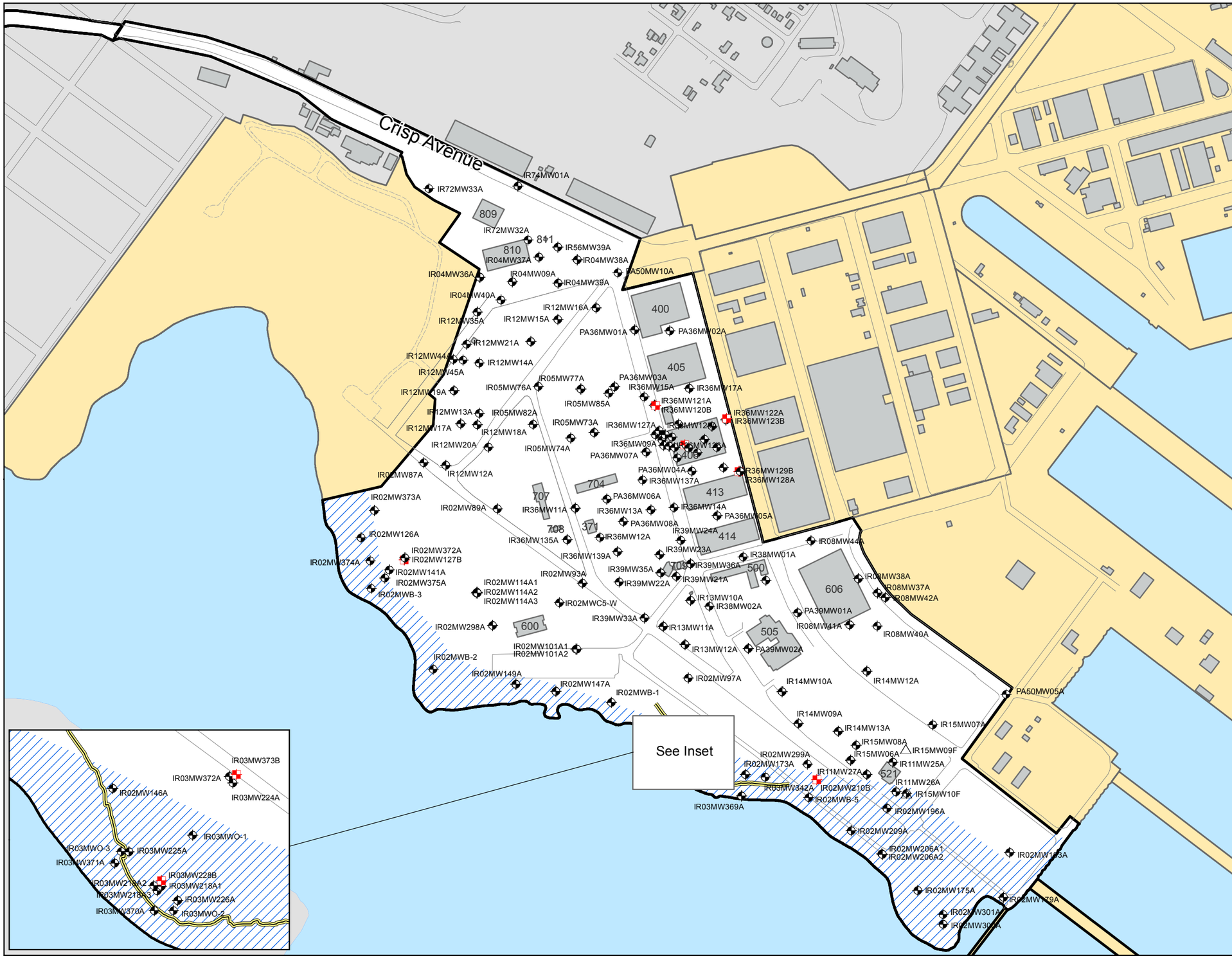
TtEMI, 2004b. "Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Basewide Groundwater Monitoring Program, Hunters Point Shipyard, San Francisco, California." August 20.

U.S. Environmental Protection Agency (EPA), 1997. "BIOSCREEN Version 1.4 – July 1997." Available Online at: <http://www.epa.gov/ada/scmos/models/bioscrn.html>.

EPA, 2000. *The California Toxics Rule*, "Water Quality Criteria for Priority Toxic Pollutants for California Inland Surface Waters, Enclosed Bays and Estuaries." May 18. Available Online at: <http://www.epa.gov/waterscience/standards/rules/ctr/index.html>.

EPA, 2006. "Current National Recommended Water Quality Criteria." Available Online at: <http://www.epa.gov/waterscience/criteria/wqctable/>.

Figures



Notes:

The tidal influence study was conducted from May 20 to June 3, 2002. (Tetra Tech EM Inc. 2004a.)
HPS = Hunters Point Shipyard
WBZ = Water Bearing Zone

Reference:

Tetra Tech EM Inc. 2004a. "Revised Final Parcel E Groundwater Summary Report, Phase III Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." October 17.

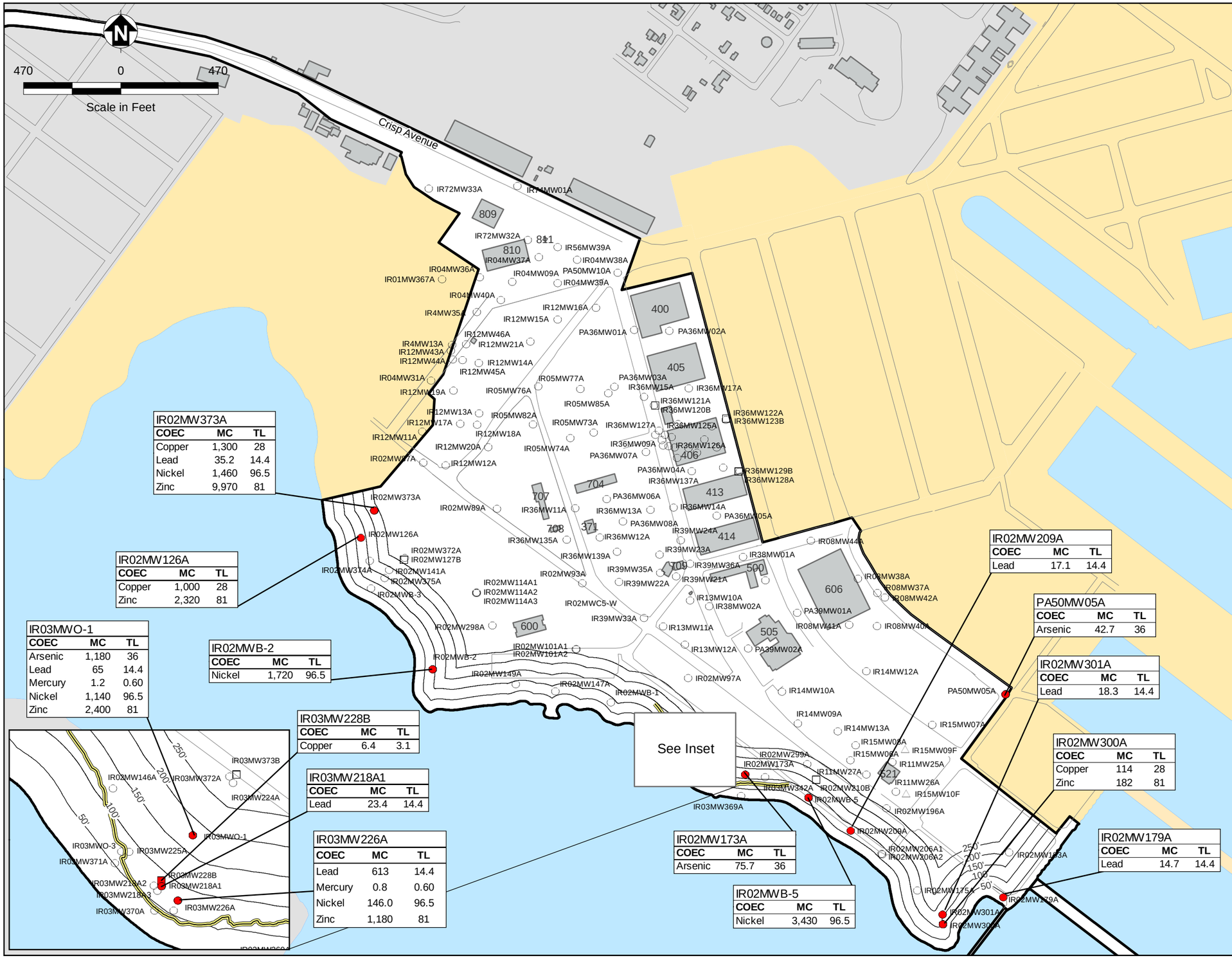
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A-1

MONITORING WELLS AT PARCEL E

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Tidally_Influenced_Wells.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Analyte Exceeds Trigger Level
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Maximum concentrations are shown for wells where data exceed the trigger level. See figures in Attachment A3 for more detailed data at these wells.

All concentrations are in µg/L.

COEC = chemical of ecological concern
HPS = Hunters Point Shipyard
MC = maximum concentration
TL = trigger level
WBZ = water bearing zone
µg/L = microgram per liter

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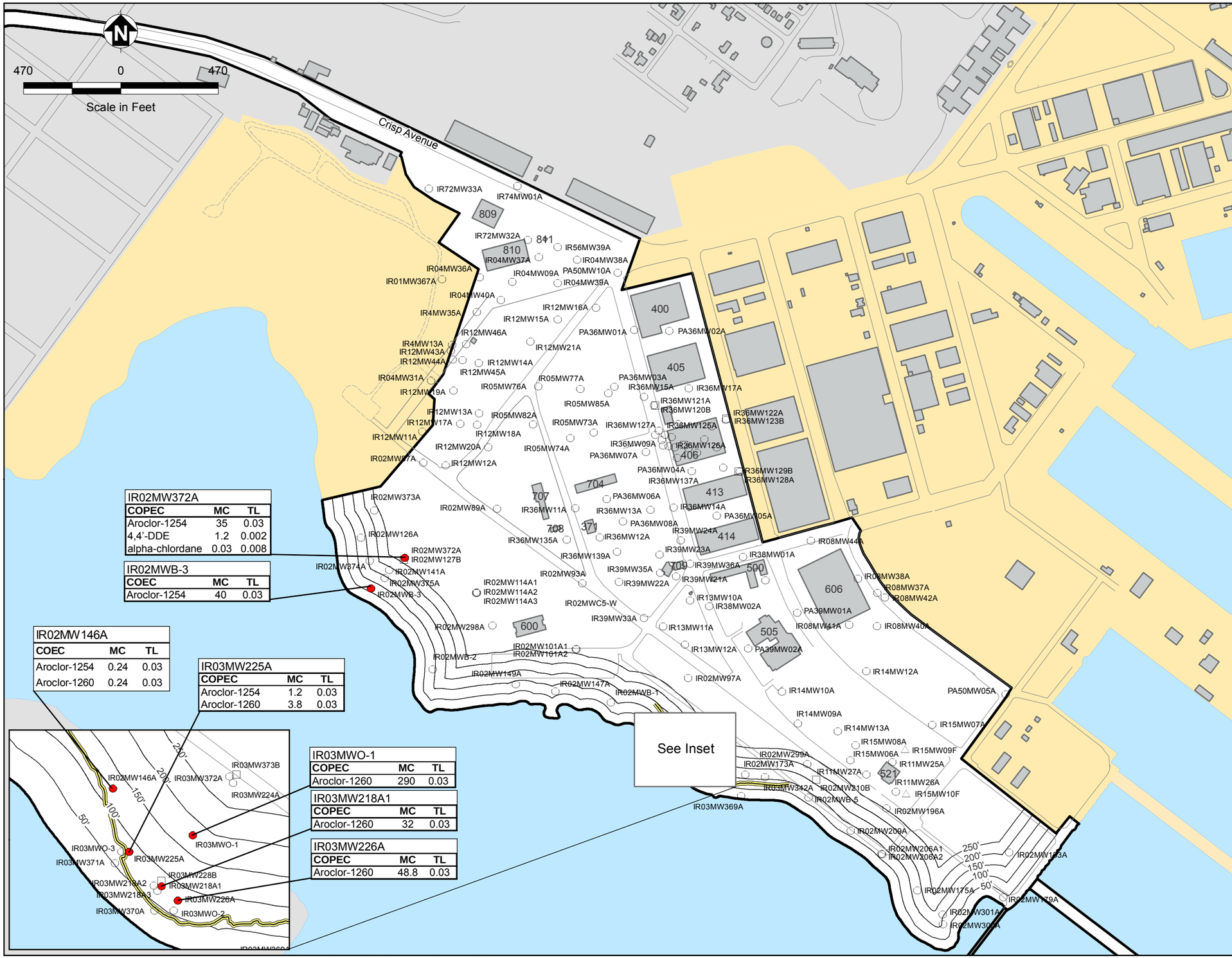
FIGURE A-2

AQUATIC EVALUATION RESULTS FOR METALS

Feasibility Study Report for Parcel E

N:\projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Summary_Metals.mxd



IR02MW372A		
COPEC	MC	TL
Aroclor-1254	35	0.03
4,4'-DDE	1.2	0.002
alpha-chlordane	0.03	0.008

IR02MWB-3		
COEC	MC	TL
Aroclor-1254	40	0.03

IR02MW146A		
COEC	MC	TL
Aroclor-1254	0.24	0.03
Aroclor-1260	0.24	0.03

IR03MW225A		
COPEC	MC	TL
Aroclor-1254	1.2	0.03
Aroclor-1260	3.8	0.03

IR03MWO-1		
COPEC	MC	TL
Aroclor-1260	290	0.03

IR03MW218A1		
COPEC	MC	TL
Aroclor-1260	32	0.03

IR03MW226A		
COPEC	MC	TL
Aroclor-1260	48.8	0.03

- A-aquifer Well
- B-aquifer Well
- Bedrock WBZ Well
- ● / ■ / ▲ Analyte Exceeds Trigger Level
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- San Francisco Bay
- Building
- Sheet Pile Wall
- Road
- Gravel Road
- 50' Distance from Shoreline (in feet)

Notes:
Maximum concentrations are shown for wells where data exceed the trigger level. See figures in Attachment A3 for more detailed data at these wells.

All concentrations are in µg/L.

COEC = chemical of ecological concern
HPS = Hunters Point Shipyard
MC = maximum concentration
TL = trigger level
WBZ = water bearing zone
µg/L = microgram per liter

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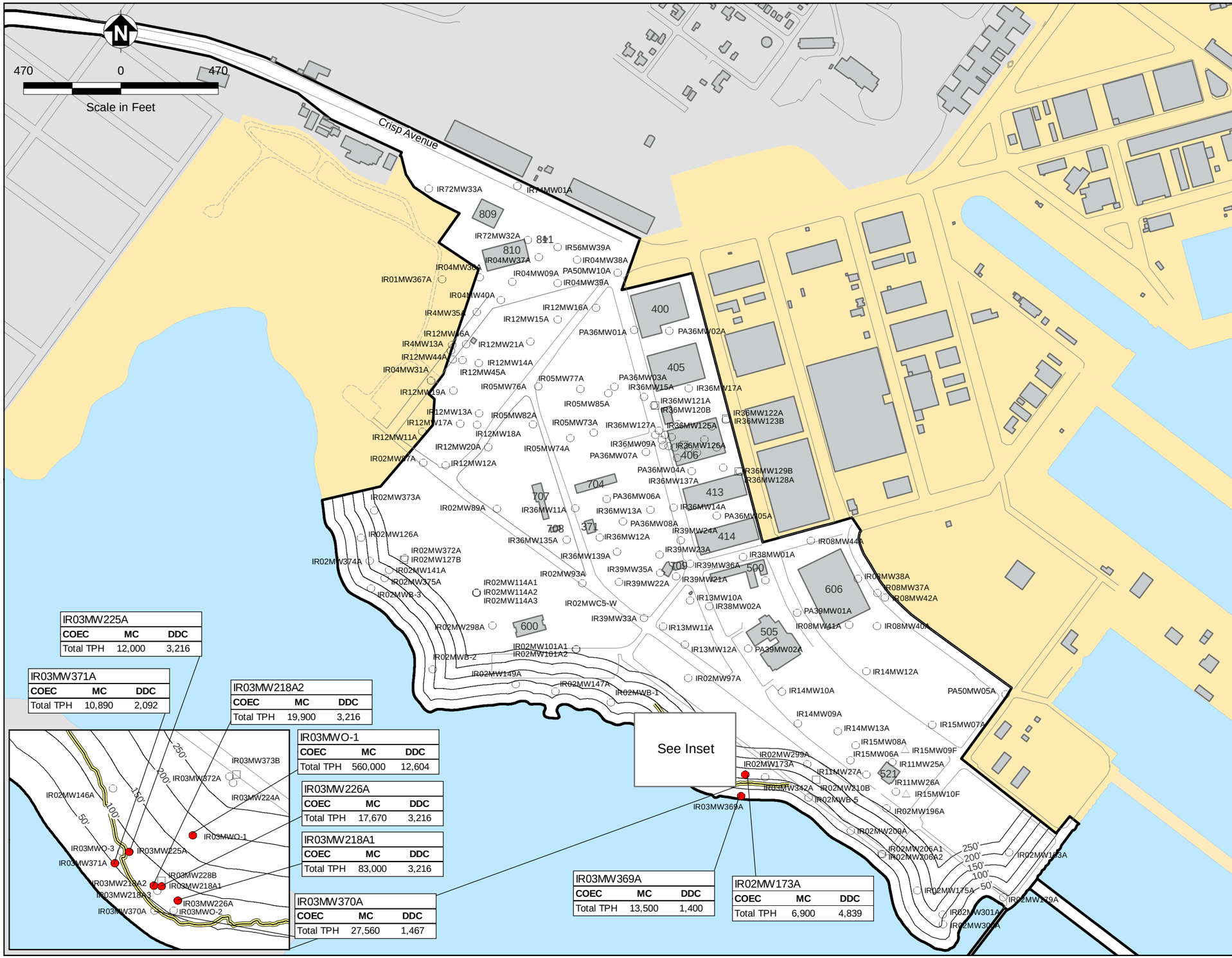
FIGURE A-3

AQUATIC EVALUATION RESULTS FOR PCBS AND PESTICIDES

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Summary_PCBs.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Analyte Exceeds Trigger Level
Parcel E Boundary
Sheet Pile Wall
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Maximum concentrations are shown for wells where data exceed the trigger level. See figures in Attachment A3 for more detailed data at these wells.

All concentrations are in µg/L.

COEC = chemical of ecological concern
DDC = distance dependent aquatic evaluation criterion
HPS = Hunters Point Shipyard
MC = maximum concentration
TPH = total petroleum hydrocarbon
WBZ = water bearing zone
µg/L = microgram per liter

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FIGURE A-4

AQUATIC EVALUATION RESULTS FOR PETROLEUM HYDROCARBONS

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Summary_TPH.mxd

Tables

Table A-1. Surface Water Screening Criteria
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analyte Monitored Under Hunters Point Shipyard Groundwater Program	San Francisco Bay Basin Plan[a] (µg/L)		California Toxics Rule Criteria for Enclosed Bays and Estuaries[e] (µg/L)								National Recommended Water Quality Criteria[k] (µg/L) Saltwater Aquatic Life					National Ambient Water Quality Criteria (AWQC) for Protection of Saltwater Aquatic Life[i] (µg/L) Lowest Observed Effect Level (LOEL)							Other Criteria (footnotes indicate source) (µg/L)		Surface Water Criteria Selected for Aquatic Evaluation (µg/L)
			Chronic[g]		Acute[g]			Instantaneous Maximum			Chronic[g]		Acute[g]			Chronic[h]		Acute[i]			Other[i]				
	Concentration	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	10% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Other	Footnotes	
1,1,1-Trichloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	31,200	6,240	--	--	--	--	--	6,240
1,1,2,2-Tetrachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9,020	1,804	--	--	--	--	--	1,804
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
1,2,4,5-Tetrachlorobenzene	--	--	--	--	--	--	--	--	--	--		--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
1,2,4-Trichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)	--	--	--	--	129
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	113,000	22,600	--	--	--	--	--	22,600
1,2-Dichloroethene (total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
1,2-Dichloropropane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,040	(28)	10,300	--	(28)	--	--	--	--	3,040
1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)	--	--	--	--	129
1,3-Dichloropropene (total)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	790	158	(29)	--	--	--	--	158
1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)	--	--	--	--	129
2,4-Dinitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
2,4-Dinitrotoluene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	(53)	370	(53, 82)	--	--	118
2,6-Dinitrotoluene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	(53)	370	(53, 82)	--	--	118
2-Chloronaphthalene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.5	1.5	(48)	--	--	--	--	1.5
2-Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
4,4'-DDD	--	--	--	--	--	--	--	--	--	--	0.001	(114,172)	--	--	--	--	--	3.6	0.72	--	--	--	--	--	0.001
4,4'-DDE	--	--	--	--	--	--	--	--	--	--	0.001	(114,172)	--	--	--	--	--	14	2.8	--	--	--	--	--	0.001
4,4'-DDT	--	--	0.001	(114)	--	--	--	0.13	--	--	0.001	,aa,ii,(114, 17	0.13	--	G,ii	--	--	--	--	--	--	--	--	--	0.001
4,6-Dinitro-2-methylpheno	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
4-Amino-2,6-dinitrotoluene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	--	370	(82)	--	--	118
4-Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
Acenaphthene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	710	--	970	--	--	--	--	--	--	710
Acenaphthylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Aldrin	--	--	--	--	--	--	--	1.3	--	II	--	--	1.3	0.26	G	--	--	--	--	--	--	--	--	--	0.26
Alpha-chlordane	--	--	0.004	(114)	--	--	--	0.09	--	--	0.004	G,aa,o	0.09	--	G,o	--	--	--	--	--	--	--	--	--	0.004
Ammonia (un-ionized)	25	s	--	--	--	--	--	--	--	--	35	(112)	223	--	(112)	--	--	--	--	--	--	--	400	t	25
Anthracene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Aroclor-1016	--	--	0.03	(114, 116) rr	--	--	--	--	--	--	0.03	(114,173)	--	--	--	--	--	10	2	--	--	--	--	--	0.03
Aroclor-1221	--	--	0.03	(114, 116) rr	--	--	--	--	--	--	0.03	(114,173)	--	--	--	--	--	10	2	--	--	--	--	--	0.03
Aroclor-1232	--	--	0.03	(114, 116) rr	--	--	--	--	--	--	0.03	(114,173)	--	--	--	--	--	10	2	--	--	--	--	--	0.03
Aroclor-1242	--	--	0.03	(114, 116) rr	--	--	--	--	--	--	0.03	(114,173)	--	--	--	--	--	10	2	--	--	--	--	--	0.03
Aroclor-1248	--	--	0.03	(114, 116) rr	--	--	--	--	--	--	0.03	(114,173)	--	--	--	--	--	10	2	--	--	--	--	--	0.03
Aroclor-1254	--	--	0.03	(114, 116) rr	--	--	--	--	--	--	0.03	(114,173)	--	--	--	--	--	10	2	--	--	--	--	--	0.03
Aroclor-1260	--	--	0.03	(114, 116) rr	--	--	--	--	--	--	0.03	(114,173)	--	--	--	--	--	10	2	--	--	--	--	--	0.03
Arsenic	36	b	36	(142, 1) oo	69	--	oo	--	--	--	36	(1) A,D,bb	69	--	(1) A,D,bb	--	--	--	--	--	--	--	--	--	36
Atrazine	--	--	--	--	--	--	--	--	--	--	17	r,(68, 179)	760	--	r,(68, 179)	--	--	--	--	--	--	--	--	--	17
Benzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,100	1,020	--	700	(83)	--	--	700
Benzo(a)anthracene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(a)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(b)fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(g,h,i)perylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(k)fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Bromochloromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	--	--	--	--	6,400
Bromodichloromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	--	--	--	--	6,400
Bromoform	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	--	(20, 82)	--	--	6,400
Bromomethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	--	(20, 82)	--	--	6,400
Butylbenzylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	589	(45)	3.4	(38, 45)	--	--	3.4
Cadmium	9.3	b	9.3	(1, 142)	42	--	(1, 142)	--	--	--	8.8	D,bb,gg	40	--	D,bb,gg	--	--	--	--	--	--	--	--	--	8.8
Carbon tetrachloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	50,000	--	--	11,500	(20, 82)	--	--	6,400
Chlordane		--	0.004	(114)	--	--	--	0.09	--	--	0.004	G,aa	0.09	--	G	--	--	--	--	--	--	--	--	--	0.004
Chlorobenzene	--	--	--	--	--		--				--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
Chloroform	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Chloromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Chromium VI	50 (VI)	b,o	50 (VI)	o, (1, 142)	1100 (VI)	--	(1,142)	--	--	--	50 (VI)	(1) D,bb,o	1100 (VI)	--	(1) D,bb,o	--	--	--	--	--	--	--	--	--	50
Chrysene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Cis-1,2-dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
Copper	3.1	e	3.1	oo	4.8	--	oo	--	--	--	3.1	D,cc,ff	4.8	--	(1) D,cc,ff	--	--	--	--	--	--	--	--	--	3.1
Cyanide	1	e	1	pp	1	--	pp	--	--	--	1	(137) Q,bb	1	--	(137) Q,bb	--	--	--	--	--	--	--	--	--	1
Dibenz(a,h)anthracene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Dibromochloromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Dichlorodiflouromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Dieldrin	--	--	0.0019	(114), II	--	--	--	0.71	--	II	0.0019	(114) G,aa	0.71	--	G	--	--	--	--	--	--	--	--	--	0.0019
Diethylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	589	(45)	3.4	(38, 45)	--	--	3.4
Dimethylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	589	(45)	3.4	(38, 45)	--	--	3.4
Di-n-butylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	589	(45)	3.4	(38, 45)	--	--	3.4
Di-n-octylphthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	589	(45)	3.4	(38, 45)	--	--	3.4
Endosulfan I	--	--	0.0087	(114, 115), II	--	--	--	0.034	--	(115), II	0.0087	G,Y,o	0.034	--	G,Y,o	--	--	--	--	--	--	--	--	--	0.0087
Endosulfan II	--	--	0.0087	(114, 115), II	--	--	--	0.034	--	(115), II	0.0087	G,Y,o	0.034	--	G,Y,o	--	--	--	--	--	--	--	--	--	0.0087
Endrin	--	--	0.0023	(114), II	--	--	--	0.037	--	II	0.0023	(114) G,aa	0.037	--	G	--	--	--	--	--	--	--	--	--	0.0023
Ethylbenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	430	86	--	--	--	--	--	86
Fluoranthene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	40	--	--	--	--	--	--	16

Table A-1. Surface Water Screening Criteria *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analyte Monitored Under Hunters Point Shipyard Groundwater Program	San Francisco Bay Basin Plan[a] (µg/L)		California Toxics Rule Criteria for Enclosed Bays and Estuaries[e] (µg/L)								National Recommended Water Quality Criteria[k] (µg/L) Saltwater Aquatic Life					National Ambient Water Quality Criteria (AWQC) for Protection of Saltwater Aquatic Life[l] (µg/L) Lowest Observed Effect Level (LOEL)							Other Criteria (footnotes indicate source) (µg/L)		Surface Water Criteria Selected for Aquatic Evaluation (µg/L)
			Chronic[g]		Acute[g]			Instantaneous Maximum			Chronic[g]		Acute[g]			Chronic[h]		Acute[i]			Other[j]				
	Concentration	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	10% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Other	Footnotes	
Fluorene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Gamma-BHC (lindane)	--	--	--	--	--	--	--	0.16	0.016	ll	--	--	0.16	0.032	G	--	--	--	--	--	--	--	--	--	0.032
Gamma-chlordane	--	--	0.004	(114)	--	--	--	0.09	0.009	--	0.004	G,aa,o	0.09	--	G,o	--	--	--	--	--	--	--	--	--	0.004
Heptachlor	--	--	0.0036	(114)	ll	--	--	0.053	0.005	ll	0.0036	(114) G,aa	--	--	--	--	--	--	--	--	--	--	--	--	0.0036
Heptachlor epoxide	--	--	0.0036	(114)	ll		--	0.053	0.005	ll	0.0036	(114) G,V,aa	--	--	--	--	--	--	--	--	--	--	--	--	0.0036
Hexachlorobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
Hexachlorobutadiene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32	6.4	--	--	--	--	--	6.4
Hexachlorocyclopentadiene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.0	1.4	--	--	--	--	--	1.4
Hexachloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	940	188	--	--	--	--	--	188
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Isophorone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12,900	2,580	--	--	--	--	--	2,580
Lead	8.1	b	8.1	(1, 142), m	210	--	(1, 142), m	--	--	--	8.1	(1) D,bb	210	--	(1) D,bb	--	--	--	--	--	--	--	--	--	8.1
Mercury	0.025	b	--	--	--	--	--	--	--	--	0.94	D,ee,hh	1.8	--	D,ee,hh	--	--	--	--	--	--	--	--	--	0.025
Methoxychlor	--	--	--	--	--	--	--	--	--	--	0.03	F	--	--	--	--	--	--	--	--	--	--	--	--	0.03
Methyl-tert-butyl-ether	--	--	--	--	--	--	--	--	--	--	18,000	--	53,000	--	--	--	--	--	--	--	--	--	8,000	p	8,000
Methylene chloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Mirex	--	--	--	--	--	--	--	--	--	--	0.001	F	--	--	--	--	--	--	--	--	--	--	--	--	0.001
Naphthalene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,350	470	--	--	--	--	--	470
Nickel	8.2	b	8.2	(2, 142), oo	74	--	(1, 142), oo	--	--	--	8.2	(1, 142) D,bb	74	--	(1, 142) D,bb	--	--	--	--	--	--	--	--	--	8.2
Nitrobenzene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,680	1,336	--	--	--	--	--	1,336
N-Nitroso-di-methylamine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,300,000	660,000	(56)	--	--	--	--	660,000
N-Nitroso-di-n-propylamine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,300,000	660,000	(56)	--	--	--	--	660,000
N-nitrosodiphenylamine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,300,000	660,000	(56)	--	--	--	--	660,000
Pentachlorophenol	--	--	7.9	--	13	--	--	--	--	--	7.9	bb	13	--	bb	--	--	--	--	--	--	--	--	--	7.9
Phenanthrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Phenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,800	1,160	--	--	--	--	--	1,160
Pyrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Selenium	--	--	71	(1, 142)	290	--	(1, 142)	--	--	--	71	l, 136) D,bb,d	290	--	(1) D,bb,dd	--	--	--	--	--	--	--	--	--	71
Silver	1.9	c	--	--	1.9	0.38	(1, 142)	--	--	--	--	--	1.9	0.38	D,G	--	--	--	--	--	--	--	--	--	0.38
Sulfide-Hydrogen sulfide	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	(51)	2
Tetrachloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	450	--	10,200	--	--	--	--	--	--	450
Thallium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,130	426	--	--	--	--	--	426
Toluene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,000	--	6,300	--	--	--	--	--	--	5,000
Toxaphene	--	--	0.0002	--	0.21	--	--	--	--	--	0.0002	aa	0.21	--	--	--	--	--	--	--	--	--	--	--	0.0002
TPH-Diesel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400 - 20,000	q,v	1,400 - 20,000
TPH-Gasoline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400 - 20,000	q,v	1,400 - 20,000
TPH-Motor Oil	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400 - 20,000	q,v	1,400 - 20,000
trans-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
Tributyl Tin	--	--	--	--	--	--	--	--	--	--	0.0047	--	0.42	--	--	--	--	--	--	--	--	--	--	--	0.0047
Trichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,000	400	--	--	--	--	--	400
Zinc	81	b	81	mm, oo	90	--	mm, oo	--	--	--	81	(1) D,bb	90	--	(1) D,bb	--	--	--	--	--	--	--	--	--	81

Notes:

Footnotes and references are detailed below.

--	No criterion available	DDD	Dichlorodiphenyldichloroethane	Fed Reg	Federal Register
µg/L	Microgram per liter	DDE	Dichlorodiphenyldichloroethene	RWQCB	Regional Water Quality Control Board, San Francisco Bay
CFR	Code of Federal Regulations	DDT	Dichlorodiphenyltrichloroethane	TPH	Total petroleum hydrocarbons
BHC	Hexachlorocyclohexane	EPA	U.S. Environmental Protection Agency	TtEMI	Tetra Tech EM, Inc.

Footnotes:

a California Environmental Protection Agency, Regional Water Quality Control Board, San Francisco Bay Area Region (RWQCB). 2007. "San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)." January. Table 3-3 Marine Water Quality Objectives for Toxic Pollutants for Surface Waters.
b From RWQCB "Basin Plan" 4-Day Average (Chronic)
c From RWQCB "Basin Plan" 24-Hour and 1-Hour Average (Acute)
d From RWQCB "Basin Plan" Instantaneous Maximum
e From "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (CTR) (EPA 2000) and "Water Quality Control Plan, San Francisco Bay Basin Region" (RWQCB 2007a). The most appropriate criteria were used.
f Criterion made more suitably protective by means of standard convention of lowering acute values by 80 percent and instantaneous values by 90 percent to make them more appropriate for use under chronic exposure scenarios.
g An acute criterion (EPA identified as Criteria Maximum Concentration [CMC]) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The chronic concentration (EPA identified as Criterion Continuous Concentration [CCC]) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The CMC and CCC are just two of the six parts of an aquatic life criterion; the other four parts are the acute averaging period, chronic averaging period, acute frequency of allowed exceedence, and chronic frequency of allowed exceedence. Because 304(a) aquatic life criteria are national guidance, they are intended to be protective of the vast majority of the aquatic communities in the United States.
h EPA National "AWQC Lowest Observed Effect Level (Chronic)" (RWQCB 2007b)
i EPA National "AWQC Lowest Observed Effect Level (Acute)" (RWQCB 2007b)
j EPA National "AWQC Lowest Observed Effect Level (Other)" (RWQCB 2007b)
k From "National Recommended Water Quality Criteria" (EPA 2006), unless otherwise noted.
l From "Final Technical Memorandum Estimation of Ambient Concentrations of Metals in Groundwater" (TtEMI 2001)
m In instances where criteria from "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (EPA 2000) refer to the "Water Quality Control Plan, San Francisco Bay Basin Region" (RWQCB 2006), RWQCB 2006 criteria were used.
o Detailed application of this toxicity criterion may require the review and/or summation of analyte isomer, congener, or speciation results, as applicable. Please see applicable regulatory agency source document for additional detail.
p RWQCB 1998
q TtEMI 1999
r RWQCB 2007b
s From RWQCB 2007a, "Basin Plan" Annual Median
t From RWQCB 2007a "Basin Plan" Maximum, Lower Bay
u EPA National "AWQC for Saltwater Aquatic Life Protection, Recommended Criteria, Continuous Concentration (4-Day Average)" (RWQCB 2007b)
v Total TPH aquatic criteria assigned as a function of distance from shoreline; the source of these criteria is the "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California." December 21. (Shaw Environmental, Inc. 2007)

Footnotes (Continued):

The following lettered footnotes are derived from EPA "National Recommended Water Quality Criteria" (EPA 2006), Table 1 - Priority Toxic Pollutants (unless otherwise noted):

A	This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.
B	This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD (Reference Dose), as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Am
C	This criterion is based on carcinogenicity of 10^{-6} risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10^{-5}, move the decimal point in the recommended criterion one place to the right).
D	Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria,@ October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR'131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble- Conversion Factors for Dissolved Metals.
F	Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869); CCC = exp(1.005(pH)-5.134). Values displayed in table correspond to a pH of 7.8.
G	This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80- 019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a CMC derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.
N	This criterion applies to total polychlorinated biphenyls (e.g. the sum of all congener or all isomer or homolog or Aroclor analyses.)
Q	This recommended water quality criterion is expressed as mg free cyanide (as CN)/L.
S	This recommended water quality criterion for arsenic refers to the inorganic form only.
U	The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.
V	This value was derived from data for heptachlor, and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.
Y	This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
aa	This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the Agency anticipates that future revisions of this CCC will not be based on the FRV procedure.
bb	This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA-822-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5- 84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87- 003).
cc	When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic, and use of Water-Effect Ratios might be appropriate.
dd	The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 Fg/L in salt water because the saltwater CCC does not take into account uptake via the food chain.
ee	This recommended water quality criterion was derived on page 43 of the mercury criteria document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 ug/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.
ff	This recommended water quality criterion was derived in *Ambient Water Quality Criteria Saltwater Copper Addendum* (draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule (60 FR 22228-222237, May 4, 1995).
gg	EPA is actively working on this criterion, and so this recommended water quality criterion may change substantially in the near future.
hh	This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.
ii	This criterion applies to DDT and its metabolites (that is, the total concentration of DDT and its metabolites should not exceed this value.)

The following lettered footnotes are derived from EPA "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (EPA 2000).

jj	Criteria revised to reflect the EPA q1* or RfD, as contained in the Integrated Risk of RfD, as contained in the IRIS as of October 1, 1996. The fish tissue bioconcentration factor (BCF) from the 1980 documents was retained in each case (originally footno
kk	Criteria are based on carcinogenicity of 10 (-6) risk. (Originally footnote c in CTR)
ll	This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5–80–019), Chlordane (EPA 440/5–80–027), DDT (EPA 440/5–80–038), Endosulfan (EPA 440/5–80–046), Endrin (EPA 440/5–80–047), Heptachlor (440/5–80–052), Hexachlorocyclohexane (EPA 440/5–80–054), Silver (EPA 440/5–80–071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a ''CMC'' derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines (originally footnote g in the CTR).
mm	Criteria for these metals are expressed as a function of the water-effect ratio (WER) (originally footnote i in the CTR).
nn	No criterion for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even though the results of such a calculation were not shown in the document (originally footnote j in the CTR).
oo	These freshwater and saltwater criteria for metals are expressed in terms of the dissolved fraction of the metal in the water column. Criterion values were calculated by using EPA's Clean Water Act 304(a) guidance values (described in the total recoverable fraction) and then applying the conversion factors in § 131.36(b)(1) and (2) (originally footnote m in the CTR).
pp	These criteria were promulgated for specific waters in California in the National Toxics Rule (''NTR''), at § 131.36. The specific waters to which the NTR criteria apply include: Waters of the State defined as bays or estuaries and waters of the State defined as inland, i.e., all surface waters of the State not ocean waters. These waters specifically include the San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This section does not apply instead of the NTR for this criterion (originally footnote o in the CTR).
qq	These criteria were promulgated for specific waters in California in the NTR. The specific waters to which the NTR criteria apply included: Waters of the State defined as bays or estuaries including the San Francisco Bay upstream to and including Suisun
rr	PCBs are a class of chemicals that include Aroclors 1242,1254,1221,1232,1248,1260, and 1016. The aquatic life criteria apply to the sum of this set of seven Aroclors (originally footnote u in the CTR).
ss	This criterion has been recalculated pursuant of all congener or isomer or homolog or Aroclor analyses.

The following numbered footnotes are derived from "A Compilation of Water Quality Goals" (RWQCB 2007b). These footnotes directly correlate with the source document.

1	Expressed as dissolved
2	Expressed as total recoverable.
2	Expressed as total recoverable
6	Pentavalent arsenic [As(V)] effects on plants.
18	Applies separately to Endrin and Endrin aldehyde.
20	For halomethanes
22	For chlorinated benzenes
23	Toxicity to a fish species exposed for 7.5 days
24	For dichlorobenzenes
27	For dichloroethylenes
28	For dichloropropanes
29	For dichloropropenes
38	Toxicity to algae occurs
45	For sum of phthalate esters
48	For chlorinated naphthalenes
51	From U.S. Environmental Protection Agency, *Quality Criteria for Water* (1976) "The Red Book," and also appears in current list of recommended criteria.
52	For polynuclear aromatic hydrocarbons
53	For dinitrotoluenes
56	For nitrosamines
68	Draft / tentative / provisional; applies only to second value if two separate values are listed; applies to range if a range of values is listed.
82	A decrease in the number of algal cells occurs.
83	Adverse effects on a fish species exposed for 168 days.
88	For nitrophenols
95	For the pentavalent form
113	Based on carcinogenicity at 1-in-a-million risk level.
114	Developed as 24-hour average using 1980 EPA guidelines, but applied as 4-day average in the National Toxics Rule.

Table A-1. Surface Water Screening Criteria *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Footnotes (Continued):

115 Criterion most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
116 Applies separately to Aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016; based on carcinogenicity at 1-in-a-million risk level.
136 Draft Chronic Criterion: The concentration of selenium in whole-body fish tissue should not exceed 7.91 ug/g dw (dry weight). In addition, if whole-body fish tissue concentrations exceed 5.85 ug/g dw during summer or fall, fish tissue should be monitored during the winter to determine whether the selenium concentration exceeds 7.91 ug/g dw.
137 Expressed as free cyanide (as CN).
140 Criterion derived from data for inorganic mercury (II), but is applied to total mercury. It will probably be underprotective if a substantial portion of mercury in the water column is methylmercury. Derivation of criterion did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.
142 Criteria do not apply to waters subject to water quality objectives in Tables III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's 1986 Basin Plan.
143 These criteria were promulgated for specific California waters in the National Toxics Rule.
144 The ambient level was set at or below the minimum reported detection limit.
145 The ambient concentration represents the 95th percentile of the distribution. Additionally, the 95th percentile of the distribution was calculated using distribution dependent formulae. For normal and lognormal distributions, the 95th percentile calcula

References:
Gilbert, R.O. 1987 *Statistical Methods for Environmental Pollution Monitoring* . Van Nostrand Reinhold, New York.
Regional Water Quality Control Board (RWQCB). 1998. "Recommended Interim Water Quality Objectives (or Aquatic Life Criteria) for Methyl Tertiary-Butyl Ether (MTBE)." San Francisco Bay Region. October 1.
RWQCB. 2007a. "San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)." San Francisco Bay Region. January.
RWQCB. 2007b. "A Compilation of Water Quality Goals." Prepared by Jon B. Marshack, Central Valley Region. August.
Shaw Environmental, Inc. 2007. "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California." December 21.
TtEMI 1999. "Draft Remedial Investigation Report, Site 12 Operable Unit, Naval Station Treasure Island, San Francisco, California." June 1.
TtEMI 2001. "Final Technical Memorandum Estimation of Ambient Concentrations of Metals in Groundwater, Naval Station Treasure Island, San Francisco, California." March 30.
U.S. Environmental Protection Agency (EPA). 2000. "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California." 40 CFR Part 131, RIN 2040-AC44. May 18.
EPA. 2006. "National Recommended Water Quality Criteria."

Table A-2. Hunters Point Groundwater Ambient Levels
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Metal	HGAL[1] (µg/L)
Aluminum	NA
Antimony	43.3
Arsenic	27.3
Barium	504
Beryllium	1.40
Cadmium	5.08
Calcium	NA
Chromium	15.7
Chromium VI	NA
Cobalt	20.8
Copper	28
Iron	2,380
Lead	14.4
Mangesium	1,440,000
Manganese	8,140
Mercury	0.60
Molybdenum	61.9
Nickel	96.5
Potassium	448,000
Selenium	14.5
Silver	7.43
Sodium	9,240,000
Thallium	13
Vanadium	26.6
Zinc	75.7

Notes:

µg/L micrograms per liter

HGAL Hunters Point groundwater ambient level

NA Not available

1 PRC Environmental Management, Inc. 1996. "Estimation of Hunters Point Shipyard Groundwater Ambient Levels Technical Memorandum." September 16.

Table A-3. Groundwater COECs for Aquatic Wildlife
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analytical Group	COEC	Aquatic Evaluation Criterion Selected for Aquatic Evaluation (µg/L)[a]	Locations Recommended for Further Monitoring and Evaluation	Maximum Concentration (µg/L)	Calculated Trigger Level (µg/L)[b]
Metals	Arsenic	36	IR03MWO-1	1,180	36
			IR02MW173A	75.7	36
			PA50MW05A	42.7	36
	Copper	28.0[c]	IR02MW126A	1,000	28
			IR02MW373A	1,300	28
			IR03MW226A	824	28
			IR03MWO-1	3,240	28
	Lead	14.4[c]	IR02MW373A	35.2	14.4
			IR03MW218A	23.4	14.4
			IR03MW226A	613	14.4
			IR03MWO-1	65	14.4
	Mercury	0.60[c]	IR03MW226A	0.8	0.60
			IR03MWO-1	1.2	0.60
	Nickel	96.5[c]	IR02MWB-2	1,720	96.5
			IR02MWB-5	3,430	96.5
			IR02MW373A	1,460	96.5
			IR03MWO-1	1,140	96.5
	Zinc	81	IR02MW126A	2,320	81
			IR02MW373A	9,970	81
			IR03MW226A	1,180	81
			IR03MWO-1	2,400	81
PCBs and Pesticides	Aroclor-1254	0.03	IR02MW372A	35	0.06
			IR02MW375A[d]	40	0.03
			IR02MW146A	0.24	0.03
			IR03MW225A	1.2	0.03
	Aroclor-1260	0.03	IR03MW218A1	35	0.03
			IR03MW225A	40	0.03
			IR03MW226A	0.24	0.03
			IR03MWO-1	1.2	0.03
	4,4'-DDE	0.001	IR02MW372A	1.2	0.002
	Alpha-Chlordane	0.004	IR02MW372A	0.03	0.008
Petroleum Hydrocarbons	TPH (Total)	4,839[e]	IR02MW173A	6,900	4,839
		3,216[e]	IR03MW218A1	83,000	3,216
		3,216[e]	IR03MW218A2	19,900	3,216
		3,216[e]	IR03MW225A	12,000	3,216
		3,216[e]	IR03MW226A	17,670	3,216
		1,400[e]	IR03MW369A	13,500	1,400
		1,467[e]	IR03MW370A	27,560	1,467
		2,092[e]	IR03MW371A	10,890	2,092
		12,604[e]	IR03MWO-1	560,000	12,604

Table A-3. Groundwater COECs for Aquatic Wildlife *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Notes:

(a)	References for the aquatic evaluation criteria are included in Tables A-1 and A-2.
(b)	Attenuation factor assigned based on nomographs developed specifically for HPS groundwater (see Attachment A-1).
(c)	Value shown has been HGAL-adjusted and is applicable to the A-aquifer.
(d)	Well IR02MWB-3 has been destroyed; new well IR02MW375A is located in approximately the same area.
(e)	Range of values shown; total TPH aquatic criteria assigned as a function of distance from shoreline; the source of these criteria is the "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California" (Shaw Environmental, Inc., 2007)

µg/L	micrograms per liter
COEC	chemical of ecological concern
DDE	dichlorodiphenyldichloroethene
HGALs	Hunters Point groundwater ambient levels
HPS	Hunters Point Shipyard
PCBs	polychlorinated biphenyls
TPH	total petroleum hydrocarbons

Attachment A1. Appendix G, Groundwater Modeling and Calculation of Attenuation Factors from the Final Revised Parcel D Feasibility Study Report

APPENDIX G
GROUNDWATER MODELING AND CALCULATION OF ATTENUATION FACTORS

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α_x	Longitudinal dispersivity
α_y	Transverse dispersivity
α_z	Vertical dispersivity
µg/L	Microgram per liter
AF	Attenuation factor
Bay	San Francisco Bay
COC	Chemical of concern
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
ft/day	Feet per day
ft/ft	Foot per foot
HPS	Hunters Point Shipyard
IR	Installation Restoration
mg/kg	Milligram per kilogram
NAPL	Nonaqueous-phase liquid
S	Relative sensitivity

G1.0 INTRODUCTION

This appendix summarizes the results of groundwater monitoring data for several areas at Parcel D of Hunters Point Shipyard (HPS) that show concentrations of metals that were identified as chemicals of concern (COC) because they were found in the A-aquifer groundwater at concentrations above the applicable surface water criteria. These areas and the metals that exceed these criteria are as follows:

- Installation Restoration (IR) Site 09 northern area: chromium VI
- IR-09 southern area: chromium VI and nickel
- IR-33 area: chromium VI

These areas are discussed in more detail in Section 2.5.2 of the Revised Feasibility Study (FS) Report.

The surface water criteria apply to water in San Francisco Bay (Bay). The areas where nickel and chromium VI exceeded applicable criteria are located approximately 1,000 feet from the nearest discharge point to the Bay. Various factors will tend to reduce the concentrations of these metals in groundwater as the groundwater migrates toward the Bay. These factors include dispersion, chemical transformation reactions, adsorption, and dilution in the tidal mixing zone. By the time contaminated groundwater reaches its discharge point to the Bay, it is likely that the metals concentrations will be significantly reduced by natural processes. Groundwater modeling was used to estimate the concentrations of metals that may be discharging to the Bay.

This appendix describes the groundwater modeling performed to estimate peak concentrations of metals that may discharge to the Bay for each of the areas where elevated metals concentrations were found at Parcel D. Based on the initial source concentration and the predicted peak concentration at the receptor location, an attenuation factor (AF) was calculated for each area.

The initial source concentration is defined as the maximum concentration historically observed in the source area. The analytical solute transport model BIOSCREEN was used to predict maximum concentrations at the point of exposure (also referred to as the point of discharge) and then to calculate AFs (U.S. Environmental Protection Agency [EPA] 1996). Although BIOSCREEN can simulate adsorption and degradation processes during advective transport of the solute, adsorption and degradation parameters were set to zero to ensure that dispersion was the only mechanism causing a reduction in chemical concentrations in groundwater. The intent of this approach is to provide conservative estimates of the maximum groundwater concentrations expected at the points of exposure. Based on model sensitivity analysis, the values for input parameters were chosen to result in realistic, yet conservatively high estimates of the maximum groundwater concentrations at the points of exposure, providing an added layer of conservatism to the calculations.

AFs are numeric values indicating the degree to which concentrations of specific chemicals in groundwater would be reduced as groundwater migrates over a specific distance. Once peak concentrations are predicted by the groundwater model, AFs are calculated as the ratio of the initial source concentration to the peak concentration predicted at the discharge point. For example, an AF of 5 indicates that the concentration of a particular chemical at the point of discharge would be one-fifth of the source concentration, because of natural attenuation processes as the chemical migrated from the source area to a discharge point.

G2.0 MODELING APPROACH

The overall modeling approach used to estimate AFs consisted of the following steps:

- Establish a set of parameter values that serves as the "base case" for subsequent modeling.
- Perform sensitivity analysis by sequentially varying each input parameter, and running model simulations using the new input parameter value. Three different values representing a typical range were used for each parameter in the sensitivity analysis.
- Calculate the relative influence of each input parameter on the output of the model (the peak concentration estimated at the point of groundwater discharge), and use the relative sensitivity coefficient to identify the input parameters that have the greatest impact on the output of the model.
- Perform a series of model runs, varying just the parameters that have the greatest impact (sensitivity) on the model output.

Under the assumptions of no biodegradation or adsorption, the following input parameters are required for BIOSCREEN:

- Source Thickness in Saturated Zone
- Source Width
- Initial Source Concentration
- Soluble Mass
- Hydraulic Conductivity
- Hydraulic Gradient
- Effective Porosity
- Plume Length or Distance to Receptor
- Longitudinal Dispersivity
- Transverse Dispersivity
- Vertical Dispersivity

Each of these parameters (except initial source concentration) was varied over a reasonable range, to evaluate the effect of the parameter on the model's output (peak concentration predicted at the receptor location). Table G-1 summarizes each of these model runs, including the input parameter values, the predicted peak concentration at the receptor location, and the relative sensitivity of the model output to the parameter change. The results of the sensitivity analysis runs are discussed in the following section.

G3.0 SENSITIVITY ANALYSIS

A sensitivity coefficient, or relative sensitivity S, was defined (Shih and Rong 2001; EPA 2002) as follows:

$$S = \left| \frac{dC}{C} \frac{P}{dP} \right|$$

where

C	=	baseline (base case) output peak concentration
P	=	baseline value of the input parameter
dC	=	model output range
dP	=	input parameter range

The sensitivity coefficient normalizes the results of model runs so that the effects of different input parameters can be compared quantitatively. A sensitivity coefficient S measures the relative change in the predicted variable (peak concentration at the shoreline) per fractional change in the input parameter. Any non-zero S value indicates that a parameter affects the model output. However, the larger S value indicates the greater influence of a parameter. The absolute value of S is less important because various parameters have different ranges of variability. For this evaluation, an S value of 0.100 or more was considered to constitute a relatively significant effect on the model output.

The relative sensitivity values were calculated for each of the BIOSCREEN model input parameters (see Table G-1). The S values can be numerically ranked from the highest value (0.395) to lowest value (0.000) to identify the input parameters to which the model is most sensitive. The following table of the ranked S values illustrates the process of selecting the parameters that affect the model output most significantly:

Parameter	Factor for Parameter Range	Relative Sensitivity Coefficient (S)
Source Width	9	0.395
Source Thickness in Saturated Zone	4	0.171
Distance to Receptor	10	0.170
Dispersivity (Transverse, Vertical, and Longitudinal)	20, >100, 40	0.132, 0.055, 0.021
Effective Porosity	40	0.068
Soluble Mass	100	0.033
Hydraulic Conductivity	100	0.000
Hydraulic Gradient	100	0.000

Note: Factor for parameter range is equal to the largest value of the parameter divided by the smallest value of the parameter. Because the smallest value of the vertical dispersivity is zero, the factor for parameter range becomes infinite, but for illustration purposes is defined as greater than 100.

Although the S value for a given parameter may change slightly if the range of values for that parameter is changed, this does not have a significant effect on the relative sensitivity of that parameter compared with other parameters. As shown in the table above, the first three parameters are relatively most influential, especially considering their narrow ranges of variability. The fourth most important parameter is the transverse dispersivity. All other parameters are relatively less important. Each of the parameters evaluated in the course of the model sensitivity analysis is discussed below.

Initial Source Concentration. The initial source concentration is defined as the maximum concentration historically observed in the source area. This parameter was not varied in the sensitivity analysis because it does not affect the calculation of AFs. Although the model output is very sensitive to this parameter (a higher initial concentration results in a higher peak concentration at the receptor location), the AF is equal to the ratio of the initial concentration to the peak concentration, thus it is unaffected by this parameter. For purposes of the modeling effort, the initial source concentration was set equal to 492 micrograms per liter (µg/L). This concentration is the zinc value detected in groundwater at IR-22 that was used during the initial sensitivity analysis of this model in the draft revised version of this Revised FS Report in March 2002.

Source Width. The source width is defined as the horizontal extent of the source area perpendicular to the groundwater flow direction. For purposes of the groundwater modeling, the source width was assumed to be the maximum width of the areas of elevated concentrations of chemicals. The groundwater model assumes a vertical plane source of constant concentration, and the size of the vertical plane is equal to the source thickness in the saturated zone times the source width. For purposes of the sensitivity analysis, the source width was assumed to be 40, 170, and 340 feet for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location tends to increase with an increase in source width. The model output is relatively sensitive to this parameter (S = 0.395); therefore, this parameter was varied in the next phase of modeling.

The source width approximates the plume width at shorter distances from the source area. However, the plume width may increase with the distance from the source area because of contaminant dispersion in transverse direction (perpendicular to groundwater flow). For a homogenous aquifer, constant direction of groundwater flow, and parameters used in current modeling, the plume width will be approximately 1 foot greater than the source width at a distance of 100 feet downgradient from the source area and approximately 10 feet greater at 1,000 feet from the source. This illustration implies that outer edges of the source area and the plume are defined by the detection limit. Because the groundwater plumes at Parcel D and HPS are generally shorter than 500 feet, plume width can be considered approximately equal to the width of the source area.

Source Thickness in Saturated Zone. Conceptually, the source thickness represents the contaminated portion of the aquifer where chemicals are slowly dissolving into groundwater. The A-aquifer at Parcel D, and generally at HPS, varies between approximately 10 and 40 feet thick. As a result a value of 40 feet for the source thickness in the saturated zone was used for the base case scenario. Thus it was assumed that the source is in the saturated zone and vertically extends across the whole aquifer thickness. For purposes of the sensitivity analysis, the saturated thickness was assumed to be 20, 40, 60, and 80 feet for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location tends to increase with an increase in saturated thickness. The model output is relatively sensitive to this parameter (S = 0.171); however, the value for this parameter should not exceed the actual thickness of the A-aquifer. In order to provide a conservative estimate of peak concentration at the discharge point, this parameter was set equal to the maximum thickness of the A-aquifer, 40 feet, for the next phase of modeling.

Distance to Receptor. This parameter is also known as the model area length, and should extend to the downgradient point of concern, which for Parcel D is the point of discharge to the Bay. For purposes of this modeling exercise, the distance to receptor was based on the shortest distance from the source area to the Bay, without consideration of the direction of groundwater flow. A base case value of 200 feet was selected for distance to receptor, and for purposes of the sensitivity analysis, values of 100, 200, 300, and 1,000 feet were selected for sequential model runs. Results of these model runs indicated that the predicted peak concentration decreases with increasing distance from the receptor location. The model output is relatively sensitive to this parameter (S = 0.170); therefore, this parameter was varied in the next phase of modeling.

Dispersivity (Transverse, Vertical, and Longitudinal). The process by which dissolved substances are transported by the bulk motion of flowing groundwater is known as advection. Owing to advection, nonreactive solutes are carried at an average rate equal to the average linear velocity of the water (Freeze and Cherry 1979). However, the solutes are subjected to hydrodynamic dispersion, which is the process of irregular spreading of solutes longitudinally (along the direction of groundwater flow), transversely (perpendicular to groundwater flow), and vertically (downward) because of mechanical mixing and chemical diffusion in the aquifer. Mechanical mixing is the primary mechanism for hydrodynamic dispersion in zones of active groundwater flow, and it occurs as a result of macroscopic and microscopic variations in the aquifer materials. As a result of hydrodynamic dispersion, contaminant mass becomes

distributed over a greater volume of the aquifer at a lower concentration than it would under the influence of advection alone. Under the assumptions used for this modeling of no biodegradation, sorption, or chemical transformation of contaminants, hydrodynamic dispersion is the only process that reduces contaminant concentrations during groundwater transport.

An empirical aquifer property controlling the magnitude of dispersion is called dispersivity (Spitz and Moreno 1996). The BIOSCREEN model requires the input of longitudinal, transverse, and vertical dispersivity values. Selection of dispersivity values for modeling applications is a difficult process, given the impracticability of measuring dispersion in the field (EPA 1996). In modeling applications the longitudinal (α_x), transverse (α_y), and vertical (α_z) dispersivities are estimated based on some commonly used relationships that have been determined by several researchers over time. The α_x is typically defined based on distance from the source, while α_y and α_z are usually derived as some ratios of α_x.

Because of the uncertainty related to selecting dispersivity values for modeling applications, various equations for estimating individual dispersivity values were evaluated. Gelhar and others (1992) have compiled dispersivity data from over 50 sites, and the empirical data indicate that longitudinal dispersivity, in units of length, is related to scale (distance between source and measurement point). One commonly used approach to estimate longitudinal dispersivity is to assume that α_x is 10 percent of the estimated plume length or distance from the source to the receptor location (Pickens and Grisak 1981). Another approach calculates the longitudinal dispersivity using its correlation with scale as described by Xu and Eckstein (1995) (see Xu and Eckstein's equation below). Transverse dispersivity is usually defined as $\alpha_y = 0.1\alpha_x$ (based on high reliability points from Gelhar and others 1992). Another commonly used ratio is $\alpha_y = 0.33\alpha_x$ (ASTM International 1995; EPA 1986). A commonly used ratio for vertical dispersivity is $\alpha_z = 0.05\alpha_x$ (ASTM International 1995). Other commonly used ratios are $\alpha_z = 0.025\alpha_x$ to $0.1\alpha_x$ (EPA 1986).

For purposes of the base case, the following equation was used to estimate the different dispersivity values:

$$\alpha_x = 0.1\ L;\ \alpha_y = 0.33\alpha_x;\ \alpha_z = 0.05\alpha_x$$

where

L = distance from source to the Bay.

Individual dispersivities were then varied for sequential model runs, similar to the way the other parameter values were varied. Results of these model runs indicated that the predicted peak concentration at the receptor location decreased with increasing dispersivity. The model runs also indicated that transverse dispersivity (α_y) had the highest relative sensitivity (0.132) of the three different dispersivity parameters.

A second phase of sensitivity analysis was conducted for dispersivity, which varied the relationship between the three dispersivity values, to evaluate the most appropriate relationship to use for subsequent modeling. Based on the dispersivity research described above, we selected the following dispersivity relationships to calculate dispersivity values for input into the BIOSCREEN model:

1. $\alpha_x = 0.1\ L$; $\alpha_y = 0.33\alpha_x$; $\alpha_z = 0.05\alpha_x$

2. $\alpha_x = 0.1\ L$; $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0.025\alpha_x$

3. $\alpha_x = 3.28 \cdot 0.82 \left[\log_{10}\left(\frac{L}{3.28}\right)\right]^{2.446}$ (modified Xu and Eckstein (1995) relationship for scale in feet [EPA 1996]); $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0$

where

L = distance from source to the Bay.

The results of this second phase of sensitivity analysis are provided in Table G-2. The results are presented for three different sets of dispersivities (intermediate, high, and low) and three source widths of 40, 170, and 340 feet. As shown in Table G-2, very little attenuation occurs when (1) the vertical dispersivity is set to zero (low dispersivity case), especially for source widths 170 and 340 feet; or (2) when the distance to receptor is relatively small (50 feet), while significant dispersion (AF greater than 2) occurs under most other scenarios. The assumption that the vertical dispersivity is zero is extremely conservative, given the aquifer was assumed to be 40 feet thick and the significant heterogeneity of the A-aquifer material. It is likely that some vertical dispersion will occur over the travel distances that are being modeled. Based on the results of the second phase of sensitivity analysis, the dispersivity relationship selected for evaluation of AF is the intermediate relationship, $\alpha_x = 0.1\ L$; $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0.025\alpha_x$, as further discussed in Section G4.0.

Effective Porosity. Effective porosity is the ratio of the volume of interconnected voids to the bulk volume of the aquifer matrix. It is typically smaller than the porosity of the material because of the presence of nonconnected voids, which are included in total porosity but not in effective porosity. This parameter is effectively the pore space in the aquifer matrix through which water flows. This value is typically estimated for purposes of modeling and groundwater flow calculations, and an effective porosity of 0.25 is commonly used for silts and sands (EPA 1996). A base case value of 0.28 was selected for effective porosity, and for purposes of the sensitivity analysis, values of 0.01, 0.28, and 0.4 were selected for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location decreased slightly, with increasing effective porosity values. The model output is relatively insensitive to this parameter (S = 0.068); therefore, this parameter was not varied in the next phase of modeling.

Soluble Mass. The soluble mass represents the mass of dissolvable chemical in the source zone. The BIOSCREEN manual indicates that the best estimate of dissolvable chemicals is obtained by adding the mass of dissolvable contaminants on soil, free-phase nonaqueous-phase liquid (NAPL) and residual NAPL together (EPA 1996). Metals are the only chemicals being addressed in this modeling effort, and there is no NAPL phase for these chemicals. In order to provide a conservative estimate of the soluble mass for this modeling effort, the groundwater plume at Parcel D with the greatest source width and the highest initial concentration was selected to calculate the base case soluble mass. The selected plume was the chromium VI plume in IR-09. The soluble mass for this plume was calculated in several different ways, as follows:

- Analysis of soil data to determine the area of contaminated soil. Once that area was determined, the maximum concentration (4.9 milligrams per kilogram [mg/kg]) detected in soil in the area was applied to the entire soil area, assuming the entire area was 15 feet thick. This approach resulted in an area of contaminated soil of 280 by 105 feet, to a depth of 15 feet, and a resulting soluble mass of 104 kilograms.

- Application of the average concentration (approximately 0.7 mg/kg) over the entire soil area, which resulted in a soluble mass of approximately 14 kilograms.

- Analysis of groundwater data to determine the area of contaminated groundwater. Once that area was determined, the maximum concentration (0.493 µg/L]) detected in groundwater in this area was applied to the entire contaminated groundwater area, assuming the entire area was 40-feet thick. The resulting contaminant mass calculated for groundwater was 33 kilograms.

To provide a more conservative estimate of soluble mass in the groundwater model, a value of 140 kilograms was used for the base case for soluble mass. For purposes of the sensitivity analysis, the soluble mass was assumed to be 14, 140, and 1,400 kilograms for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location tends to increase slightly with a large increase in soluble mass. The model output is relatively insensitive to this parameter (S = 0.033); therefore, this parameter was not varied in the next phase of modeling.

Hydraulic Conductivity. Hydraulic conductivity is a function of both the porous medium and the fluid. Generally speaking, hydraulic conductivity is a parameter related to the ability of a porous medium to transmit fluids, and the higher the hydraulic conductivity, the more rapidly fluid will flow through the porous medium. Hydraulic conductivity values for the A-aquifer in Parcel D were calculated from constant rate discharge pumping test data, and these data were originally presented in the Parcel D Remedial Investigation Report (PRC Environmental Management, Inc., Levine-Fricke-Recon, and Uribe & Associates 1996). Hydraulic conductivity values ranged from 2.7 feet per day (ft/day) to 24 ft/day. A base case value of 7.2 ft/day was selected for hydraulic conductivity, and for purposes of the sensitivity analysis, values of 0.1, 7.2, and 10 ft/day were selected for sequential model runs. In metric units, these values convert to 3.5×10^{-5}, 2.5×10^{-3} and 3.5×10^{-3} centimeters per second, respectively. Results of these model runs indicated that the predicted peak concentration at the receptor location did not change

with changing hydraulic conductivity values. The model output (peak concentration at the receptor) is not sensitive to this parameter (S = 0.00); therefore, this parameter was not varied in the next phase of modeling.

Hydraulic Gradient. Hydraulic gradient is the change in the groundwater elevation over a certain distance, divided by the distance. Hydraulic gradients can be vertical or horizontal gradients; for purposes of this appendix, only the horizontal hydraulic gradient for the A-aquifer was evaluated. For an unconfined aquifer, it is equivalent to the slope of the water table. Generally speaking, hydraulic gradient is the force that drives groundwater flow, with a higher hydraulic gradient causing greater flow than a lower hydraulic gradient. Groundwater elevation contours for the A-aquifer are presented on Figure 2-9 of this Revised FS Report for Parcel D. This figure indicates that the hydraulic gradient across Parcel D typically ranges between approximately 0.001 foot per foot (ft/ft) and 0.004 ft/ft. The higher value (0.004 ft/ft) was selected as a base case value for hydraulic gradient. For purposes of the sensitivity analysis, values of 0.001, 0.004 and 0.1 were selected for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location did not change with changing hydraulic gradient values. The model output is not sensitive to this parameter (S = 0.00); therefore, this parameter was not varied in the next phase of modeling.

G4.0 MODEL APPLICATION

The BIOSCREEN model was run using varying source widths and distance to receptor values to estimate AFs applicable for the various groundwater plumes present at Parcel D and HPS in general. The resulting AFs were plotted graphically against the distance to receptor to generate AF curves (nomographs) for plumes of different source width. A discussion of these model runs is presented in Section G4.1, and the nomographs are presented on Figure G-1. The model was also run using plume-specific parameters for the four Parcel D plumes to generate plume-specific AFs. These model runs are discussed in Section G4.2. Section G4.3 describes the use of the nomographs on Figure G-1 by estimating AFs for the four Parcel D plumes and comparing these results with the plume-specific modeling results.

G4.1 MODEL RUNS FOR VARIOUS SOURCE WIDTHS AND DISTANCES

Based on the sensitivity analysis described in the previous section, the model output (peak concentration at the receptor) is most sensitive to source thickness in saturated zone, dispersivity (primarily transverse dispersivity), source width, and distance to receptor.

The source thickness in saturated zone cannot exceed the thickness of the aquifer. To minimize the number of parameters that were varied in this phase of modeling, the source thickness was set to the maximum thickness of the A-aquifer, 40 feet. This conservative value for saturated thickness likely results in an over-prediction of the peak concentration at the discharge point, which adds a layer of conservatism to the estimate of AFs.

The relationships used to estimate dispersivities represent standard relationships that are typically used in modeling applications (see Section G2.0). However, dispersivity is a property of the aquifer, and is related to the physical characteristics of the aquifer. Highly heterogeneous material, such as the A-aquifer material found at HPS, has a higher dispersivity than more homogeneous material. Of the three different sets of dispersivity relationships evaluated in the sensitivity analysis (see Section G3.0 and Table G-2), the most conservative relationship considered was based on (1) the longitudinal dispersivity determined from the equation of Xu and Eckstein 1995; (2) the transverse dispersivity set as 0.1 of longitudinal; and (3) a vertical dispersivity of zero. Given the heterogeneous nature of the A-aquifer, the assumed saturated thickness of the aquifer of 40 feet, and the change in water table elevation over the course of a year, it is unlikely that the vertical dispersivity for the A-aquifer would be zero. Therefore, the intermediate dispersivity relationship, $\alpha_x = 0.1$ L; $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0.025\alpha_x$, was selected for this next phase of modeling.

Both the source width and the distance to receptor are characteristics of the plumes that are being modeled. In order to calculate AFs that may be applicable for the various plumes present at Parcel D and more generally to all of HPS, these parameters were varied over the range of values typically seen at HPS. The source width was varied from 40 to 360 feet, while the distance to receptor was varied over distances ranging from 50 to 1,600 feet. In total, 110 model runs were performed to determine the relationship between source width, distance to receptor, and the AF.

Results of these model runs are presented in Table G-3 and on Figure G-1. Figure G-1 presents the nomographs of AF versus distance for various source widths. The nomographs allow approximate graphical computation of an AF.

As presented in Table G-3, the AFs ranged from 1 to 58, depending on the source width and the distance to receptor. The smaller AFs are associated with larger plumes and the plumes that are closer to the Bay (discharge point). Results of these model runs indicated that for distances less than 200 feet, the AF was equal to or below 2 for any source width, while for a distance of 1,000 feet, the AF increased from 4.4 to 22.6 with the source width decreasing from 360 to 40 feet (see also Figure G-1).

A discussion of the use of the nomographs on Figure G-1 to calculate the AFs for the nickel or chromium VI groundwater plumes at Parcel D is presented in Section G4.3. Section G4.2 presents plume-specific modeling for these plumes at Parcel D.

G4.2 PLUME-SPECIFIC MODELING

Chromium VI and nickel in groundwater at Parcel D were identified as COCs based on the surface water criteria screening. Figure 2-28 in this Revised FS Report shows the extent of the chromium VI groundwater contamination based on the June 2004 data, and the extent of the nickel contamination based on the February 2001 data.

The BIOSCREEN model was run to evaluate the potential migration of chromium VI and nickel from four separate plumes at Parcel D (see Figure 2-28 in the Revised FS Report), and the results of this modeling are presented in Table G-4 and are discussed below. Attachment G-1 provides model input and output screens for each plume simulated.

G4.2.1 IR-09 North

The chromium VI plume at IR-09 North is defined by five wells (see Figure 2-28 in this Revised FS Report). Four of these wells were sampled in June 2004, and the other well in this plume (IR09PPY1) was most recently sampled in February 2001. All of the wells within this plume have a history of consistent detectable concentrations of chromium VI.

The historical maximum concentration of chromium VI was measured in well IR09PPY1 in 1994 at 493 µg/L; in the most recent samples from this well, collected in February 2001, chromium VI was detected at 260 µg/L. The measured plume width near the suspected source area is 232 feet. The soil data in the vicinity of IR09PPY1 (see Figure 2-18 in this Revised FS Report) suggest that the source area can be up to 240 feet wide.

The distance from well IR09PPY1 nearest the source area, to the Bay is approximately 1,516 feet. Although Dry Dock 4 appears to be the closest potential receptor to this well, the groundwater does not appear to discharge to the bay at this dock because of the dock's concrete walls that kept the water away from the dock. The groundwater elevation maps in the quarterly groundwater monitoring reports show elevation contours of the top of the A-aquifer perpendicular to the Dry Dock 4 barrier walls. Therefore, for this plume, and other Parcel D plumes, the distances were measured to the nearest discharge points at Berth 14 along the shoreline between Berths 13 and 15 (see Figure 2-26 in this Revised FS Report).

Table G-4 summarizes the model input parameters and predicted peak concentration of chromium VI at a receptor location. Based on the model runs, chromium VI concentrations would be reduced by a factor of 12.4 as contaminated groundwater migrates from the source area toward the Bay.

G4.2.2 IR-09 South

Chromium VI

The chromium VI plume at IR-09 South is defined by well IR09MW35A (see Figure 2-28 in this Revised FS Report). Chromium VI was detected in groundwater samples from this well at a maximum concentration of 130 µg/L in 1991. In June 2004, chromium VI was detected in a sample from this well at 73 µg/L.

The measured plume width near this suspected source area is 63 feet. The soil data in the vicinity of IR09MW35A (see Figure 2-18 in this Revised FS Report) suggest that source area can be up to 80 feet wide. This well is approximately 1,242 feet away from the Bay at Berth 14.

Table G-4 summarizes the model input parameters and predicted peak concentration of chromium VI at a receptor location. Based on the model runs, chromium VI concentrations would be reduced by a factor of 21.0 as contaminated groundwater migrates from the source area towards the Bay.

Nickel

Nickel is a naturally occurring metal in the groundwater at HPS. However, concentrations of nickel exceeding the HGAL (96.48 µg/L) have been consistently detected in samples collected from well IR09P043A, indicating a potential release that has affected the groundwater. The nickel plume defined by this single well is presented on Figure 2-28 of this Revised FS Report. The historical maximum concentration of nickel measured in well IR09P043A was 185 µg/L. The measured plume width is 63 feet. Because the soil data for nickel in the vicinity of IR09P043A are not available, the actual source width cannot be reliably estimated. However, the plume size suggests that the source width is likely less than 100 feet. The distance from IR09P043A to the Bay at Berth 14 is approximately 1,158 feet.

Table G-4 summarizes the model input parameters and predicted peak concentration of nickel at a receptor location. Based on the model runs, nickel concentrations would be reduced by a factor of 18.6 as contaminated groundwater migrates from the source area towards the Bay.

G4.2.3 IR-33

Chromium VI plume at IR-33 is defined by well IR33MW61A (see Figure 2-28 in this Revised FS Report). Chromium VI was consistently detected in samples from this well at concentrations up to 90 µg/L in 2001. In June 2004, chromium VI was detected in a sample from this well at 54 µg/L. However, the most recent chromium VI detection at 250 µg/L was in November 2004. The reason behind the observed increase in chromium VI concentration is unknown. The subsequent sampling rounds are necessary to determine if the high chromium VI detection is an anomaly.

The measured plume width near the suspected source area is 63 feet. The soil data in the vicinity of IR33MW61A (see Figure 2-18 in the Revised FS Report) are insufficient to provide additional support for the source width estimate. The well is approximately 1,105 feet away from the Bay at Berth 14.

Table G-4 summarizes the model input parameters and predicted peak concentration of chromium VI at a receptor location. Based on the model runs, chromium VI concentrations would be reduced by a factor of 17.4 as contaminated groundwater migrates from the source area toward the Bay.

G4.3 USE OF NOMOGRAPH AND COMPARISON OF RESULTING ATTENUATION FACTORS

To illustrate the application of the AF nomographs for determining AFs for groundwater plumes located anywhere at HPS, the nomographs were used to determine AFs for the Parcel D plumes. The following graphical procedure was used to obtain the AFs from the nomographs:

1. Select the source width curve on the graph by choosing the curve with the next highest width from the known source width for a plume,
2. Intercept the y-axis with a horizontal line from the point on the selected curve at the appropriate distance from the receptor to the source area,
3. Determine the AF where the horizontal line intercepts the y-axis, and
4. Round the determined AF down to the nearest whole number for a conservative usable AF.

Following this procedure and using Figure G-1, AFs were derived for each of the Parcel D plumes. Table G-5 presents a comparison of the AFs determined from the nomographs vs. the AFs determined from the plume-specific modeling for the Parcel D plumes presented in Table G-4. This table indicates that the nomograph-derived AFs are smaller than the plume-specific derived AFs, suggesting that the nomographs can be used to derive conservative AFs for plumes in general at HPS.

G5.0 CONCLUSIONS AND RECOMMENDATIONS

This appendix summarizes the results of groundwater modeling that was performed (1) to estimate peak concentrations of metals that may discharge to the Bay for each of the areas of elevated metals concentrations at Parcel D (see Table G-4); and (2) to derive a method for obtaining conservative AFs that can be applied to various groundwater plumes at HPS, including those areas of elevated metals concentrations at Parcel D. These AFs will be used in this Revised FS Report to calculate chemical-specific trigger levels using the surface water criteria (see Appendix I).

Results of plume-specific modeling at Parcel D suggest that peak concentrations of chromium VI and nickel that may discharge to the Bay with groundwater are well below the applicable surface water criteria. The model only considered hydrodynamic dispersion as a mechanism for attenuation of chemical concentrations in groundwater, and used conservative assumptions regarding the thickness of the aquifer and the soluble mass of contamination available for dissolution into groundwater.

The model was also run to generate AFs for a variety of source widths and distances from the source area to receptor locations, resulting in AFs ranging from 1 to 58. The AFs were plotted graphically against distance to receptor, to generate nomographs for the different source widths.

The nomographs were used to estimate AFs for the Parcel D metals plumes, and the resulting graphically derived AFs showed good agreement with the modeling derived AFs. The nomograph-generated AFs ranged from 12 to 18, and the AFs from the modeling ranged from 12.4 to 21. In all cases, the nomograph-generated AFs were lower than the modeling AFs.

Because the modeling did not include chemical-specific parameters such as biodegradation rates, results of the current Parcel D modeling can be applied to metals or organic chemicals found in groundwater at other parcels at HPS. The excellent agreement between the plume-specific modeling AFs and the nomograph-generated AFs indicate the AF nomographs presented on Figure G-1 can be used to calculate conservative AFs for groundwater plumes throughout HPS and to develop chemical-specific trigger levels from the surface water criteria as a conservative method for determining plume-specific potential impacts to the Bay (see Appendix I of this Revised FS Report).

G6.0 REFERENCES

ASTM International. 1995. "Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites." ASTM E-1739-95. Philadelphia, Pennsylvania.

Freeze, R.A., and J.A. Cherry. 1979. *Groundwater*. Prentice-Hall, Inc. Englewood Cliffs, New Jersey.

Gelhar, L.W., C. Welty, and K.R. Rehfeldt. 1992. "A Critical Review of Data on Field-Scale Dispersion in Aquifers." *Water Resour. Res*. Volume 28, No. 7. Pages 1,955-1,974.

Pickens, J.F., and G.E. Grisak. 1981. "Scale-Dependent Dispersion in a Stratified Granular Aquifer." *Water Resour. Res*. Volume 17, No. 4. Pages 1,191-1,211.

PRC Environmental Management, Inc., Levine-Fricke-Recon, and Uribe & Associates. 1996. "Parcel D Remedial Investigation Report, Draft Final, Hunters Point Shipyard, San Francisco, California." October 25.

Shih, T., and Y. Rong. 2001. "Manual for Domenico Non-Steady State Spreadsheet Analytical Model (for Continuous Source Release)." California Regional Water Quality Control Board – Los Angeles Region. May 15.

Spitz, K., and J. Moreno. 1996. *Practical Guide to Groundwater and Solute Transport Modeling*. John Wiley & Sons, Inc. 480 Pages.

U.S. Environmental Protection Agency (EPA). 1986. "Background Document for the Ground Water Screening Procedure to Support 40 CFR Part 269 - Land Disposal." EPA/530-SW-86-047. January.

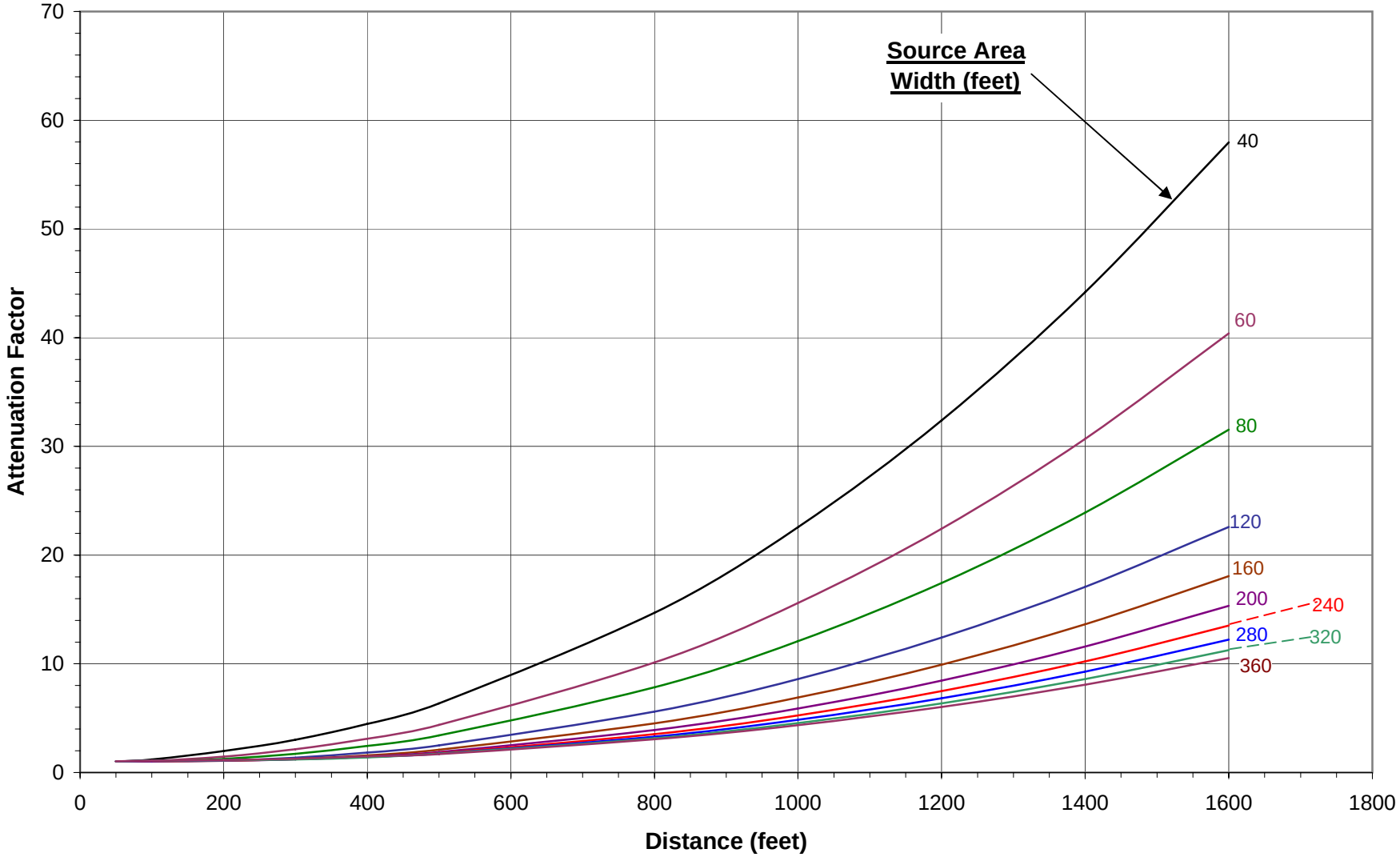
EPA. 1996. "BIOSCREEN, Natural Attenuation Decision Support System Users Manual Version 1.3." EPA/600/R-96/087. Office of Research and Development. Washington, DC.

EPA. 2002. "Simulating Radionuclide. Fate and Transport in the Unsaturated Zone: Evaluation and Sensitivity Analyses of Select Computer Models." EPA/600/R-02/082. July.

Xu, M., and Y. Eckstein. 1995. "Use of Weighted Least-Squares Method in Evaluation of the Relationship between Dispersivity and Scale." *Groundwater*. Volume 33, No. 6. Pages 905-908.

FIGURES

Figure G-1. Attenuation Factor vs. Distance from Source Area to Receptor Location



TABLES

TABLE G-1: MODEL SENSITIVITY TO INPUT PARAMETERS

Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	Saturated Thickness (feet)	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity (feet)	Transverse Dispersivity (feet)	Vertical Dispersivity (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Factor for Parameter Range	Relative Sensitivity Coefficient
Saturated Thickness														**4**	**0.171**
1	**20**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.29		
2	**40**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	**60**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.4		
4	**80**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.391		
Source Width														**9**	**0.395**
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.139		
2	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.413		
Soluble Mass														**100**	**0.033**
1	40	170	0.492	**14**	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.289		
2	40	170	0.492	**140**	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	40	170	0.492	**1400**	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.419		
Hydraulic Conductivity														**100**	**0.000**
1	40	170	0.492	140	**0.1**	3.53E-05	0.004	0.28	20	6.6	1	200	0.393		
2	40	170	0.492	140	**7.2**	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	40	170	0.492	140	**10**	3.53E-03	0.004	0.28	20	6.6	1	200	0.393		
Hydraulic Gradient														**100**	**0.000**
1	40	170	0.492	140	7.2	2.54E-03	**0.001**	0.28	20	6.6	1	200	0.393		
2	40	170	0.492	140	7.2	2.54E-03	**0.004**	0.28	20	6.6	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	**0.1**	0.28	20	6.6	1	200	0.393		
Effective Porosity														**40**	**0.068**
1	40	170	0.492	140	7.2	2.54E-03	0.004	**0.01**	20	6.6	1	200	0.421		
2	40	170	0.492	140	7.2	2.54E-03	0.004	**0.28**	20	6.6	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	**0.4**	20	6.6	1	200	0.384		
Longitudinal Dispersivity														**40**	**0.021**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	**5**	6.6	1	200	0.409		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	**20**	6.6	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	**200**	6.6	1	200	0.327		
Transverse Dispersivity														**20**	**0.132**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	**1**	1	200	0.436		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	**6.6**	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	**20**	1	200	0.287		
Vertical Dispersivity														**NA**	**0.055**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	**0**	200	0.412		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	**1**	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	**10**	200	0.195		
Distance to Receptor														**10**	**0.170**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**100**	0.45		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**200**	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**300**	0.335		
4	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**1,000**	0.149		

Notes: Bolded parameter values indicate the paremeter that was varied during the sensitivity analysis run

Distance to receptor is the shortest distance from the source area to San Francisco Bay, without consideration of the direction of groundwater flow

Factor for parameter range is equal to the largest value of the parameter divided by the smallest value of the parameter.

Relative sensitivity coefficient quantifies the relative change in an output (peak concentration) corresponding to a specific relative change in one input parameter.

[1] Based on historical maximum concentration of zinc in groundwater at site IR-22; a value used in the original sensitivity analysis for the previous modeling presented in the draft revised version of this feasibility study for Parcel D in March 8, 2002.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-2: SENSITIVITY ANALYSIS OF DISPERSIVITIES

Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	Saturated Thickness (ft)	Source Width (ft)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity (ft)	Transverse Dispersivity (ft)	Vertical Dispersivity (ft)	Distance to Receptor, L (ft)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
Intermediate Dispersivities: Longitudinal Dispersivity, ax = 0.1L; Transverse Dispersivity, ay = 0.1ax; Vertical Dispersivity, az = 0.025ax															
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.5	0.125	**50**	0.486	4.9	1.01
2	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	80	8	2	**800**	0.033	54.8	14.7
3	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	160	16	4	**1600**	0.008	98	58.0
4	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.5	0.125	**50**	0.480	4.2	1.02
5	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	80	8	2	**800**	0.114	42	4.3
6	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	160	16	4	**1600**	0.029	72	17.3
7	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.5	0.125	**50**	0.472	3.8	1.04
8	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	80	8	2	**800**	0.159	36	3.1
9	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	160	16	4	**1600**	0.045	60	10.9
High Dispersivities: Longitudinal Dispersivity, ax = 0.1L; Transverse Dispersivity, ay = 0.33ax; Vertical Dispersivity, az = 0.005ax															
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	5	1.67	0.25	**50**	0.429	4.9	1.15
2	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	80	26.67	4.00	**800**	0.014	55	36.3
3	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	160	53.33	8.00	**1600**	0.003	98	148.0
4	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	5	1.67	0.25	**50**	0.480	4.2	1.02
5	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	80	26.67	4.00	**800**	0.049	42	10.1
6	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	160	53.33	8.00	**1600**	0.011	72	43.4
7	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	5	1.67	0.25	**50**	0.472	3.8	1.04
8	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	80	26.67	4.00	**800**	0.080	36	6.2
9	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	160	53.33	8.00	**1600**	0.019	60	26.1
Low Dispersivities: Longitudinal Dispersivity, ax (Xu and Eckstein 1995); Transverse Dispersivity, ay = 0.1ax; Vertical Dispersivity, az = 0															
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	4.1	0.41	0	**50**	0.488	4.5	1.01
2	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	22.6	2.26	0	**800**	0.124	39	4.0
3	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	30.21	3.02	0	**1600**	0.075	68	6.5
4	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	4.1	0.41	0	**50**	0.482	3.8	1.02
5	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	22.6	2.26	0	**800**	0.370	34.3	1.3
6	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	30.21	3.02	0	**1600**	0.256	60.3	1.9
7	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	4.1	0.41	0	**50**	0.474	3.5	1.04
8	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	22.6	2.26	0	**800**	0.403	31	1.2
9	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	30.21	3.02	0	**1600**	0.343	56.4	1.4

Notes: Bolded parameter values indicate the paremeter that was varied during the sensitivity analysis run

Distance to receptor L is the shortest distance from the source area to San Francisco Bay, without consideration of the direction of groundwater flow

[1] Based on historical maximum concentration of zinc in groundwater at site IR-22; a value used in the original sensitivity analysis for the previous modeling presented in the draft revised version of this feasibility study for Parcel D in March 8, 2002.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-3: ATTTENUATION FACTORS FOR VARIOUS SOURCE WIDTHS AND DISTANCES

Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	g	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, $a_x = 0.1L$ (feet)	Transverse Dispersivity, $a_y = 0.1a_x$ (feet)	Vertical Dispersivity, $a_z = 0.025a_x$ (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
Source Width = 40 feet															
1	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.486	5	1.0
2	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.409	9	1.2
3	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.249	17	2.0
4	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.163	24	3.0
5	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.110	31	4.5
6	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.077	37	6.3
7	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.033	55	14.7
8	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.022	67	22.6
9	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.015	79	32.4
10	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.011	90	44.2
11	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.008	98	58.0
Source Width = 60 feet															
1	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.487	5	1.0
2	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.467	9	1.1
3	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.337	16	1.5
4	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.230	22	2.1
5	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.158	29	3.1
6	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.112	35	4.4
7	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.049	51	10.1
8	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.032	63	15.6
9	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.022	72	22.4
10	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.016	81	30.7
11	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.012	90	40.4
Source Width = 80 feet															
1	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.486	5	1.0
2	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.479	9	1.0
3	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.396	15	1.2
4	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.286	21	1.7
5	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.201	28	2.4
6	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.144	33	3.4
7	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.063	49	7.8
8	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.041	59	12.1
9	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.028	68	17.4
10	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.021	76	23.9
11	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.016	85	31.5
Source Width = 120 feet															
1	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.483	4.5	1.0
2	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.477	8	1.0
3	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.447	15	1.1
4	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.361	20	1.4
5	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.268	26	1.8
6	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.197	31	2.5
7	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.088	45	5.6
8	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.057	54	8.6

TABLE G-3: ATTTENUATION FACTORS FOR VARIOUS SOURCE WIDTHS AND DISTANCES (CONTINUED)

Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	g	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, $a_x = 0.1L$ (feet)	Transverse Dispersivity, $a_y = 0.1a_x$ (feet)	Vertical Dispersivity, $a_z = 0.025a_x$ (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
Source Width = 120 feet (Continued)															
9	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.040	62	12.4
10	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.029	71	17.1
11	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.022	79	22.6
Source Width = 160 feet															
1	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.481	4	1.0
2	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.473	8	1.0
3	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.454	14	1.1
4	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.395	19	1.2
5	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.310	25	1.6
6	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.235	29	2.1
7	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.109	43	4.5
8	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.071	51	6.9
9	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.050	59	9.9
10	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.036	66	13.6
11	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.027	73	18.1
Source Width = 200 feet															
1	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.479	4	1.0
2	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.469	7	1.0
3	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.450	13	1.1
4	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.405	18	1.2
5	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.332	23	1.5
6	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.260	28	1.9
7	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.126	41	3.9
8	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.083	48	5.9
9	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.058	56	8.4
10	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.042	63	11.6
11	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.032	70	15.3
Source Width = 240 feet															
1	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.477	4	1.0
2	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.464	8	1.1
3	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.444	13	1.1
4	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.404	18	1.2
5	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.340	23	1.4
6	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.274	27	1.8
7	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.140	39	3.5
8	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.093	47	5.3
9	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.066	53	7.5
10	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.048	60	10.2
11	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.036	66	13.5
Source Width = 280 feet															
1	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.475	4	1.0
2	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.462	7	1.1

TABLE G-3: ATTTENUATION FACTORS FOR VARIOUS SOURCE WIDTHS AND DISTANCES (CONTINUED)

Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	g	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, $a_x = 0.1L$ (feet)	Transverse Dispersivity, $a_y = 0.1a_x$ (feet)	Vertical Dispersivity, $a_z = 0.025a_x$ (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
Source Width = 280 feet (Continued)															
3	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.439	12	1.1
4	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.399	18	1.2
5	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.341	22	1.4
6	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.281	26	1.8
7	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.149	38	3.3
8	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.102	45	4.8
9	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.072	51	6.8
10	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.053	57	9.3
11	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.040	64	12.2
Source Width = 320 feet															
1	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.472	4	1.0
2	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.459	7	1.1
3	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.434	12	1.1
4	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.393	17	1.2
5	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.337	21	1.4
6	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.282	25	1.7
7	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.156	37	3.1
8	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.108	44	4.6
9	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.077	50	6.4
10	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.057	56	8.6
11	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.044	61	11.3
Source Width = 360 feet															
1	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.470	4	1.0
2	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.455	7	1.1
3	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.429	12	1.1
4	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.387	17	1.3
5	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.333	21	1.5
6	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.280	25	1.7
7	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.161	36	3.1
8	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.113	42	4.4
9	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.082	48	6.0
10	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.061	54	8.1
11	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.047	59	10.5

Notes:

[1] Based on historical maximum concentration of zinc in groundwater at site IR-22; a value used in the original sensitivity analysis for the previous modeling presented in the draft revised version of this feasibility study for Parcel D in March 8, 2002.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-4: SUMMARY OF MODEL RUNS FOR CHROMIUM VI AND NICKEL PLUMES

Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

Saturated Thickness (feet)	Source Width (feet)	Initial Concentration (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)[1]	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, $a_x = 0.1L$ (feet)	Transverse Dispersivity, $a_y = 0.1a_x$ (feet)	Vertical Dispersivity, $a_z = 0.025a_x$ (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
IR-09 North, Hexavalent Chromium													
40	232	0.493	140	7.2	0.004	0.28	151.6	15.2	3.8	1,516	0.040	64	12.4
IR-09 South, Hexavalent Chromium													
40	63	0.130	140	7.2	0.004	0.28	124.2	12.4	3.1	1,242	0.006	91	21.0
IR-09 South, Nickel													
40	63	0.185	140	7.2	0.004	0.28	115.8	11.6	2.9	1,158	0.010	81	18.6
IR-33, Hexavalent Chromium													
40	63	0.250	140	7.2	0.004	0.28	110.5	11.1	2.8	1,105	0.014	74	17.4

Notes: Distance to receptor is the shortest distance from the source area to San Francisco Bay, without consideration of the direction of groundwater flow

1 A hydraulic conductivity of 7.2 ft/day is equivalent to 2.54 E-03 cm/sec.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-5: COMPARISON OF ATTENUATION FACTORS DERIVED FROM PLUME-SPECIFIC MODELING AND FROM NOMOGRAPHS
Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

Area	Source Width for Modeling (feet)	Source Width Used for Nomographs (feet)	Distance to Receptor (feet)	Attenuation Factor from Plume Specific Modeling (Table G-4)	Attenuation Factor from Nomographs
IR-09 North, Hexavalent Chromium	232	240	1,516	12.4	12
IR-09 South, Hexavalent Chromium	63	80	1,242	21	18
IR-09 South, Nickel	63	80	1,158	18.6	16
IR-33, Hexavalent Chromium	63	80	1,105	17.4	14

Note:

IR Installation Restoration

ATTACHMENT G1
BIOSCREEN MODEL INPUT AND OUTPUT SCREENS

BIOSCREEN Model Input for Chromium VI at IR09PPY1

Chromium VI (advection and dispersion only; no retardation due to sorption; no degradation

HPS Parcel D
IR09PPY1
Run Name

Data Input Instructions:

115 — *1. Enter value directly....or*
or — *2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*
0.02

Variable* → *Data used directly in model.*
20 → *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	37.5	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	2.5E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.004	*(ft/ft)*
Porosity	*n*	0.28	*(-)*

2. DISPERSION

Longitudinal Dispersivity	*alpha x*	151.6	*(ft)*
Transverse Dispersivity	*alpha y*	15.2	*(ft)*
Vertical Dispersivity	*alpha z*	3.8	*(ft)*
or		or	
Estimated Plume Length	*Lp*	1516	*(ft)*

3. ADSORPTION

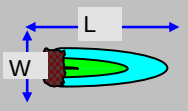
Retardation Factor*	*R*	1.0	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		or	
Solute Half-Life	*t-half*	1000.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron*	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane*	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	1516	*(ft)*
Modeled Area Width*	232	*(ft)*
Simulation Time*	64	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 40 *(ft)*

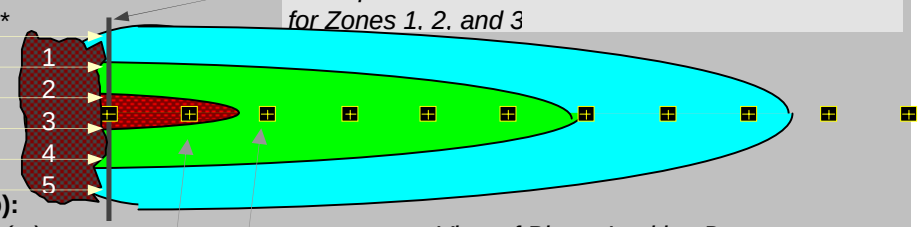
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
232	0.493
0	0
0	0

Source Halflife (see Help):

70	70	*(yr)*
Inst. React.	1st Order	
Soluble Mass In Source NAPL, Soil	140	*(Kg)*

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.493										
Dist. from Source (ft)	0	152	303	455	606	758	910	1061	1213	1364	1516

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

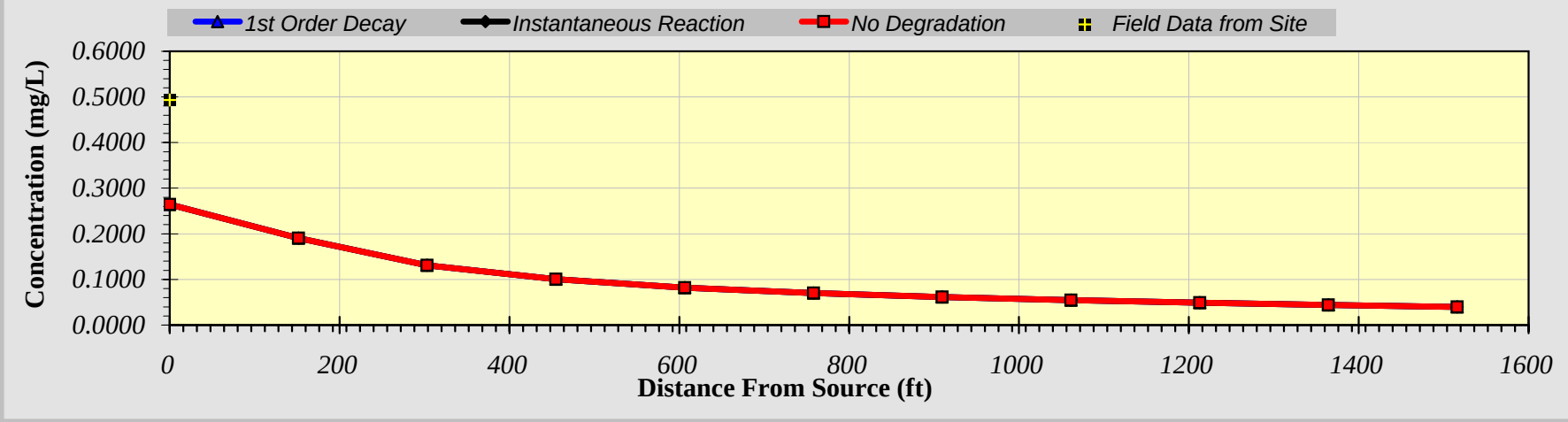
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Chromium VI at IR09PPY1

DISSOLVED CHROMIUM VI CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

TYPE OF MODEL	Distance from Source (ft) 0	152	303	455	606	758	910	1061	1213	1364	1516
No Degradation	0.264	0.190	0.131	0.100	0.082	0.070	0.061	0.054	0.049	0.044	0.040
1st Order Decay	0.264	0.190	0.131	0.100	0.082	0.070	0.061	0.054	0.049	0.044	0.040
Inst. Reaction	0.264	0.190	0.131	0.100	0.082	0.070	0.061	0.054	0.049	0.044	0.040
Field Data from Site	0.4930										



Replay Animation

Next Timestep

Prev Timestep

Time: 64 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Model Input for Chromium VI at IR09MW35A

Chromium VI (advection and dispersion only; no retardation due to sorption; no degradation

HPS Parcel D
IR09MW35A
Run Name

Data Input Instructions:

115 → *1. Enter value directly....or*
↑ *or* → *2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*
0.02

Variable* → *Data used directly in model.*
20 → *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	37.5	*(ft/yr)*
or		↑ *or*	
Hydraulic Conductivity	*K*	2.5E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.004	*(ft/ft)*
Porosity	*n*	0.28	*(-)*

2. DISPERSION

Longitudinal Dispersivity	*alpha x*	124.2	*(ft)*
Transverse Dispersivity	*alpha y*	12.4	*(ft)*
Vertical Dispersivity	*alpha z*	3.1	*(ft)*
or		↑ *or*	
Estimated Plume Length	*Lp*	1242	*(ft)*

3. ADSORPTION

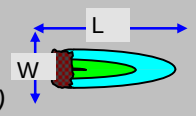
Retardation Factor*	*R*	1.0	*(-)*
or		↑ *or*	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		↑ *or*	
Solute Half-Life	*t-half*	1000.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	1242	*(ft)*
Modeled Area Width*	63	*(ft)*
Simulation Time*	91	*(yr)*



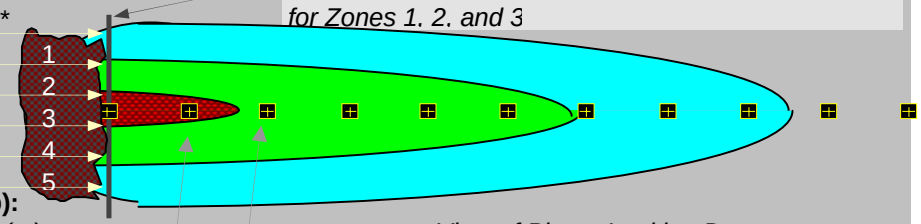
6. SOURCE DATA

Source Thickness in Sat.Zone: 40 *(ft)*

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
63	0.13
0	0
0	0



View of Plume Looking Down

Source Halflife (see Help):

1000	1000	*(yr)*
Inst. React. ↖	↑ 1st Order	
Soluble Mass	140	*(Kg)*
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.13										
Dist. from Source (ft)	*0*	*124*	*248*	*373*	*497*	*621*	*745*	*869*	*994*	*1118*	*1242*

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

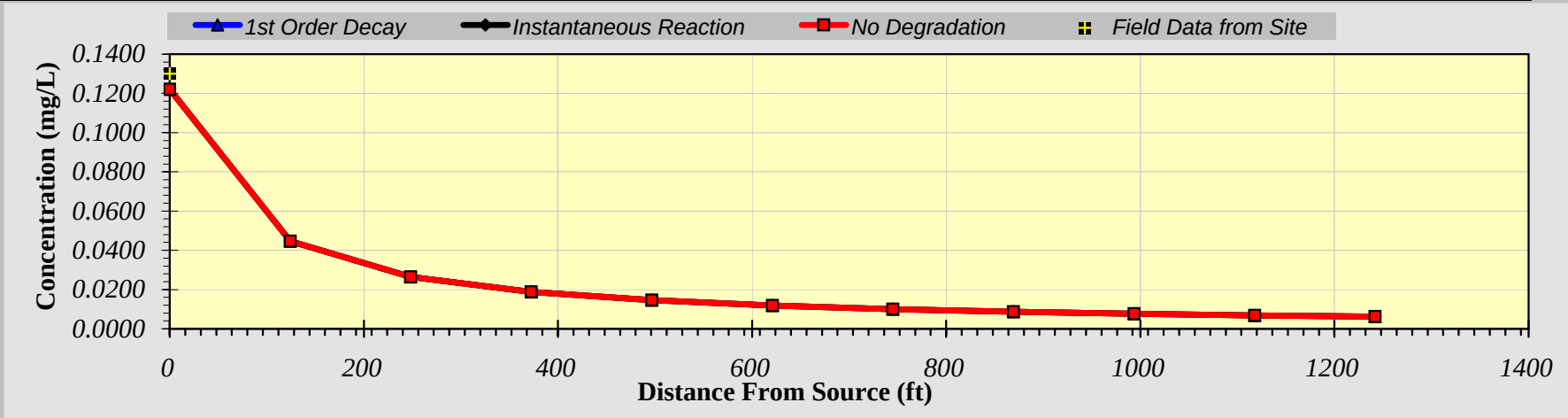
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Chromium VI at IR09MW35A

DISSOLVED CHROMIUM VI CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

TYPE OF MODEL	Distance from Source (ft) 0	124	248	373	497	621	745	869	994	1118	1242
No Degradation	0.122	0.045	0.026	0.019	0.015	0.012	0.010	0.009	0.008	0.007	0.006
1st Order Decay	0.122	0.045	0.026	0.019	0.015	0.012	0.010	0.009	0.008	0.007	0.006
Inst. Reaction	0.122	0.045	0.026	0.019	0.015	0.012	0.010	0.009	0.008	0.007	0.006
Field Data from Site	0.1300										



Replay Animation

Next Timestep

Prev Timestep

Time: 91 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Model Input for Nickel at IR09P043A

Nickel (advection and dispersion only; no retardation due to sorption; no degradation)

HPS Parcel D
IR09P043A
Run Name

Data Input Instructions:

115 → *1. Enter value directly....or*
↑ *or* *2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*
0.02

Variable* → *Data used directly in model.*
20 → *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	37.5	*(ft/yr)*
or		↑ *or*	
Hydraulic Conductivity	*K*	2.5E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.004	*(ft/ft)*
Porosity	*n*	0.28	*(-)*

2. DISPERSION

Longitudinal Dispersivity	*alpha x*	115.8	*(ft)*
Transverse Dispersivity	*alpha y*	11.6	*(ft)*
Vertical Dispersivity	*alpha z*	2.9	*(ft)*
or		↑ *or*	
Estimated Plume Length	*Lp*	1158	*(ft)*

3. ADSORPTION

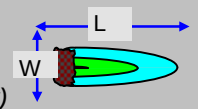
Retardation Factor*	*R*	1.0	*(-)*
or		↑ *or*	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		↑ *or*	
Solute Half-Life	*t-half*	1000.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron*	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane*	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	1158	*(ft)*
Modeled Area Width*	63	*(ft)*
Simulation Time*	81	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 40 *(ft)*

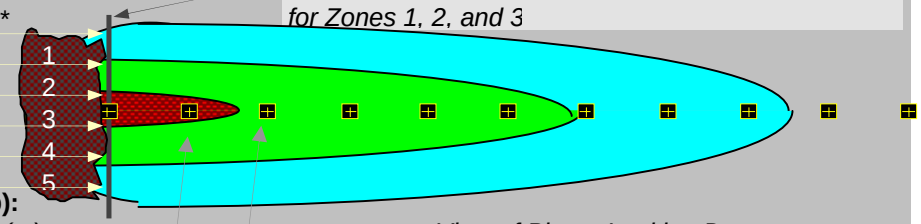
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
63	0.185
0	0
0	0

Source Halflife (see Help):

700	700	*(yr)*
Inst. React. ↖	↑ 1st Order	
Soluble Mass In Source NAPL, Soil	140	*(Kg)*

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.185										
Dist. from Source (ft)	0	116	232	347	463	579	695	811	926	1042	1158

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

Paste Example Dataset

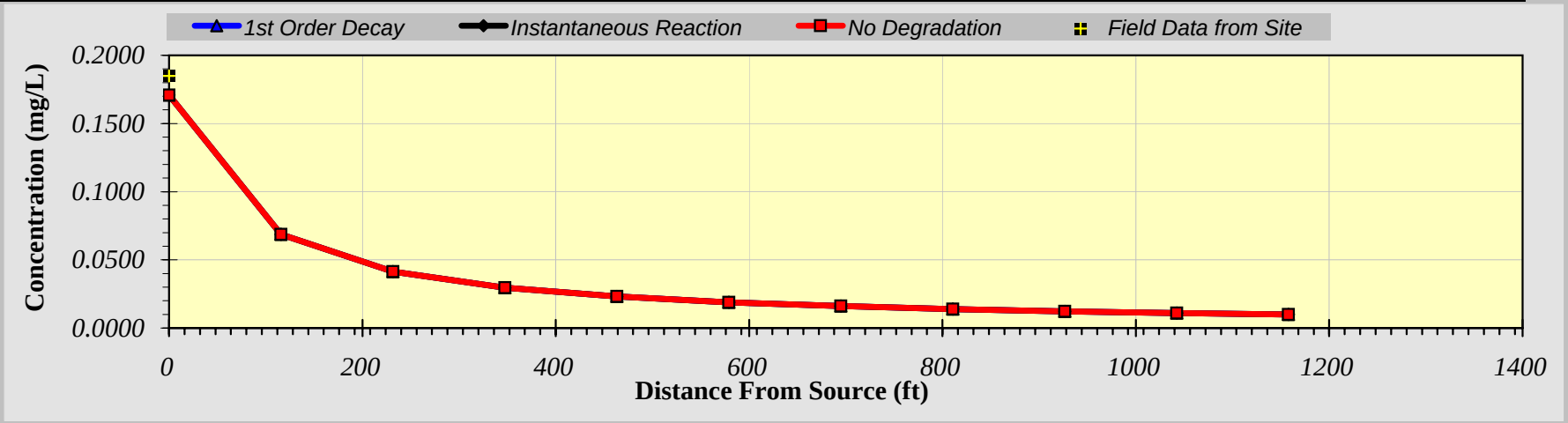
Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Nickel at IR09P043A

DISSOLVED NICKEL CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

Distance from Source (ft)

TYPE OF MODEL	0	116	232	347	463	579	695	811	926	1042	1158
No Degradation	0.171	0.069	0.041	0.030	0.023	0.019	0.016	0.014	0.012	0.011	0.010
1st Order Decay	0.171	0.069	0.041	0.030	0.023	0.019	0.016	0.014	0.012	0.011	0.010
Inst. Reaction	0.171	0.069	0.041	0.030	0.023	0.019	0.016	0.014	0.012	0.011	0.010
Field Data from Site	0.1850										



Replay Animation

Next Timestep

Prev Timestep

Time: 81 Years

Return to Input

Recalculate This Sheet

BIOSCREEN Model Input for Chromium VI at IR33MW61A

Chromium VI (advection and dispersion only; no retardation due to sorption; no degradation)

HPS Parcel D
IR33MW61A
Run Name

Data Input Instructions:

115 → *1. Enter value directly....or*
↑ or
0.02 → *2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*

Variable* → *Data used directly in model.*
20 → *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	37.5	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	2.5E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.004	*(ft/ft)*
Porosity	*n*	0.28	*(-)*

2. DISPERSION

Longitudinal Dispersivity	*alpha x*	110.5	*(ft)*
Transverse Dispersivity	*alpha y*	11.1	*(ft)*
Vertical Dispersivity	*alpha z*	2.8	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	1105	*(ft)*

3. ADSORPTION

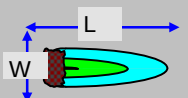
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	0.0E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	1000.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron*	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane*	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	1105	*(ft)*
Modeled Area Width*	63	*(ft)*
Simulation Time*	74	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 40 *(ft)*

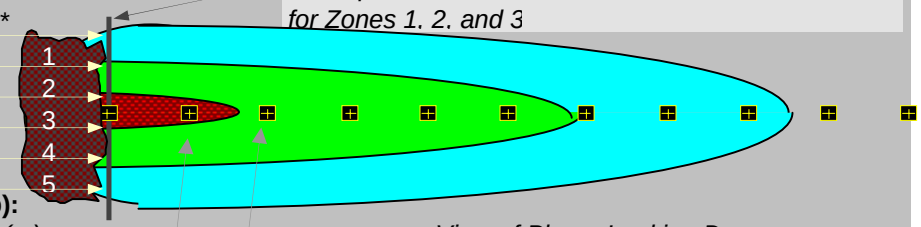
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
63	0.25
0	0
0	0

Source Halflife (see Help):

500	500	*(yr)*
Inst. React.	1st Order	
Soluble Mass	140	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.25											
Dist. from Source (ft)	*0*	*111*	*221*	*332*	*442*	*553*	*663*	*774*	*884*	*995*	*1105*	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

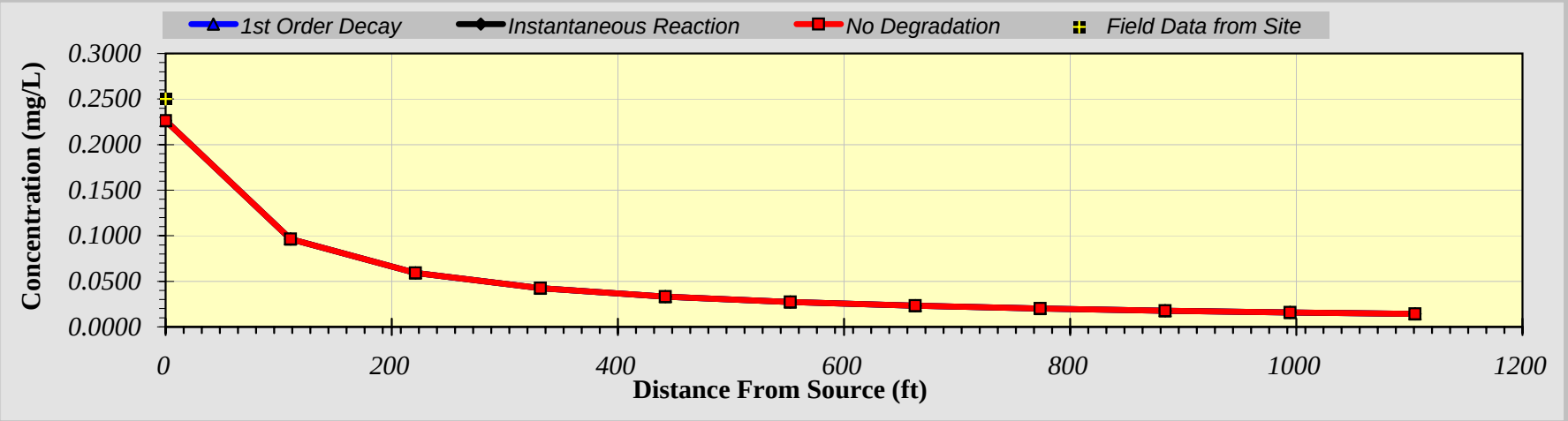
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Chromium VI at IR33MW61A

DISSOLVED CHROMIUM VI CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

TYPE OF MODEL	Distance from Source (ft) 0	111	221	332	442	553	663	774	884	995	1105
No Degradation	0.226	0.097	0.059	0.043	0.033	0.027	0.023	0.020	0.018	0.016	0.014
1st Order Decay	0.226	0.097	0.059	0.043	0.033	0.027	0.023	0.020	0.018	0.016	0.014
Inst. Reaction	0.226	0.097	0.059	0.043	0.033	0.027	0.023	0.020	0.018	0.016	0.014
Field Data from Site	0.2500										



Replay Animation | Next Timestep | Prev Timestep

Time: 74 Years

Return to Input | Recalculate This Sheet

Attachment A2. Groundwater Data Summary

(Due to size, this attachment is provided on compact disc only.)

Description of Qualifiers

J0	Compound is estimated or rejected because internal standard was exceeded
J1	Result is considered estimated because of noncompliant instrument/system performance criteria
J2	Compound is estimated because matrix duplicate precision was exceeded
J3	Compound is estimated because accuracy was exceeded in matrix spike, blank spike, or surrogate spike
J4	Result considered estimated because of serial dilution problem
J5	Result considered estimated because of holding time problem
J6	Results estimated due to field duplicate precision violations
J7	Result considered estimated because of initial or continuing calibration problem
J8	Result considered estimated because it exceeds calibration range
J9	Metals result considered estimated because interference check sample
D	Pattern resembles diesel
G	Pattern resembles gasoline
H	Pattern is heavier hydrocarbon end of the analyte's range in the standard
J	Estimated value
L	Pattern is lighter hydrocarbon end of the analyte's range in the standard
M	Pattern resembles motor oil
R1	Rejected because of holding time problem
R2	Rejected because of accuracy problems in matrix spike, blank sample, or surrogate spike
R3	Rejected because of noncompliant instrument/system performance criteria
R7	Rejected because of initial or continuing calibration problem
U	Nondetected (numerical value is the reporting limit)
U1	Compound is considered nondetected because of laboratory blank contamination
U2	Compound is considered nondetected because of field blank contamination
U4	Compound is considered nondetected because of common laboratory contamination
UJ	Nondetected (numerical value is the reporting limit), estimated value
UR	Nondetected (numerical value is the reporting limit), rejectedvalue
Y	Chromatogram indicates the presence of petroleum fuel
Z	Other peak(s); chromatogram does not suggest the presence of a fuel

1. Inorganic results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.
2. Organic results less than 10 are reported to one significant figure, and results greater than 10 are reported to two significant figures.
3. TPH results less than 10 are reported to two significant figures, and results greater than 10 are reported to three significant figures.
4. Diesel range includes hydrocarbons quantified as diesel and diesel-range unknowns.
5. Gasoline range includes hydrocarbons quantified as gasoline and gasoline-range unknowns.
6. Motor oil range includes hydrocarbons quantified as motor oil and motor-oil-range unknowns.

Table A2-1. Analytical Results for Copper in Groundwater

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date	IR02MW114A2	IR02MW126A	IR02MW141A	IR02MW147A	IR02MW149A	IR02MW300A	IR02MW301A	IR02MW373A	IR02MWB-1	IR02MWB-2	IR02MWB-3	IR03MW218A2	IR03MW224A	IR03MW226A	IR03MW342A	IR03MWO-1	IR05MW85A	IR08MW37A	IR08MW38A	IR11MW27A	PA36MW03A	PA36MW04A	PA50MW10A	IR02MW210B	IR03MW228B	IR15MW09F	IR15MW10F	IR36MW123B
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
03/89	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	98 J3	NA	NA	NA	NA	NA	NA	NA	NA
08/90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<37.8 U2	NA	NA	NA	NA	NA	NA	NA	NA
07/90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49.2	54.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/90	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.3 U	<2.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/91	NA	NA	NA	NA	<7.1 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<11.5 U1	NA	NA	NA
05/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.8 U1	NA	NA	NA
07/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.7	<2.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8.6 U1	<5.7 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/92	16.7	2.8	NA	7.5	5.8	NA	NA	NA	<8.7 U1	NA	<1.6 U	5.9	<4.2 U1	<3.8 U1	NA	<3.7 U1	NA	NA	NA	NA	NA	NA	NA	4.7	5.2	NA	NA	NA
01/92	NA	NA	NA	NA	NA	NA	NA	NA	<5.7 U1	NA	NA	NA	NA	<6 U1	NA	<3.1 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/92	NA	NA	<14.6 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/92	NA	NA	<20 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/92	32.9	<4 U1	17,800 J3	<1.8 U	NA	<6.9 U1J23	NA	NA	<1.8 U	105 J23	3,900 J3	68.8	<1.8 U	<1.8 U	101 J23	3,240	36	NA	NA	NA	NA	NA	NA	<7.3 U1J3	NA	NA	NA	NA
07/92	NA	161	19,800 J3	NA	NA	NA	NA	NA	60.4 J23	NA	NA	NA	NA	824	NA	NA	31.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/92	NA	<1.8 U	36.2	4	5.4 J9	7.2	NA	NA	<1.8 U	<1.8 U	2.5 J9	2.5	34.5	6.4	422	2.2	NA	NA	NA	NA	NA	NA	NA	<1.8 U	6.4	8.3	4.1	NA
08/92	4.1	NA	28	NA	NA	NA	NA	NA	NA	NA	<1.8 U	NA	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 U	<8 U	NA	NA	NA
09/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.5	2.59	NA
02/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1	<2 U	NA	NA	NA	NA	NA	NA
02/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2 U	NA	NA	NA	NA	NA	NA	NA
06/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/95	NA	NA	NA	NA	<4.05 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.89 U1J9	NA	<2.9 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/95	NA	NA	NA	NA	<3.76 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.83 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/95	NA	NA	NA	NA	NA	NA	NA	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	127	38.5	NA	NA	NA	NA	NA	NA
03/96	NA	NA	NA	NA	NA	45.8 J9	NA	1,210	NA	NA	NA	NA	NA	NA	<1.8 U1	NA	12.4	NA	NA	NA	366	26.1	NA	NA	NA	11.2	<2.2 U1	<0.5 U
03/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.8 U
05/96	NA	NA	NA	NA	NA	NA	NA	782	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<6.9 U1	NA	NA	NA	NA	NA	NA	NA	NA
06/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.2
11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	275	NA	NA	NA	NA	NA
11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	248	NA	NA	NA	NA	NA
03/01	<3.5 U1	18.7 J	<8.9 U1	NA	<44.9 U1J9	43.3	NA	1,300	<7.4 U1	<2.5 U	<7.7 U1	<8.9 U1	<1.5 U	NA	<4.5 U1	NA	13.2 J	NA	NA	NA	NA	3 J	NA	NA	NA	NA	<1.7 U1	NA
03/01	NA	NA	NA	NA	NA	NA	NA	NA	<8.9 U1	NA	<8.9 U1	<10.8 U1	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	NA	NA	NA	NA
07/02	<8 U	NA	<8 U	NA	<8 U	41.4	NA	369	NA	<4 U	<4 U	<8 U	<4 U	NA	<4 UJ9	NA	NA	NA	NA	<8 U	264	7.26	1.3 J	NA	NA	NA	NA	NA
08/02	NA	<4 U	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	NA	NA	NA	2.2 J	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA
09/02	<8 U	<8 U	<8 U	NA	<8 U	<38.7 U1	NA	241	<8 U	<8 U	<8 U	<8 U	<8 U	NA	56.2	NA	<8 U	NA	NA	NA	186	<8 U	NA	NA	<8 U	NA	NA	NA
06/04	NA	43.2	NA	<5 U	<5 U	114	NA	NA	NA	<5 U	8.2	<3.6 U1	NA	NA	271	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/04	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/04	NA	10.8	NA	3.4 J	7.5	53	NA	NA	NA	<6.2 U2	<4.3 U2J9	1.6 J	2.1 J	NA	<3.6 U2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/04	NA	<5 U	NA	15.6	<10 U	31.3	NA	NA	2.3 J	<10 U	<10 UJ9	<5 UJ9	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/04	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/05	NA	269	NA	8.2	2.7 J	36	NA	NA	5.7	NA	12.1	6.7	<2.3 U2	NA	4.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/05	NA	<2.4 U1	NA	<22.6 U1	<5 U	NA	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	3.8 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.2 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/05	NA	<1.7 U	NA	<5 UJ	<5 U	NA	NA	NA	<5 U	NA	NA	<5 U	<5 UJ	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/06	NA	1,000	NA	4.5 J	5.9	NA	NA	NA	<5 U	NA	NA	<5 U	<5 U	NA	14.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/06	NA	732 J	NA	9.9	<5.6 U	NA	NA	NA	16.5	NA	NA	NA	3 J	NA	61.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/06	NA	NA	NA	NA	9.7	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/06	NA	296	NA	28.3	NA	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/06	NA	NA	NA	<5 UJ	80 J	NA	NA	NA	<5 U	NA	NA	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/06	NA	508	NA	1.6 J	14	NA	NA	NA	2.3 J	NA	NA	<5 U	<5 U	NA	4.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02/07	NA	136	NA	<2.6 U	NA	NA	NA	NA	90.7	NA	NA	<5 U	<5 U	NA	<1.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/07	NA	NA	NA	NA	10.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/07	NA	68.2	NA	<5 U	<1.5 U	NA	<5 U	NA	1.4 J	NA	NA	<3.1 U	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/07	NA	31.9	NA	2.7 J	1.5 J	NA	<5 U	NA	4.6 J	NA	NA	1.7 J	1.7 J	NA	<3.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/07	NA	21.6	NA	2.6 J	<5 U	NA	1.7	NA	<5 U	NA	NA	2.3 J	<5 U	NA	1.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02/08	NA	24.4	NA	NA	NA	NA	<5 U	NA	<2.8 U	NA	NA	NA	<1.2 U	NA	<5.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/08	NA	NA	NA	<4.7 U	<3.7 U	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
04/08	NA	23.8	NA	3.1 J	3.2 J	NA	4.2 J	NA	<5 U	NA	NA	NA	1.4 J	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/08	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	219	NA	NA	NA	NA	NA	NA	NA
09/08	NA	5.3	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/08	NA	<5 UJ	NA	NA	NA	NA	NA	10.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/09	NA	1.8 J	NA	NA	NA	NA	NA	NA	2.9 J	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	94.4	NA	NA	NA	NA	NA	NA	NA
04/09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 J	NA	NA	NA	412	NA	NA	NA	NA	NA	NA	NA
05/09	NA	<5 U	NA	NA	NA	NA	NA	957	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/09	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/09	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

µg/L	micrograms per liter
NA	not analyzed
<	nondetect
J	estimated value
U	value was not detected above the reporting limit
	Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Table A2-2. Analytical Results for Lead in Groundwater

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

	IR02MW126A	IR02MW141A	IR02MW175A	IR02MW179A	IR02MW209A	IR02MW301A	IR02MW373A	IR02MWB-2	IR02MWB-3	IR03MW218A1	IR03MW218A2	IR03MW226A	IR03MW342A	IR03MWO-1	IR04MW40A	IR05MW77A	IR14MW10A	IR15MW06A	IR15MW07A	PA50MW05A	PA50MW10A	IR02MW127B
Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
11/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2 U	<2 U	<20 U	<2 UJ3	<2 UJ3	NA	NA	NA
11/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2 U	NA	<20 U	NA	<2 U	NA	NA	NA
01/92	<1 UJ3	NA	<3 U	<5 U	<5 U	NA	NA	3.8 J2	<0.8 U	<0.8 U	<2.4 U1	1.4	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	1.8
01/92	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	1.8	NA	1.6	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA
02/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31.39 J3	<1.9 U1	<1.3 U2	<1.5 U2	NA	NA	NA
02/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.39	20.41 J3	NA	NA	<1.4 U2	NA	NA	NA
03/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/92	NA	<6.4 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/92	NA	<7.9 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/92	NA	NA	NA	<2.4 U1J3	<8 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/92	NA	NA	NA	NA	<8.5 U1J3	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.6 U	<1.6 UJ3	NA	NA	NA	NA	NA	NA
07/92	<1.6 U	9,790	<16 U	NA	NA	NA	NA	38.4	1,350	23.4	83	<1.6 U	92.5	65	NA	NA	NA	NA	NA	NA	NA	<1.6 U
07/92	26.7	10,200	<16 U	NA	NA	NA	NA	NA	NA	NA	NA	613	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/92	1.7	6.4	<16 U	<16 U	<16 UJ3	NA	NA	<16 UJ3	<1.6 UJ3	NA	<1.6 UJ3	<1.6 UJ3	324 J3	<1.6 UJ3	NA	NA	NA	NA	NA	NA	NA	8.2 J3
08/92	NA	5.6	NA	NA	NA	NA	NA	NA	<1.6 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.02	<13 U	35.51 J2	NA	NA	NA
09/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13 U	127.03 J6	NA	NA	NA	NA
04/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<6.3	NA	NA
04/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.5 J2	NA	NA
10/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	38.1	NA	NA
10/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42.0	NA	NA
06/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/95	NA	NA	NA	NA	NA	NA	3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/96	NA	NA	NA	NA	NA	NA	28.7 J3	NA	NA	NA	NA	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/96	NA	NA	NA	NA	NA	NA	17.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	133	NA
11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	81.6	NA
03/01	<1.6 U	3 J	NA	NA	NA	NA	24	<1.3 U	<1.6 U	NA	10.9	NA	<1.6 U	NA	<1.3 UJ3	<1.6 U	<1.6 U	<1.6 U	<1.6 U	NA	NA	NA
03/01	NA	NA	NA	NA	NA	NA	NA	NA	<1.6 U	NA	11.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/02	NA	<0.32 U2	0.26 J2	0.16 J	NA	NA	17.6	0.76 J2	0.27 J	NA	0.19 J	NA	<0.08 U2J2	NA	0.14 J	0.26	0.19	NA	<0.16 U2	NA	NA	NA
07/02	NA	NA	0.22 J2	0.17 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/02	0.16 J2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.04 U1	NA	NA	NA	NA
09/02	<0.12 U2J2	0.21	<0.08 U	<0.08 U	NA	NA	35.2	<0.29 U2J2	0.31	NA	0.23	NA	<0.09 U2	NA	<0.16 U2	<0.07 U2J2	0.26	0.19	<0.2 U2	NA	NA	NA
06/04	<5 U	NA	<5 U	<5 U1	<5 U	NA	NA	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/04	11.5	NA	<5 U	<25 U	<25 U	NA	NA	<25 U	<2.7 U2J9	NA	5.6	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/04	NA	NA	<25 U	NA	<25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/04	<5 U	NA	<10 U	<10 U	<20 U	NA	NA	<10 U	<10 U	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/04	NA	NA	NA	<10 U	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/05	<5 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	NA	NA	<5 UJ3	NA	5	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/05	NA	NA	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/05	<5 UJ3	NA	NA	3 J3	4.1 J	NA	NA	NA	NA	NA	2.5 J	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/05	NA	NA	NA	NA	4.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/05	<5 UJ	NA	NA	<5 UJ	3.9 J	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/05	NA	NA	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/06	<5 U	NA	NA	<5 U	<5 UJ3	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/06	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/06	<5 U	NA	NA	1.9 J	3.9 J	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/06	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/06	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/06	<5 U	NA	NA	<5 UJ	<5 U	NA	NA	NA	NA	NA	<5 UJ	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/06	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02/07	<5 U	NA	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/07	<5 U	NA	<5 U	<5 U	<5 U	<5 UJ	NA	NA	NA	NA	<5 UJ	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/07	<5 U	NA	<5 U	<5 U	<5 U	<5 U	NA	NA	NA	NA	<5 UJ	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/07	<5 U	NA	4.6 J	5.7 J	6.3 J	6.2 J	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
02/08	<5 U	NA	<5 U	<5 UJ	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
04/08	<5 U	NA	<5 U	<5 U	3 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
04/08	NA	NA	<1.6 U	<3 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/08	<5 U	NA	18.4	14.7	17.1	18.3	NA	NA	NA	NA	NA	NA	NA	NA	<5 UJ	NA	<5 U	NA	NA	NA	NA	NA
07/08	NA	NA	NA	NA	NA	16.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/08	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/08	<5 UJ	NA	NA	NA	NA	NA	1.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/09	<5 U	NA	<5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA
03/09	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/09	<5 U	NA	NA	NA	NA	NA	23.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/09	<5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/09	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

µg/L	micrograms per liter
NA	not analyzed
<	nondetect
J	estimated value
U	value was not detected above the reporting limit
	Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Table A2-3. Analytical Results for Nickel in Groundwater
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Date	IR02MW101A1 µg/L	IR02MW114A2 µg/L	IR02MW141A µg/L	IR02MW298A µg/L	IR02MW373A µg/L	IR02MW89A µg/L	IR02MW93A µg/L	IR02MWB-1 µg/L	IR02MWB-2 µg/L	IR02MWB-3 µg/L	IR02MWB-5 µg/L	IR03MW226A µg/L	IR03MW342A µg/L	IR03MWO-1 µg/L	IR04MW35A µg/L	IR04MW40A µg/L	IR12MW18A µg/L	IR14MW09A µg/L	IR14MW12A µg/L	IR15MW09F µg/L
03/91	NA	NA	NA	NA	NA	NA	<14.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/91	NA	NA	NA	NA	NA	NA	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	147	250	NA	125	102	NA
11/91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	302	NA	130	NA	NA
01/92	<17 UJ3	18.6 J3	NA	NA	NA	<28.8 U	<17 UJ3	92.1 J3	125 J3	<28.8 U	47.2	57.8 J3	NA	365 J3	NA	NA	NA	NA	NA	NA
01/92	<17 UJ3	NA	NA	NA	NA	NA	<17 UJ3	88.3 J3	NA	NA	NA	42.6 J3	NA	237 J3	NA	NA	NA	NA	NA	NA
02/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.51	NA	NA	29.8	<28.8 U	NA
02/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.73	NA	<28.8 U	NA	NA
05/92	NA	NA	35.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/92	NA	NA	34.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42.9 J3	NA	NA	NA	46.1	34.8	NA	NA	NA	NA
06/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 J3	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/92	202	267	1,450	NA	NA	105	NA	596 J2	235 J2	269	NA	<17.3 U	74.8 J2	1,140	NA	NA	NA	NA	NA	NA
07/92	NA	NA	1,450	200 J2	NA	NA	NA	1,470 J2	NA	NA	NA	146	NA	NA	NA	NA	NA	NA	NA	NA
08/92	22.6	NA	32	NA	NA	<17.3 U	256	696	71.1	<17.3 U	<17.3 U	<17.3 U	332	<17.3 U	NA	NA	213	NA	NA	26.4
08/92	NA	22.2	42.2	41.6	NA	NA	NA	NA	NA	<17.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	205	56.97	<4.8 UJ9	10.47
09/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	214	NA	NA	NA
03/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.3 U	NA	NA	NA	NA	NA	NA	NA
11/95	NA	NA	NA	NA	28.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/96	NA	NA	NA	NA	543	NA	NA	NA	NA	NA	NA	NA	<0.7 U	NA	NA	NA	153	NA	NA	8.9
03/96	NA	NA	NA	23.1	NA	NA	NA	NA	NA	NA	NA	NA	<0.7 U	NA	NA	NA	154	NA	NA	NA
05/96	NA	NA	NA	NA	554	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/01	<17.9 U1J9	9.9 J	4.1 J	22.5 J	1,460	<1.9 U2	<8.9 U1	240	1,720	8.5 J	3,430	NA	2.2 J	NA	28.9 J	56.5	124	87.5	<1.3 U	NA
03/01	NA	NA	NA	NA	NA	NA	NA	198	NA	8.1 J	NA	NA	NA	NA	NA	NA	122	NA	NA	NA
07/02	26.9	<013 U1	<3.5 U1	41.4	753	<20 U	<20 U	NA	505	<20 U	<20 U	NA	<20 U	NA	41.5	40.8	123	29.8	<20 U	NA
07/02	NA	NA	NA	NA	NA	<20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/02	NA	NA	NA	NA	NA	NA	NA	7.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/02	18 J	16.5 J	<1.9 U1	43.2	452	<0.9 U	2.9 J	48.8	120	1.1 J	<6.5 U1	NA	<0.9 U	NA	38.9	24.5	127	19.4 J	2.3 J	NA
09/02	NA	NA	<2 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/04	NA	NA	NA	NA	NA	NA	NA	NA	277	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
09/04	NA	NA	NA	NA	NA	NA	NA	NA	364	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
11/04	NA	NA	NA	NA	NA	NA	NA	9.6	76.2	<10 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
11/04	NA	NA	NA	NA	NA	NA	NA	NA	60.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/05	NA	NA	NA	NA	NA	NA	NA	19	NA	13.2 J3	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
06/05	NA	NA	NA	NA	NA	NA	NA	32.2	NA	NA	NA	NA	7.7	NA	NA	NA	NA	NA	NA	NA
09/05	NA	NA	NA	NA	NA	NA	NA	39.3	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
01/06	NA	NA	NA	NA	NA	NA	NA	17.3	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
01/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
03/06	NA	NA	NA	NA	NA	NA	NA	19.9	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
05/06	NA	NA	NA	NA	NA	NA	NA	17.8 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
09/06	NA	NA	NA	NA	NA	NA	NA	10.1	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
09/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
12/06	NA	NA	NA	NA	NA	NA	NA	30.4	NA	NA	NA	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA
02/07	NA	NA	NA	NA	NA	NA	NA	11.8	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
05/07	NA	NA	NA	NA	NA	NA	NA	21.1	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
08/07	NA	NA	NA	NA	NA	NA	NA	29.2 J	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
10/07	NA	NA	NA	NA	NA	NA	NA	13	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
02/08	NA	NA	NA	NA	NA	NA	NA	16.9	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
04/08	NA	NA	NA	NA	NA	NA	NA	15	NA	NA	NA	NA	3.9 J	NA	NA	NA	NA	NA	NA	NA
07/08	5.3	NA	NA	NA	NA	NA	NA	22.5 J	NA	NA	NA	NA	NA	NA	NA	33.5 J	141	NA	NA	NA
09/08	NA	NA	NA	NA	NA	NA	NA	NA	170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/08	NA	NA	NA	NA	281	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	136	NA	NA	NA
03/09	<5 U	NA	NA	NA	NA	NA	NA	1.6 J	270 J	NA	NA	NA	NA	NA	NA	52.9	129	NA	NA	NA
04/09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	123	NA	NA	NA
05/09	NA	NA	NA	NA	941	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	NA	NA	NA
07/09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	152	NA	NA	NA

Notes:
µg/L micrograms per liter
NA not analyzed
< nondetect
J estimated value
U value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Table A2-4. Analytical Results for Zinc in Groundwater

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

	IR02MW126A	IR02MW141A	IR02MW300A	IR02MW301A	IR02MW373A	IR02MW375A	IR02MWB-1	IR02MWB-2	IR02MWB-3	IR03MW218A2	IR03MW226A	IR03MW342A	IR03MWO-1	IR38MW02A	PA36MW03A	PA50MW10A
Date	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
01/92	<13.5 U1	NA	NA	NA	NA	NA	<14.2 U1	<16.4 U1	<1.9 U	6.7	125	NA	<1.9 U	NA	NA	NA
01/92	NA	NA	NA	NA	NA	NA	<15.4 U1	NA	NA	NA	93.3	NA	<1.9 U	NA	NA	NA
05/92	NA	136	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05/92	NA	154	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/92	<16.5 U	30,600	87.9 J2	NA	NA	NA	<16.5 U	100 J2	4,880	94.5	<16.5 U	208 J2	2,400	NA	NA	NA
07/92	125	31,100	NA	NA	NA	NA	99 J2	NA	NA	NA	1,180	NA	NA	NA	NA	NA
08/92	<16.5 U	154	21.5	NA	NA	NA	<16.5 U	<16.5 U	<16.5 U	<16.5 U	32.9	866	<16.5 U	NA	NA	NA
08/92	NA	121	NA	NA	NA	NA	NA	NA	<16.5 U	NA	NA	NA	NA	NA	NA	NA
02/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3	NA
02/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA
04/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25.1
06/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.96 J4	NA	NA
10/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95.85 J4	NA	NA
07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.2 U1J29	NA	NA	NA	NA
07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11/95	NA	NA	NA	NA	<39.7 U2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
01/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.8 U2	NA	NA
01/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<17 U2	NA	NA
02/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<12.6 U1J9	365	NA
03/96	NA	NA	174 J9	NA	4,200	NA	NA	NA	NA	NA	NA	<19.1 U1	NA	NA	1,340	NA
03/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<12.6 U1	NA	NA	NA	NA
05/96	NA	NA	NA	NA	3,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<22.7
11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	396
11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	344
03/01	37.5	42 J4	117	NA	9,970	NA	<0.8 UJ4	<4.8 U	91 J4	29.4 J4	NA	66.2 J4	NA	NA	NA	<4.3
03/01	NA	NA	NA	NA	NA	NA	<0.8 UJ4	NA	88.5 J4	120 J4	NA	NA	NA	NA	NA	NA
07/02	NA	<21.3 U2	125	NA	NA	NA	NA	<4.6 U2	<11 U1	<2.7 U2	NA	<3.1 U2J9	NA	NA	621	<2.9
07/02	NA	NA	NA	NA	4,930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08/02	240	NA	NA	NA	NA	NA	2.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
09/02	<98.6 U2	15.9	145	NA	2,970	NA	5.7 J	<2 U	<2 U	<2 U	NA	35.2	NA	NA	556	<2.0
06/04	252 J3	NA	108	NA	NA	NA	NA	<50 U	37.5 J	<50 U	NA	<50 U	NA	NA	NA	NA
09/04	221	NA	182 J	NA	NA	NA	NA	<250 U	<50 U	<50 U	NA	<50 U	NA	NA	NA	NA
11/04	157	NA	88.1 J	NA	NA	NA	<50 U	<100 U	<100 U	<50 U	NA	<50 U	NA	NA	NA	NA
11/04	NA	NA	NA	NA	NA	NA	NA	<100 U	NA	NA	NA	NA	NA	NA	NA	NA
03/05	625 J3	NA	93.5 J3	NA	NA	NA	<50 U	NA	<50 UJ3	50	NA	<50 U	NA	NA	NA	NA
06/05	174 J3	NA	NA	NA	NA	NA	50	NA	NA	<50 U	NA	<50 U	NA	NA	NA	NA
09/05	<166 UJ	NA	NA	NA	NA	NA	<50 U	NA	NA	<50 U	NA	<50 U	NA	NA	NA	NA
01/06	1,620	NA	NA	NA	NA	NA	<50 U	NA	NA	<50 U	NA	<50 U	NA	NA	NA	NA
01/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	NA	NA
03/06	2,320 J	NA	NA	NA	NA	NA	<50 U	NA	NA	NA	NA	<50 U	NA	NA	NA	NA
05/06	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
06/06	1,050	NA	NA	NA	NA	NA	NA	NA	NA	<50 U	NA	<50 U	NA	NA	NA	NA
09/06	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	<50 U	NA	<50 U	NA	NA	NA	NA
12/06	857	NA	NA	NA	NA	NA	<50 U	NA	NA	<6.9 UJ	NA	<6.2 UJ	NA	NA	NA	NA
02/07	514	NA	NA	NA	NA	NA	<50 U	NA	NA	7.9 J	NA	<50 U	NA	NA	NA	NA
05/07	241 J	NA	NA	<50 UJ	NA	NA	<50 U	NA	NA	4.4 J	NA	5.8 J	NA	NA	NA	NA
08/07	206	NA	NA	<50 U	NA	NA	<50 UJ	NA	NA	<50 UJ	NA	<50 U	NA	NA	NA	NA
10/07	216	NA	NA	<50 UJ	NA	NA	40.3 J	NA	NA	<50 U	NA	<50 U	NA	NA	NA	NA
02/08	195	NA	NA	<50 U	NA	NA	<50 U	NA	NA	NA	NA	<6.9 U	NA	NA	NA	NA
03/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	NA	NA	NA	NA
04/08	178	NA	NA	<50 U	NA	NA	<50 U	NA	NA	NA	NA	7.3 J	NA	NA	NA	NA
06/08	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	NA	NA	NA	NA
07/08	120	NA	NA	NA	NA	NA	<50 UJ4	NA	NA	NA	NA	NA	NA	NA	425	NA
09/08	NA	NA	NA	NA	NA	88.8 J	NA	6.8	NA	NA	NA	NA	NA	NA	NA	NA
10/08	<50 UJ	NA	NA	NA	1,530	<50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03/09	30.8 J	NA	NA	NA	NA	<50 UJ	<50 U	<50 U	NA	NA	NA	NA	NA	NA	164 J	NA
04/09	<50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,050	NA
05/09	<50 U	NA	NA	NA	7,540 R	<50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07/09	44.3 J	NA	NA	NA	NA	<50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/09	35.2 J	NA	NA	NA	NA	37.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

µg/L	micrograms per liter
NA	not analyzed
<	nondetect
J	estimated value
R	rejected value
U	value was not detected above the reporting limit
	Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Table A2-5. Summary of Analytical Results for Anions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9202A009	IR02MW101A1	01/07/1992	0	A	NA	NA	1,600	NA	0.11	0.33	NA	130	NA	<0.04 UJ3	<0.04 U	NA	NA
9202A010	IR02MW101A1	01/07/1992	0	A	NA	NA	1,380	NA	<0.1 U	0.14	NA	78.8	NA	<0.04 UJ3	<0.04 U	NA	NA
9228J155	IR02MW101A1	07/08/1992	0	A	NA	NA	750	NA	NA	<0.2 U	NA	194	NA	<0.05 U	<0.5 U	NA	NA
9235J219	IR02MW101A1	08/24/1992	0	A	NA	NA	1,020	NA	NA	<2 U	NA	177	NA	<0.5 U	<5 U	NA	NA
9228A012	IR02MW101A2	01/08/1992	0	A	NA	NA	8,460	NA	0.1	0.65	NA	68.7	NA	<0.04 UJ3	<0.04 U	NA	NA
9228J159	IR02MW101A2	07/09/1992	0	A	NA	NA	7,570	NA	NA	<2 U	NA	38.7	NA	<0.5 U	<5 U	NA	NA
9235J224	IR02MW101A2	08/25/1992	0	A	NA	NA	7,990	NA	NA	<2 U	NA	51.3	NA	<0.5 U	<5 U	NA	NA
9203A090	IR02MW114A1	01/15/1992	0	A	NA	NA	2,840	NA	0.31	0.12	NA	1,730	NA	<0.04 U	<0.04 U	NA	NA
9228J146	IR02MW114A1	07/07/1992	0	A	NA	NA	224	NA	NA	<2 U	NA	1,070	NA	<0.5 U	<5 U	NA	NA
9235J243	IR02MW114A1	08/27/1992	0	A	NA	NA	345	NA	NA	<2 U	NA	1,330	NA	<0.5 U	<5 U	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	NA	NA	1,300	NA	0.2	0.29	NA	1,790	NA	0.44 J3	0.06	NA	NA
9228J166	IR02MW114A2	07/10/1992	0	A	NA	NA	1,780	NA	NA	<2 U	NA	603	NA	<0.5 U	<5 U	NA	NA
9235J226	IR02MW114A2	08/25/1992	0	A	NA	NA	2,110	NA	NA	<2 U	NA	686	NA	<0.5 U	<5 U	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	NA	NA	7,600	NA	<0.1 U	0.11	NA	92.3	NA	<0.04 U	<0.04 U	NA	NA
9228J153	IR02MW114A3	07/08/1992	0	A	NA	NA	7,460	NA	NA	<2 U	NA	115	NA	<0.5 U	<5 U	NA	NA
9235J232	IR02MW114A3	08/26/1992	0	A	NA	NA	7,320	NA	NA	<2 U	NA	132	NA	<0.5 U	<5 U	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	NA	NA	5,760	NA	0.76	0.47	NA	101	NA	<0.04 UJ3	<0.04 U	NA	NA
9228J157	IR02MW126A	07/08/1992	0	A	NA	NA	2,640	NA	NA	<2 U	NA	148	NA	<0.5 U	<5 U	NA	NA
9228J158	IR02MW126A	07/08/1992	0	A	NA	NA	2,850	NA	NA	<2 U	NA	163	NA	<0.5 U	<5 U	NA	NA
9235X717	IR02MW126A	08/25/1992	0	A	NA	NA	3,080	NA	NA	<2 U	NA	101	NA	<0.5 U	<5 U	NA	NA
0110P011	IR02MW126A	03/13/2001	0	A	NA	NA	1,820	NA	NA	NA	NA	143	NA	0.33	0.006	0.34	NA
9218Z059	IR02MW141A	05/07/1992	0	A	NA	NA	2,040	NA	NA	<2 U	NA	524	NA	<0.5 U	<0.5 U	NA	NA
9218Z060	IR02MW141A	05/07/1992	0	A	NA	NA	2,070	NA	NA	<2 U	NA	531	NA	<0.5 U	<0.5 U	NA	NA
9230J177	IR02MW141A	07/21/1992	0	A	NA	NA	4,070	NA	NA	<2 U	NA	811	NA	<0.5 U	<5 U	NA	NA
9230J178	IR02MW141A	07/21/1992	0	A	NA	NA	4,450	NA	NA	<2 U	NA	851	NA	<0.5 U	<5 U	NA	NA
9235X715	IR02MW141A	08/25/1992	0	A	NA	NA	4,560	NA	NA	<2 U	NA	773	NA	<0.5 U	<5 U	NA	NA
9235X716	IR02MW141A	08/25/1992	0	A	NA	NA	4,890	NA	NA	<2 U	NA	811	NA	<0.5 U	<5 U	NA	NA
0110P015	IR02MW141A	03/14/2001	0	A	NA	NA	2,700	NA	NA	NA	NA	463	NA	0.02	<0.005 U	0.02	NA
0110P016	IR02MW141A	03/14/2001	0	A	NA	NA	2,340	NA	NA	NA	NA	461	NA	<0.01 U	<0.005 U	<0.01 U	NA
0231E002	IR02MW141A	07/29/2002	0	A	NA	NA	4,440	NA	NA	NA	NA	739	NA	<0.02 U	<0.04 U1	<0.02 U	NA
0239J001	IR02MW141A	09/23/2002	0	A	NA	NA	4,080	NA	NA	NA	NA	599	NA	<0.05 U1J5	<0.02 U	<0.05 U1	NA
9205X478	IR02MW146A	01/30/1992	0	A	NA	NA	15,400	NA	NA	<20 U	NA	1,150	NA	<5 U	NA	NA	NA
9205X479	IR02MW146A	01/30/1992	0	A	NA	NA	15,400	NA	NA	<20 U	NA	1,130	NA	<5 U	NA	NA	NA
9613W194	IR02MW146A	03/26/1996	0	A	NA	NA	12,400	NA	0.31	<5 U	NA	640	NA	<2 U	<3 U	NA	NA
9622J162	IR02MW146A	05/29/1996	0	A	NA	NA	16,000	NA	0.32	<1 U	NA	647	NA	<0.4 U	<30 U	NA	NA
9622J163	IR02MW146A	05/29/1996	0	A	NA	NA	17,000	NA	0.33	<1 U	NA	753	NA	<0.4 U	<6 U	NA	NA
9203X415	IR02MW147A	01/15/1992	0	A	NA	NA	13,500	NA	0.18	0.11	NA	189 J3	NA	0.38	<0.04 U	NA	NA
9228J167	IR02MW147A	07/10/1992	0	A	NA	NA	12,800	NA	NA	<20 U	NA	202	NA	<5 U	<50 U	NA	NA
9235X719	IR02MW147A	08/25/1992	0	A	NA	NA	12,500	NA	NA	<20 U	NA	165	NA	<5 U	<50 U	NA	NA
9112X067	IR02MW149A	03/21/1991	0	A	NA	NA	9,630	NA	<50 U	<20 U	NA	376	NA	<5 U	NA	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	NA	NA	11,500	NA	NA	<20 U	NA	350	NA	<5 U	<50 U	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	NA	NA	14,200	NA	NA	<20 U	NA	143	NA	<5 U	NA	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	NA	NA	14,000	NA	NA	<20 U	NA	138	NA	<5 U	NA	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	NA	NA	14,200	NA	0.15	<500 U	NA	<5 U	NA	<200 U	<300 U	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9622J166	IR02MW173A	05/30/1996	0	A	NA	NA	21,000	NA	0.17	<5 U	NA	<5 U	NA	<2 U	<3 U	NA	NA
9203A089	IR02MW175A	01/14/1992	0	A	NA	NA	16,500	<0.01 U	0.51	0.25	NA	1,960	NA	<0.04 U	<0.04 U	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	NA	NA	15,700	NA	NA	<20 U	NA	1,970	NA	<5 U	<50 U	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	NA	NA	16,200	NA	NA	<20 U	NA	1,980	NA	<5 U	<50 U	NA	NA
9235J230	IR02MW175A	08/25/1992	0	A	NA	NA	16,700	NA	NA	<20 U	NA	2,040	NA	<5 U	<50 U	NA	NA
9203A086	IR02MW179A	01/14/1992	0	A	NA	NA	15,300	<0.01 U	0.61	0.29	NA	9,202	NA	<0.04 U	<0.04 U	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	NA	NA	17,300	NA	NA	<20 U	NA	2,400	NA	<5 U	<50 U	NA	NA
9235J231	IR02MW179A	08/25/1992	0	A	NA	NA	16,900	NA	NA	<20 U	NA	2,390	NA	<5 U	<50 U	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	NA	NA	7,500	<0.01 U	0.58	2.3	NA	1,050	NA	<0.04 U	<0.04 U	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	NA	NA	7,980	<0.01 U	0.54	2.5	NA	2,350	NA	<0.04 U	<0.04 U	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	NA	NA	11,200	NA	NA	<20 U	NA	318	NA	<5 U	<5 U	NA	NA
9235J234	IR02MW183A	08/26/1992	0	A	NA	NA	8,860	NA	NA	3.1	NA	424	NA	<0.5 U	<5 U	NA	NA
9112X063	IR02MW196A	03/21/1991	0	A	NA	NA	6,740	NA	<50 U	<20 U	NA	1,040	NA	<5 U	NA	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	NA	NA	6,610	NA	<50 U	<20 U	NA	1,020	NA	<5 U	NA	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	NA	NA	6,200	NA	0.34	0.55	NA	1,070	NA	0.39 J3	<0.04 U	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	NA	NA	4,570	NA	NA	<2 U	NA	878	NA	<0.5 U	<5 U	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	NA	NA	15,500	NA	0.62	0.31	NA	2,410	NA	<0.04 UJ3	<0.04 U	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	NA	NA	17,400	NA	NA	<20 U	NA	2,450	NA	<5 U	<50 U	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	NA	NA	18,300	NA	NA	<20 U	NA	2,620	NA	<5 U	<50 U	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	NA	NA	17,400	NA	0.5	2.1	NA	2,630	NA	<0.04 UJ3	<0.04 U	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	NA	NA	16,100	NA	NA	<20 U	NA	2,260	NA	<5 U	<50 U	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	NA	NA	16,400	NA	NA	<20 U	NA	2,230	NA	<5 U	<50 U	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	NA	NA	51,100	NA	0.57	0.49	NA	2,680	NA	<0.04 UJ3	<0.04 U	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	NA	NA	18,100	NA	0.57	0.44	NA	3,100	NA	<0.04 UJ3	<0.04 U	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	NA	NA	15,600	NA	NA	<20 U	NA	2,210	NA	<5 U	<50 U	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	NA	NA	15,600	NA	NA	<20 U	NA	2,210	NA	<5 U	<50 U	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	NA	NA	17,300	NA	NA	<20 U	NA	2,470	NA	<5 U	<50 U	NA	NA
9228J152	IR02MW298A	07/08/1992	0	A	NA	NA	1,530	NA	NA	<2 U	NA	776	NA	<0.5 U	<5 U	NA	NA
9235X728	IR02MW298A	08/27/1992	0	A	NA	NA	2,660	NA	NA	<2 U	NA	859	NA	0.62	<5 U	NA	NA
9612W182	IR02MW298A	03/22/1996	0	A	NA	NA	126	NA	0.17	<0.05 U	NA	341	NA	0.47	<0.03 U	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	NA	NA	2,680	NA	NA	<2 U	NA	678	NA	<0.5 U	<5 U	NA	NA
9235J238	IR02MW299A	08/26/1992	0	A	NA	NA	4,260	NA	NA	<2 U	NA	869	NA	<0.5 U	<5 U	NA	NA
9612J946	IR02MW299A	03/21/1996	0	A	NA	NA	163	NA	0.16	<0.05 U	NA	180	NA	0.05	<0.03 U	NA	NA
9917Z020	IR02MW299A	04/26/1999	0	A	NA	NA	429	NA	NA	NA	NA	292	<0.2 U	NA	NA	<0.01 U	NA
9228X660	IR02MW300A	07/06/1992	0	A	NA	NA	15,200	NA	NA	<20 U	NA	1,990	NA	<5 U	<50 U	NA	NA
9235X726	IR02MW300A	08/26/1992	0	A	NA	NA	15,800	NA	NA	<20 U	NA	2,150	NA	<5 U	<50 U	NA	NA
9612J943	IR02MW300A	03/20/1996	0	A	NA	NA	6,760	NA	0.78	<0.25 U	NA	964	NA	0.12	<3 U	NA	NA
9619J106	IR02MW372A	05/10/1996	0	A	NA	NA	785	NA	1.5	1.1	NA	146	NA	<0.1 U	<0.6 U	NA	NA
0112P003	IR02MW372A	03/26/2001	0	A	NA	NA	400	NA	NA	NA	NA	532	NA	<0.01 U	<0.005 U	<0.01 U	NA
0229P009	IR02MW372A	07/17/2002	0	A	NA	NA	141	NA	NA	NA	NA	964	NA	<0.02 U	<0.02 U	<0.02 U	NA
0237E008	IR02MW372A	09/10/2002	0	A	NA	NA	198	NA	NA	NA	NA	950	NA	<0.7 U1	<0.03 U1	0.7	NA
0237E009	IR02MW372A	09/10/2002	0	A	NA	NA	203	NA	NA	NA	NA	936	NA	<0.02 U	<0.03 U1	<0.02 U	NA
9619J107	IR02MW373A	05/10/1996	0	A	NA	NA	84.6	NA	1.2	<0.25 U	NA	230	NA	0.22	1.2	NA	NA
0112T001	IR02MW373A	03/26/2001	0	A	NA	NA	62.3	NA	NA	NA	NA	414	NA	0.14	<0.005 U	0.14	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
0230D006	IR02MW373A	07/23/2002	0	A	NA	NA	132	NA	NA	NA	NA	359	NA	<0.02 U	<0.03 U1	<0.02 U	NA
0238S005	IR02MW373A	09/17/2002	0	A	NA	NA	286	NA	NA	NA	NA	264 J3	NA	0.02 R1	<0.02 U	0.02 R1	NA
9113X078	IR02MW87A	03/26/1991	0	A	NA	NA	1,390	NA	<5 U	<2 U	NA	65.3	NA	<0.5 U	<5 U	NA	NA
9202A001	IR02MW87A	01/06/1992	0	A	NA	NA	1,040	NA	<0.1 U	0.37	NA	80	NA	<0.04 UJ3	<0.04 U	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	NA	NA	967	NA	NA	<2 U	NA	42	NA	<0.5 U	<5 U	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	NA	NA	287	NA	NA	<0.2 U	NA	128	NA	<0.05 U	<0.5 U	NA	NA
9230J176	IR02MW89A	07/21/1992	0	A	NA	NA	332	NA	NA	<0.2 U	NA	119	NA	<0.05 U	<0.5 U	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	NA	NA	398	NA	NA	<0.2 U	NA	110	NA	<0.05 U	<0.5 U	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	NA	NA	1,310	NA	<5 U	<2 U	NA	105	NA	<0.5 U	NA	NA	NA
9112X071	IR02MW93A	03/22/1991	0	A	NA	NA	1,370	NA	<5 U	<2 U	NA	104	NA	<0.5 U	NA	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	NA	NA	1,640	NA	<0.1 U	0.12	NA	115	NA	<0.04 UJ3	<0.04 U	NA	NA
9202A004	IR02MW93A	01/06/1992	0	A	NA	NA	<1 U	NA	<0.1 U	0.05	NA	117	NA	<0.04 UJ3	<0.04 U	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	NA	NA	1,100	NA	NA	<2 U	NA	84.4	NA	<0.5 U	<5 U	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	NA	NA	8,540	NA	<50 U	<20 U	NA	1,310	NA	<5 U	NA	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	NA	NA	10,800	NA	0.17	0.18	NA	1,940	NA	<0.04 U	<0.04 U	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	NA	NA	5,280	NA	0.17	0.16	NA	1,980	NA	<0.04 U	<0.04 U	NA	NA
9235J220	IR02MW97A	08/24/1992	0	A	NA	NA	10,100	NA	NA	<20 U	NA	1,480	NA	<5 U	<50 U	NA	NA
9235J221	IR02MW97A	08/24/1992	0	A	NA	NA	10,400	NA	NA	<20 U	NA	1,530	NA	<5 U	<50 U	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	NA	NA	5,320	NA	NA	NA	NA	818	NA	0.03	<0.005 U	0.03	NA
0230P016	IR02MW97A	07/26/2002	0	A	NA	NA	8,680	NA	NA	NA	NA	1,210	NA	0.7	0.008 J2	0.7	NA
0238E003	IR02MW97A	09/16/2002	0	A	NA	NA	9,770	NA	NA	NA	NA	1,310 J3	NA	<0.02 UJ5	<0.02 U	<0.02 UJ5	NA
9203A028	IR02MWB-1	01/13/1992	0	A	NA	NA	7,580	NA	0.73	0.62	NA	2,870	NA	<0.04 U	<0.04 U	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	NA	NA	9,630	NA	0.78	0.85	NA	2,570	NA	<0.04 U	<0.04 U	NA	NA
9228J148	IR02MWB-1	07/07/1992	0	A	NA	NA	7,530	NA	NA	<2 U	NA	2,660	NA	<0.5 U	<5 U	NA	NA
9228J149	IR02MWB-1	07/07/1992	0	A	NA	NA	7,120	NA	NA	<2 U	NA	2,940	NA	1	<5 U	NA	NA
9235J239	IR02MWB-1	08/27/1992	0	A	NA	NA	8,060	NA	NA	<20 U	NA	2,960	NA	<5 U	<5 U	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	NA	NA	16,900	NA	0.31	0.35	NA	2,450	NA	<0.04 UJ3	<0.04 U	NA	NA
9228J151	IR02MWB-2	07/07/1992	0	A	NA	NA	15,400	NA	NA	<20 U	NA	2,250	NA	<5 U	<50 U	NA	NA
9235J240	IR02MWB-2	08/27/1992	0	A	NA	NA	17,500	NA	NA	<20 U	NA	2,460	NA	<5 U	<50 U	NA	NA
0112T011	IR02MWB-2	03/28/2001	0	A	NA	NA	7,410	NA	NA	NA	NA	1,070	NA	<0.01 U	<0.005 U	<0.01 U	NA
9204X432	IR02MWB-3	01/20/1992	0	A	NA	NA	12,000	NA	NA	<2 U	NA	927	NA	<0.5 U	<5 U	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	NA	NA	4,600	NA	NA	<2 U	NA	182	NA	<0.5 U	<5 U	NA	NA
9235J241	IR02MWB-3	08/27/1992	0	A	NA	NA	8,480	NA	NA	<2 U	NA	425	NA	<0.5 U	<5 U	NA	NA
9235J242	IR02MWB-3	08/27/1992	0	A	NA	NA	6,270	NA	NA	<2 U	NA	222	NA	<0.5 U	<5 U	NA	NA
0110P020	IR02MWB-3	03/15/2001	0	A	NA	NA	5,340	NA	NA	NA	NA	378	NA	<0.01 U	0.008	0.01	NA
9204X441	IR02MWB-5	01/21/1992	0	A	NA	NA	12,800	NA	NA	<2 U	NA	1,460	NA	<0.5 U	<5 U	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	NA	NA	12,900	NA	NA	<20 U	NA	1,680	NA	<5 U	<50 U	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	NA	NA	13,600	NA	NA	<20 U	NA	1,780	NA	<5 U	<50 U	NA	NA
9235J245	IR02MWB-5	08/28/1992	0	A	NA	NA	11,900	NA	NA	<20 U	NA	1,190	NA	<5 U	<50 U	NA	NA
0110D004	IR02MWB-5	03/13/2001	0	A	NA	NA	8,020	NA	NA	NA	NA	929	NA	0.02	<0.005 U	0.02	NA
9204X456	IR03MW218A1	01/24/1992	0	A	NA	NA	1,040	NA	NA	<2 U	NA	788	NA	<0.5 U	<0.5 U	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	NA	NA	6,100	NA	NA	<2 U	NA	317	NA	<0.5 U	<5 U	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	NA	NA	4,480	NA	NA	<2 U	NA	22.5	NA	<0.5 U	<5 U	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	NA	NA	13,700	NA	0.28	0.13	NA	2,180	NA	<0.04 U	<0.04 U	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9228X664	IR03MW218A2	07/09/1992	0	A	NA	NA	12,400	NA	NA	<20 U	NA	<100 U	NA	<5 U	<50 U	NA	NA
9235X730	IR03MW218A2	08/27/1992	0	A	NA	NA	13,000	NA	NA	<20 U	NA	<100 U	NA	<5 U	<50 U	NA	NA
0110T012	IR03MW218A2	03/14/2001	0	A	NA	NA	7,120	NA	NA	NA	NA	<0.2 U	NA	<0.01 U	0.008	<0.01 U	NA
0231D006	IR03MW218A2	07/30/2002	0	A	NA	NA	7,650	NA	NA	NA	NA	11	NA	<0.02 U	<0.02 U	<0.02 U	NA
0239A002	IR03MW218A2	09/23/2002	0	A	NA	NA	5,950	NA	NA	NA	NA	<1 U	NA	<0.02 UJ5	<0.02 U	<0.02 U	NA
9203X416	IR03MW218A3	01/16/1992	0	A	NA	NA	11,100	NA	0.52	0.00000081	NA	13.4	NA	<0.04 U	<0.04 U	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	NA	NA	13,600	NA	NA	<20 U	NA	140	NA	<5 U	<50 U	NA	NA
9235X729	IR03MW218A3	08/27/1992	0	A	NA	NA	14,500	NA	NA	<20 U	NA	178	NA	<5 U	<50 U	NA	NA
0110T014	IR03MW218A3	03/14/2001	0	A	NA	NA	11,500	NA	NA	NA	NA	10.6	NA	0.01	<0.005 U	0.01	NA
9204X451	IR03MW224A	01/23/1992	0	A	NA	NA	14,700	NA	NA	<20 U	NA	2,010	NA	<5 U	<5 U	NA	NA
9230J196	IR03MW224A	07/24/1992	0	A	NA	NA	12,700	NA	NA	<20 U	NA	1,680	NA	<5 U	<50 U	NA	NA
9235X734	IR03MW224A	08/28/1992	0	A	NA	NA	15,400	NA	NA	<20 U	NA	2,060	NA	<5 U	<50 U	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	NA	NA	14,800	NA	NA	<20 U	NA	1,990	NA	<5 U	<50 U	NA	NA
0109P003	IR03MW224A	03/06/2001	0	A	NA	NA	9,130	NA	NA	NA	NA	1,100	NA	0.03	<0.005 U	0.03	NA
0230A007	IR03MW224A	07/23/2002	0	A	NA	NA	7,940	NA	NA	NA	NA	982	NA	<0.02 U1	<0.04 U1	<0.06 U1	NA
0237S010	IR03MW224A	09/11/2002	0	A	NA	NA	10,000	NA	NA	NA	NA	1,110	NA	<0.02 U	0.02 J	<0.02 U	NA
9205X470	IR03MW225A	01/28/1992	0	A	NA	NA	13,300	NA	NA	<20 U	NA	1,020	NA	<5 U	<5 U	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	NA	NA	13,800	NA	NA	<20 U	NA	997	NA	<5 U	<5 U	NA	NA
9614Z024	IR03MW225A	04/03/1996	0	A	NA	NA	13,600	NA	0.27	<5 U	NA	1,500	NA	<0.02 U	<3 U	NA	NA
9625Z050	IR03MW225A	06/19/1996	0	A	NA	NA	10,600	NA	NA	<5 U	NA	1,130	NA	<0.2 U	<3 U	NA	NA
9205X461	IR03MW226A	01/27/1992	0	A	NA	NA	2,640	NA	NA	<2 U	NA	887	NA	0.8	<5 U	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	NA	NA	2,650	NA	NA	<2 U	NA	922	NA	1	<5 U	NA	NA
9230J197	IR03MW226A	07/24/1992	0	A	NA	NA	7,710	NA	NA	<2 U	NA	12.2	NA	<0.5 U	<5 U	NA	NA
9230J198	IR03MW226A	07/24/1992	0	A	NA	NA	6,420	NA	NA	<2 U	NA	12.8	NA	<0.5 U	<5 U	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	NA	NA	7,920	NA	NA	<2 U	NA	13.3	NA	<0.5 U	<5 U	NA	NA
9228X647	IR03MW342A	07/06/1992	0	A	NA	NA	15,200	NA	NA	<20 U	NA	220	NA	<5 U	<50 U	NA	NA
9235X736	IR03MW342A	08/28/1992	0	A	NA	NA	15,100	NA	NA	<20 U	NA	230	NA	<5 U	<50 U	NA	NA
9612J944	IR03MW342A	03/21/1996	0	A	NA	NA	4,630	NA	0.37	<10 U	NA	63	NA	<4 U	<6 U	NA	NA
9612J945	IR03MW342A	03/21/1996	0	A	NA	NA	4,530	NA	0.39	0.18	NA	64	NA	<0.02 U	<3 U	NA	NA
0110T017	IR03MW342A	03/15/2001	0	A	NA	NA	1,150	NA	NA	NA	NA	101	NA	<0.01 U	<0.005 U	<0.01 U	NA
0230A013	IR03MW342A	07/25/2002	0	A	NA	NA	2,940	NA	NA	NA	NA	8	NA	0.03 J	0.02	<0.05 U1	NA
0238J004	IR03MW342A	09/16/2002	0	A	NA	NA	2,500	NA	NA	NA	NA	6 J3	NA	0.02 J5	<0.02 U	0.02 J5	NA
9621J126	IR03MW369A	05/20/1996	0	A	NA	NA	19,100	NA	<0.1 U	<1 UJ5	NA	488	NA	<0.4 U	<60 UJ5	NA	NA
9620J125	IR03MW370A	05/16/1996	0	A	NA	NA	24,100	NA	0.24	<1 U	NA	113	NA	<4 U	<12 U	NA	NA
9620J123	IR03MW371A	05/16/1996	0	A	NA	NA	17,000	NA	0.58	<10 U	NA	1,520	NA	<4 U	<12 U	NA	NA
9620J124	IR03MW371A	05/16/1996	0	A	NA	NA	11,600	NA	0.57	<10 U	NA	1,630	NA	<4 U	<12 U	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	NA	NA	9,080	NA	NA	<2 U	NA	191	NA	<0.5 U	<5 U	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	NA	NA	8,850	NA	NA	<2 U	NA	<219 U	NA	<0.5 U	<5 U	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	NA	NA	10,800	NA	NA	<20 U	NA	<100 U	NA	<5 U	<50 U	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	NA	NA	10,500	NA	NA	<20 U	NA	<100 U	NA	<5 U	<50 U	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	NA	NA	390	NA	NA	<0.2 U	NA	143	NA	<0.05 U	<0.5 U	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	NA	NA	233	NA	NA	<0.6 UJ5	NA	106	NA	<0.2 U	NA	NA	NA
9225X620	IR04MW09A	06/15/1992	0	A	NA	NA	230	NA	NA	<0.2 U	NA	140	NA	<0.05 U	<0.5 U	NA	NA
9146X259	IR04MW13A	11/14/1991	0	A	NA	NA	1,580	NA	NA	<2 U	NA	353	NA	<0.5 U	NA	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9207X518	IR04MW13A	02/12/1992	0	A	NA	NA	1,370	NA	NA	<1.5 U	NA	346	NA	<0.5 U	NA	NA	NA
9207X519	IR04MW13A	02/12/1992	0	A	NA	NA	1,390	NA	NA	<1.5 U	NA	359	NA	<0.5 U	NA	NA	NA
9225X627	IR04MW13A	06/17/1992	0	A	NA	NA	1,390	NA	NA	<2 U	NA	345	NA	<0.5 U	<5 U	NA	NA
9225X628	IR04MW13A	06/17/1992	0	A	NA	NA	1,390	NA	NA	<2 U	NA	342	NA	<0.5 U	<5 U	NA	NA
0110P006	IR04MW13A	03/12/2001	0	A	NA	NA	1,130	NA	NA	NA	NA	273	NA	0.01	<0.005 U	0.01	NA
0229P012	IR04MW13A	07/18/2002	0	A	NA	NA	1,010	NA	NA	NA	NA	240	NA	<0.02 U1	<0.05 U1	<0.07 U1	NA
0238J002	IR04MW13A	09/16/2002	0	A	NA	NA	1,050	NA	NA	NA	NA	245 J3	NA	<0.02 UJ5	<0.02 U	<0.02 UJ5	NA
0427S052	IR04MW13A	06/28/2004	0	A	<0.5 U	NA	720	NA	<01 U	<02 U	NA	214	NA	<02 U	<01 U	NA	0.74
0438G051	IR04MW13A	09/16/2004	0	A	0.62	NA	1,030	NA	<01 U	<02 U	NA	225;<01 ;U	NA	3.4	<01 U	NA	0.98
0450G051	IR04MW13A	12/06/2004	0	A	<0.35 U	NA	979	NA	<01 U	<02 U	NA	218;<01 ;U	NA	<02 U	<01 U	NA	1.3
0509G009	IR04MW13A	03/03/2005	0	A	0.58	NA	1,210 J38	NA	0.1	<0.2 UJ5	333 J8	1	NA	<0.2 UJ5	<0.1 UJ5	NA	0.91
0526T039	IR04MW13A	06/27/2005	0	A	0.64	2.8	984	NA	0.2	0.4	216	1	NA	0.4	0.2	NA	0.46 J
0537T010	IR04MW13A	09/15/2005	0	A	<0.35 U	3.5	742	<0.01 U	0.11	<0.2 U	197	<1 U	NA	<0.2 U	<0.1 U	NA	0.67
0537T011	IR04MW13A	09/15/2005	0	A	0.41	3.7	794	<0.01 U	0.11	<0.2 U	201	0.65 J	NA	<0.2 U	<0.1 U	NA	1.3
0602D039	IR04MW13A	01/11/2006	0	A	0.52	5.6	909	NA	<0.2 U	<0.4 U	274	<1 U	NA	<0.4 U	<0.2 U	NA	0.59
0611J032	IR04MW13A	03/16/2006	0	A	0.21 J	8.2	1,060	NA	<0.1 U	<0.2 U	261	<1 UJ	NA	<0.2 U	<0.1 U	NA	0.72
0611J033	IR04MW13A	03/16/2006	0	A	0.25 J	8.3	905	NA	<0.1 U	<0.2 U	274	<1 UJ	NA	<0.2 U	<0.1 U	NA	0.52
0622T013	IR04MW13A	05/31/2006	0	A	0.57	15.7	937	NA	<0.1 UJ	<0.2 U	236	<1 U	NA	<0.2 U	<0.1 U	NA	0.89
0649D036	IR04MW13A	12/07/2006	0	A	0.8 J	3.1	791	NA	0.15	<0.2 U	214	<1 U	NA	2	<0.1 U	NA	1.1
0708G030	IR04MW13A	02/21/2007	0	A	0.42	7.7	929	NA	<1 U	<2 U	217	<1 U	NA	<2 U	<1 UJ	NA	0.53
0719W020	IR04MW13A	05/10/2007	0	A	0.62	4.7	762	NA	<0.2 U	0.4 R	216	<1 U	NA	0.4 R	0.2 R	NA	1
0734D031	IR04MW13A	08/20/2007	0	A	0.31 J	4	759	NA	0.16 J	<0.4 U	208	<1 U	NA	<0.4 U	<0.2 U	NA	0.94
0741D034	IR04MW13A	10/08/2007	0	A	0.47	3.8	850	NA	0.12	<0.2 U	195	1.1	NA	<0.2 U	<0.1 U	NA	1.2 J
0809H025	IR04MW13A	02/27/2008	0	A	0.6	5.4	1,020	NA	0.29	<0.4 U	215	1.3	NA	<0.4 U	<0.2 U	NA	0.84
9146X256	IR04MW31A	11/14/1991	0	A	NA	NA	1,990	NA	NA	<2 U	NA	315	NA	<0.5 U	NA	NA	NA
9207X517	IR04MW31A	02/12/1992	0	A	NA	NA	1,370	NA	NA	<1.5 U	NA	291	NA	<0.5 U	NA	NA	NA
9225X629	IR04MW31A	06/17/1992	0	A	NA	NA	1,480	NA	NA	<2 U	NA	333	NA	<0.5 U	<5 U	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	NA	NA	5,320	NA	NA	<2 U	NA	478	NA	<0.5 U	<5 U	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	NA	NA	471	NA	NA	<1.5 U	NA	118	NA	1	NA	NA	NA
9225X623	IR04MW35A	06/15/1992	0	A	NA	NA	3,520	NA	NA	<2 U	NA	394	NA	<0.5 U	<5 U	NA	NA
0111P003	IR04MW35A	03/19/2001	0	A	NA	NA	1,080	NA	NA	NA	NA	168	NA	0.89	<0.005 U	0.89	NA
0229E020	IR04MW35A	07/19/2002	0	A	NA	NA	874	NA	NA	NA	NA	193	NA	<0.08 U1	<0.004 U	<0.08 U1	NA
0237G008	IR04MW35A	09/10/2002	0	A	NA	NA	798	NA	NA	NA	NA	194	NA	<0.02 U	0.03 J	<0.02 U	NA
9146X254	IR04MW36A	11/14/1991	0	A	NA	NA	565	NA	NA	<0.2 U	NA	81.8	NA	<0.05 U	<0.5 U	NA	NA
9146X255	IR04MW36A	11/14/1991	0	A	NA	NA	553	NA	NA	<0.2 U	NA	79.1	NA	<0.05 U	<0.5 U	NA	NA
9207X523	IR04MW36A	02/13/1992	0	A	NA	NA	495	NA	NA	<0.6 UJ5	NA	72.9	NA	<0.2 U	NA	NA	NA
9207X524	IR04MW36A	02/13/1992	0	A	NA	NA	472	NA	NA	<0.6 UJ5	NA	73	NA	<0.2 U	NA	NA	NA
9225X630	IR04MW36A	06/17/1992	0	A	NA	NA	405	NA	NA	<0.2 U	NA	63.6	NA	<0.05 U	<0.5 U	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	<0.35 U	NA	208	NA	<0.1 U	<0.2 U	NA	42.2;<01 ;U	NA	<0.2 U	<0.1 U	NA	0.7
0438T014	IR04MW36A	09/16/2004	0	A	<0.35 U	NA	122	NA	<0.1 U	<0.2 U	NA	30.9;<01 ;U	NA	<0.2 U	<0.1 U	NA	<0.5 U
0449P037	IR04MW36A	12/02/2004	0	A	1.9	NA	3,850	NA	<0.5 U	<01 U	NA	13.7;<01 ;U	NA	<01 U	<0.5 U	NA	3
0509G004	IR04MW36A	03/02/2005	0	A	0.34 J	NA	488	NA	0.15	0.2	42.8	1	NA	0.2	59	NA	0.83
0524T014	IR04MW36A	06/16/2005	0	A	0.42	1.6	273	NA	0.1	0.2	54.3	<1 UJ7	NA	0.2	0.1	NA	0.71
0536T003	IR04MW36A	09/08/2005	0	A	<0.35 U	0.84	100	<0.01 U	0.11	<0.2 U	48.1	0.74	NA	<0.2 U	<0.1 U	NA	<0.5 U

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
0601T023	IR04MW36A	01/05/2006	0	A	0.29 J	0.84	158	NA	<0.1 U	0.095 J	55.3	<1 U	NA	<0.2 U	<0.1 U	NA	0.45 J
0612H046	IR04MW36A	03/22/2006	0	A	<0.28 U	<0.5 UJ	84.9	NA	0.099 J	<0.2 U	60.8	<1 U	NA	<0.2 U	<0.1 U	NA	<0.5 U
0622T012	IR04MW36A	05/31/2006	0	A	0.3 J	2.3	147	NA	<0.1 UJ	<0.2 U	<64.8 U	<1 U	NA	<0.2 U	<0.1 U	NA	0.42 J
0648G018	IR04MW36A	11/28/2006	0	A	0.3 J	0.48 J	101 J	NA	0.11	<0.2 UJ	47.5	1.5	NA	0.048 J	0.23	NA	<0.5 U
0708G038	IR04MW36A	02/22/2007	0	A	0.24 J	<0.5 U	80.6	NA	<0.1 U	<0.2 U	40.7	2.1	NA	<0.2 U	<0.1 UJ	NA	0.3 J
0718J007	IR04MW36A	05/01/2007	0	A	<0.38 U	0.74	123	NA	0.14	<0.2 U	49.4	1.2	NA	<0.2 U	<0.1 U	NA	0.4 J
0734H071	IR04MW36A	08/23/2007	0	A	1.2	0.92	142	NA	0.13	<0.2 U	49.6	1.3	NA	<0.2 U	<0.1 U	NA	1.2 J
0741N003	IR04MW36A	10/08/2007	0	A	0.32 J	0.96	149	NA	0.13	<0.2 U	50.7	0.92 J	NA	<0.2 U	<0.1 U	NA	0.87
0809D012	IR04MW36A	02/25/2008	0	A	0.28 J	0.6	93.9	NA	0.12	<0.2 U	63.5	1.1	NA	0.28	<0.1 U	NA	0.38 J
9147X282	IR04MW37A	11/21/1991	0	A	NA	NA	298	NA	NA	<0.2 U	NA	99.3	NA	<0.05 U	<0.5 U	NA	NA
9207X530	IR04MW37A	02/14/1992	0	A	NA	NA	279	NA	NA	<0.6 UJ5	NA	110	NA	<0.2 U	NA	NA	NA
9207X531	IR04MW37A	02/14/1992	0	A	NA	NA	288	NA	NA	<0.6 U	NA	109	NA	<0.2 U	NA	NA	NA
9225X621	IR04MW37A	06/15/1992	0	A	NA	NA	226	NA	NA	<0.2 U	NA	108	NA	<0.05 U	<0.5 U	NA	NA
9225X622	IR04MW37A	06/15/1992	0	A	NA	NA	222	NA	NA	<0.2 U	NA	108	NA	0.05	<0.5 U	NA	NA
0111P017	IR04MW37A	03/21/2001	0	A	NA	NA	73.6	NA	NA	NA	NA	65.7	NA	0.52	0.005	0.52	NA
9146X264	IR04MW38A	11/15/1991	0	A	NA	NA	884	NA	NA	<0.2 U	NA	96.5	NA	2.4	<0.5 U	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	NA	NA	412	NA	NA	<0.6 UJ5	NA	102	NA	1.87 J5	NA	NA	NA
9225X632	IR04MW38A	06/17/1992	0	A	NA	NA	271	NA	NA	<0.2 U	NA	75.6	NA	2.2	<0.5 U	NA	NA
0111D002	IR04MW38A	03/20/2001	0	A	NA	NA	159	NA	NA	NA	NA	58.9	NA	2.4	<0.005 U	2.4	NA
0229A008	IR04MW38A	07/17/2002	0	A	NA	NA	250	NA	NA	NA	NA	65	NA	2.5	<0.03 U1	2.5	NA
0237J007	IR04MW38A	09/10/2002	0	A	NA	NA	351	NA	NA	NA	NA	81	NA	2.4	0.04 J	2.4	NA
9147X283	IR04MW39A	11/21/1991	0	A	NA	NA	710	NA	NA	<0.2 UJ5	NA	57.7	NA	<0.05 U	<0.5 U	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	NA	NA	619	NA	NA	<0.6 UJ5	NA	59.4	NA	<0.2 U	NA	NA	NA
9225X625	IR04MW39A	06/15/1992	0	A	NA	NA	705	NA	NA	<0.2 U	NA	65.1	NA	<0.05 U	<0.5 U	NA	NA
0111T011	IR04MW39A	03/21/2001	0	A	NA	NA	609	NA	NA	NA	NA	48.8	NA	<0.01 U	<0.005 U	<0.01 U	NA
0111T012	IR04MW39A	03/21/2001	0	A	NA	NA	606	NA	NA	NA	NA	48.7	NA	<0.01 U	<0.005 U	<0.01 U	NA
9146X261	IR04MW40A	11/15/1991	0	A	NA	NA	10,700	NA	NA	<2 U	NA	1,470	NA	<0.5 U	<5 U	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	NA	NA	10,600	NA	NA	<2 U	NA	1,450	NA	<0.5 U	<5 U	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	NA	NA	3,780	NA	NA	<0.6 UJ5	NA	657	NA	<0.2 U	NA	NA	NA
9225X631	IR04MW40A	06/17/1992	0	A	NA	NA	5,150	NA	NA	<2 U	NA	843	NA	<0.5 U	<5 U	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	NA	NA	2,410	NA	NA	<2 U	NA	292	NA	<0.5 U	NA	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	NA	NA	2,780	NA	NA	<2 U	NA	283	NA	<0.5 U	NA	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	NA	NA	2,240	NA	NA	<1.5 U	NA	274	NA	<0.5 U	NA	NA	NA
9225X644	IR05MW73A	06/19/1992	0	A	NA	NA	2,070	NA	NA	<2 U	NA	272	NA	<0.5 U	<5 U	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	NA	NA	5,540	NA	NA	<2 U	NA	178	NA	<0.5 U	<5 U	NA	NA
9147X269	IR05MW74A	11/18/1991	0	A	NA	NA	5,430	NA	NA	<2 U	NA	178	NA	<0.5 U	<5 U	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	NA	NA	5,930	NA	NA	<1.5 U	NA	159	NA	<0.5 U	NA	NA	NA
9225X640	IR05MW74A	06/18/1992	0	A	NA	NA	5,390	NA	NA	<2 U	NA	215	NA	<0.5 U	<5 U	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	NA	NA	1,140	NA	NA	<1 UJ5	NA	215	NA	<0.25 U	NA	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	NA	NA	1,610	NA	NA	<1.5 U	NA	284	NA	<0.5 U	NA	NA	NA
9207A100	IR05MW76A	02/11/1992	0	A	NA	NA	1,540	NA	NA	<1.5 U	NA	282	NA	<0.5 U	NA	NA	NA
9225X642	IR05MW76A	06/19/1992	0	A	NA	NA	948	NA	NA	<2 U	NA	246	NA	<0.5 U	<0.5 U	NA	NA
9225X643	IR05MW76A	06/19/1992	0	A	NA	NA	820	NA	NA	<2 U	NA	229	NA	<0.5 U	<0.5 U	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	NA	NA	5,660	NA	NA	<2 U	NA	564	NA	<0.5 U	<5 U	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9207A096	IR05MW77A	02/10/1992	0	A	NA	NA	5,000	NA	NA	<1.5 UJ5	NA	594	NA	<0.5 U	NA	NA	NA
9207A097	IR05MW77A	02/10/1992	0	A	NA	NA	4,810	NA	NA	<6 UJ5	NA	601	NA	<2 U	NA	NA	NA
9225X635	IR05MW77A	06/18/1992	0	A	NA	NA	4,640	NA	NA	<2 U	NA	572	NA	<0.5 U	<5 U	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	NA	NA	1,780	NA	NA	<2 U	NA	775	NA	1.1	<0.5 U	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	NA	NA	1,760	NA	NA	<1.5 U	NA	861	NA	<0.5 U	NA	NA	NA
9225X639	IR05MW82A	06/18/1992	0	A	NA	NA	1,730	NA	NA	<2 U	NA	925	NA	<0.5 U	<5 U	NA	NA
9225X636	IR05MW85A	06/18/1992	0	A	NA	NA	1,270	NA	NA	<2 U	NA	251	NA	<0.5 U	<5 U	NA	NA
9225X637	IR05MW85A	06/18/1992	0	A	NA	NA	1,310	NA	NA	<2 U	NA	260	NA	<0.5 U	<5 U	NA	NA
9230J194	IR05MW85A	07/24/1992	0	A	NA	NA	1,410	NA	NA	<2 U	NA	263	NA	<0.5 U	<5 U	NA	NA
9230J195	IR05MW85A	07/24/1992	0	A	NA	NA	1,200	NA	NA	<2 U	NA	244	NA	<0.5 U	<5 U	NA	NA
9612W183	IR05MW85A	03/21/1996	0	A	NA	NA	908	NA	<0.1 U	<0.05 U	NA	246	NA	<0.02 U	<3 U	NA	NA
9028H279	IR08MW37A	07/11/1990	0	A	NA	NA	10,800	NA	NA	<20 U	NA	1,420	NA	<5 U	NA	NA	NA
9028H280	IR08MW37A	07/11/1990	0	A	NA	NA	10,600	NA	NA	<20 U	NA	1,380	NA	<5 U	NA	NA	NA
9101J120	IR08MW37A	01/03/1991	0	A	NA	NA	9,850	NA	NA	<20 U	NA	1,400	NA	<5 U	NA	NA	NA
9101J121	IR08MW37A	01/03/1991	0	A	NA	NA	9,820	NA	NA	<20 U	NA	1,400	NA	<5 U	NA	NA	NA
9128X091	IR08MW37A	07/10/1991	0	A	NA	NA	6,270	NA	NA	<2 U	NA	971	NA	<0.5 U	NA	NA	NA
9128X092	IR08MW37A	07/10/1991	0	A	NA	NA	7,670	NA	NA	<2 U	NA	1,140	NA	<0.5 U	NA	NA	NA
9151X352	IR08MW37A	12/19/1991	0	A	NA	NA	9,960	NA	NA	<2 U	NA	1,600	NA	<0.5 U	<5 U	NA	NA
9028H273	IR08MW38A	07/10/1990	0	A	NA	NA	7,540	NA	NA	<20 U	NA	1,220	NA	<5 U	NA	NA	NA
9101J123	IR08MW38A	01/03/1991	0	A	NA	NA	10,700	NA	NA	<20 U	NA	1,550	NA	<5 U	NA	NA	NA
9128X094	IR08MW38A	07/10/1991	0	A	NA	NA	4,990	NA	NA	<2 U	NA	1,040	NA	<0.5 U	NA	NA	NA
9151X358	IR08MW38A	12/20/1991	0	A	NA	NA	10,300	NA	NA	<2 U	NA	2,050	NA	<0.5 U	<5 U	NA	NA
9028H274	IR08MW39A	07/10/1990	0	A	NA	NA	7,660	NA	NA	<20 U	NA	1,040	NA	<5 U	NA	NA	NA
9101J126	IR08MW39A	01/03/1991	0	A	NA	NA	8,380	NA	NA	<20 U	NA	1,170	NA	<5 U	NA	NA	NA
9128X095	IR08MW39A	07/10/1991	0	A	NA	NA	7,730	NA	NA	<2 U	NA	1,140	NA	2.5	NA	NA	NA
9151X359	IR08MW39A	12/20/1991	0	A	NA	NA	14,100	NA	NA	<2 U	NA	1,890	NA	<0.5 U	<5 U	NA	NA
9151X360	IR08MW39A	12/20/1991	0	A	NA	NA	13,700	NA	NA	<2 U	NA	1,900	NA	<0.5 U	<5 U	NA	NA
9028H276	IR08MW40A	07/10/1990	0	A	NA	NA	8,870	NA	NA	<2 U	NA	334	NA	<0.5 U	NA	NA	NA
9028H277	IR08MW40A	07/10/1990	0	A	NA	NA	8,950	NA	NA	<2 U	NA	319	NA	<0.5 U	NA	NA	NA
9101J128	IR08MW40A	01/04/1991	0	A	NA	NA	9,990	NA	NA	<20 U	NA	300	NA	<5 U	NA	NA	NA
9128X093	IR08MW40A	07/10/1991	0	A	NA	NA	9,420	NA	NA	<2 U	NA	284	NA	<0.5 U	NA	NA	NA
9151X353	IR08MW40A	12/19/1991	0	A	NA	NA	10,800	NA	NA	<2 U	NA	253	NA	<0.5 U	<5 U	NA	NA
9151X354	IR08MW40A	12/19/1991	0	A	NA	NA	10,200	NA	NA	<2 U	NA	251	NA	<0.5 U	<5 U	NA	NA
9028H281	IR08MW41A	07/11/1990	0	A	NA	NA	3,930	NA	NA	<2 U	NA	463	NA	<0.5 U	NA	NA	NA
9101J130	IR08MW41A	01/04/1991	0	A	NA	NA	1,420	NA	NA	<2 U	NA	58.6	NA	<0.5 U	NA	NA	NA
9128X098	IR08MW41A	07/11/1991	0	A	NA	NA	5,560	NA	NA	<2 U	NA	290	NA	<0.5 U	NA	NA	NA
9151X355	IR08MW41A	12/19/1991	0	A	NA	NA	6,890	NA	NA	<2 U	NA	536	NA	<0.5 U	<5 U	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	NA	NA	9,980	NA	<50 U	<20 U	NA	1,470	NA	8.7	<5 U	NA	NA
9141X204	IR08MW42A	10/07/1991	0	A	NA	NA	9,820	NA	<50 U	<20 UJ5	NA	1,430	NA	<5 UJ5	<5 U	NA	NA
9151X362	IR08MW42A	12/20/1991	0	A	NA	NA	10,100	NA	NA	<2 U	NA	1,430	NA	<0.5 U	<5 U	NA	NA
8914W25	IR11MW25A	03/10/1989	0	A	NA	NA	196.95	NA	NA	0.39	NA	88.03	NA	0.46	NA	NA	NA
9034E131	IR11MW25A	08/23/1990	0	A	NA	NA	1,210	NA	NA	2.5 J5	NA	296	NA	<0.05 UJ5	NA	NA	NA
9917B004	IR11MW25A	04/26/1999	0	A	NA	NA	648	NA	NA	NA	NA	1,820	<0.2 U	NA	NA	<0.01 U	NA
0109P014	IR11MW25A	03/09/2001	0	A	NA	NA	56.9	NA	NA	NA	NA	437	NA	0.13	<0.005 U	0.13	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
0109P015	IR11MW25A	03/09/2001	0	A	NA	NA	246	NA	NA	NA	NA	995	NA	0.14	<0.005 U	0.14	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	NA	NA	288.82	NA	NA	<0.25 U	NA	598.6	NA	0.7	NA	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	NA	NA	274.89	NA	NA	<0.25 U	NA	595.73	NA	0.62	NA	NA	NA
9034G301	IR11MW26A	08/21/1990	0	A	NA	NA	2,730	NA	NA	<2 U	NA	809	NA	0.57	NA	NA	NA
9238X772	IR11MW26A	09/17/1992	0	A	NA	NA	1,240	NA	NA	<0.6 U	NA	677	NA	0.2 J	NA	NA	NA
9917B001	IR11MW26A	04/26/1999	0	A	NA	NA	48.4	NA	NA	NA	NA	67.7	<0.2 U	NA	NA	<0.02 U2	NA
0109P012	IR11MW26A	03/09/2001	0	A	NA	NA	105	NA	NA	NA	NA	198	NA	0.04	<0.005 U	0.04	NA
9034G300	IR11MW27A	08/21/1990	0	A	NA	NA	2,600	NA	NA	<2 UJ35	NA	1,960	NA	0.79 J5	NA	NA	NA
9917Z019	IR11MW27A	04/26/1999	0	A	NA	NA	1,480	NA	NA	NA	NA	1,660	<0.2 U	NA	NA	<0.02 U2	NA
0109P016	IR11MW27A	03/09/2001	0	A	NA	NA	783	NA	NA	NA	NA	1,720	NA	0.07	<0.005 U	0.07	NA
9134X179	IR12MW11A	08/26/1991	0	A	NA	NA	484	NA	<2 U	<0.2 U	NA	306	NA	0.13	<0.5 U	NA	NA
9209X547	IR12MW11A	02/24/1992	0	A	NA	NA	435	NA	NA	<0.2 U	NA	465	NA	0.06	<0.5 U	NA	NA
9612W185	IR12MW11A	03/22/1996	0	A	NA	NA	537	NA	0.13	<0.25 U	NA	415	NA	<0.02 U	<0.15 U	NA	NA
0110P013	IR12MW11A	03/13/2001	0	A	NA	NA	384	NA	NA	NA	NA	336	NA	<0.01 U	<0.005 U	<0.01 U	NA
9134X185	IR12MW12A	08/27/1991	0	A	NA	NA	199 J6	NA	<2 U	<0.2 U	NA	99.3	NA	0.08	<0.5 U	NA	NA
9209X544	IR12MW12A	02/24/1992	0	A	NA	NA	183	NA	NA	<0.2 U	NA	72.7	NA	<0.05 U	<0.5 U	NA	NA
9239X782	IR12MW12A	09/21/1992	0	A	NA	NA	NA	NA	NA	<0.6 U	NA	NA	NA	<0.2 U	NA	NA	NA
9239X783	IR12MW12A	09/21/1992	0	A	NA	NA	NA	NA	NA	<0.6 U	NA	NA	NA	<0.2 U	NA	NA	NA
9134X180	IR12MW13A	08/26/1991	0	A	NA	NA	916	NA	<2 U	<2 U	NA	274	NA	<0.5 U	<5 U	NA	NA
9209X545	IR12MW13A	02/24/1992	0	A	NA	NA	198	NA	NA	<0.2 U	NA	153	NA	0.09	<0.5 U	NA	NA
9209X546	IR12MW13A	02/24/1992	0	A	NA	NA	247	NA	NA	<0.2 U	NA	166	NA	0.08	<0.5 U	NA	NA
9239X787	IR12MW13A	09/22/1992	0	A	NA	NA	NA	NA	NA	<0.6 U	NA	NA	NA	<0.2 U	NA	NA	NA
9239X788	IR12MW13A	09/22/1992	0	A	NA	NA	NA	NA	NA	<0.6 U	NA	NA	NA	<0.2 U	NA	NA	NA
0111P018	IR12MW13A	03/21/2001	0	A	NA	NA	173	NA	NA	NA	NA	86.1	NA	<0.01 U	<0.005 U	<0.01 U	NA
0226E020	IR12MW13A	06/27/2002	0	A	NA	NA	699	NA	NA	NA	NA	238	NA	<0.02 U	<0.02 U1	<0.02 U	NA
0236E003Z	IR12MW13A	09/05/2002	0	A	NA	NA	663	NA	NA	NA	NA	257	NA	<0.02 U	<0.02 U	<0.02 UJ2	NA
9134X181	IR12MW14A	08/26/1991	0	A	NA	NA	294	NA	<2 U	<0.2 U	NA	131	NA	<0.05 U	<0.5 U	NA	NA
9134X182	IR12MW14A	08/26/1991	0	A	NA	NA	292	NA	<2 U	<0.2 U	NA	126	NA	<0.05 U	<0.5 U	NA	NA
9209X552	IR12MW14A	02/25/1992	0	A	NA	NA	180	NA	NA	<0.2 U	NA	123	NA	0.28	<0.5 U	NA	NA
9239X789	IR12MW14A	09/22/1992	0	A	NA	NA	NA	NA	NA	<0.6 U	NA	NA	NA	<0.2 U	NA	NA	NA
0110P012	IR12MW14A	03/13/2001	0	A	NA	NA	147	NA	NA	NA	NA	97.8	NA	0.06	<0.005 U	0.06	NA
9134X186	IR12MW15A	08/27/1991	0	A	NA	NA	1,060 J6	NA	<2 U	<2 U	NA	195	NA	0.07	<5 U	NA	NA
9209X553	IR12MW15A	02/25/1992	0	A	NA	NA	1,080	NA	NA	<2 U	NA	212	NA	<0.5 U	NA	NA	NA
9238X778	IR12MW15A	09/18/1992	0	A	NA	NA	1,140	NA	NA	<0.6 U	NA	226	NA	<0.2 U	NA	NA	NA
0232E003	IR12MW15A	08/06/2002	0	A	NA	NA	553	NA	NA	NA	NA	152	NA	<0.02 U	<0.05 U1	<0.02 U	NA
0238A003	IR12MW15A	09/16/2002	0	A	NA	NA	999	NA	NA	NA	NA	91 J3	NA	<0.02 UJ5	0.02 J	<0.02 UJ5	NA
0238A004	IR12MW15A	09/16/2002	0	A	NA	NA	1,060	NA	NA	NA	NA	89 J3	NA	<0.02 UJ5	<0.02 U	<0.02 UJ5	NA
9134X188	IR12MW16A	08/27/1991	0	A	NA	NA	1,910	NA	<2 U	<2 U	NA	397	NA	1.7	<5 U	NA	NA
9134X189	IR12MW16A	08/27/1991	0	A	NA	NA	1,920	NA	<2 U	<2 U	NA	399	NA	0.77	<5 U	NA	NA
9209X555	IR12MW16A	02/25/1992	0	A	NA	NA	1,860	NA	NA	<2 U	NA	365	NA	<0.5 U	<5 U	NA	NA
9239X797	IR12MW16A	09/24/1992	0	A	NA	NA	2,040 J5	NA	NA	<0.6 UJ5	NA	473 J5	NA	<0.2 U	NA	NA	NA
9234X690	IR12MW17A	08/19/1992	0	A	NA	NA	510	NA	NA	<0.2 U	NA	68	NA	<0.05 U	<0.5 U	NA	NA
9234X691	IR12MW17A	08/19/1992	0	A	NA	NA	516	NA	NA	<0.2 U	NA	67.8	NA	<0.05 U	<0.5 U	NA	NA
9239X795	IR12MW17A	09/24/1992	0	A	NA	NA	522	NA	NA	<0.6 UJ5	NA	58	NA	<0.2 U	NA	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9612W186	IR12MW17A	03/22/1996	0	A	NA	NA	202	NA	0.49	<0.05 U	NA	25.4	NA	<0.02 U	<0.15 U	NA	NA
0110T002	IR12MW17A	03/12/2001	0	A	NA	NA	107	NA	NA	NA	NA	74.4	NA	<0.01 U	<0.005 U	<0.01 U	NA
0229P018	IR12MW17A	07/19/2002	0	A	NA	NA	346	NA	NA	NA	NA	84	NA	<0.02 U	<0.004 U	<0.02 U	NA
0229P019	IR12MW17A	07/19/2002	0	A	NA	NA	346	NA	NA	NA	NA	88	NA	<0.06 U1	<0.004 U	<0.06 U1	NA
0238A002	IR12MW17A	09/16/2002	0	A	NA	NA	358	NA	NA	NA	NA	66 J3	NA	<0.02 UJ5	0.03 J	0.04 J5	NA
9234X692	IR12MW18A	08/19/1992	0	A	NA	NA	786	NA	NA	<0.2 U	NA	137	NA	<0.05 U	<5 U	NA	NA
9239X793	IR12MW18A	09/24/1992	0	A	NA	NA	776	NA	NA	<0.6 UJ5	NA	125	NA	<0.2 U	NA	NA	NA
9239X794	IR12MW18A	09/24/1992	0	A	NA	NA	728	NA	NA	<0.6 UJ5	NA	123	NA	<0.2 U	NA	NA	NA
9613W189	IR12MW18A	03/25/1996	0	A	NA	NA	561	NA	0.11	<0.25 U	NA	110	NA	<0.02 U	<0.03 U	NA	NA
9613W190	IR12MW18A	03/25/1996	0	A	NA	NA	571	NA	0.13	<0.05 U	NA	114	NA	<0.02 U	<0.15 U	NA	NA
0109T022	IR12MW18A	03/09/2001	0	A	NA	NA	393	NA	NA	NA	NA	86.8	NA	<0.01 U	<0.005 U	<0.01 U	NA
0109T023	IR12MW18A	03/09/2001	0	A	NA	NA	412	NA	NA	NA	NA	86.4	NA	<0.01 U	<0.005 U	<0.01 U	NA
0229A012	IR12MW18A	07/18/2002	0	A	NA	NA	379	NA	NA	NA	NA	101	NA	<0.02 U	<0.06 U1	<0.07 U1	NA
0236E002Z	IR12MW18A	09/05/2002	0	A	NA	NA	355	NA	NA	NA	NA	105	NA	<0.02 U	<0.05 U1	<0.02 UJ2	NA
9234X693	IR12MW19A	08/19/1992	0	A	NA	NA	1,060	NA	NA	<2 U	NA	328	NA	<0.5 U	<5 U	NA	NA
9239X800	IR12MW19A	09/25/1992	0	A	NA	NA	1,150	NA	NA	<0.6 UJ5	NA	308	NA	<0.2 U	NA	NA	NA
9239X801	IR12MW19A	09/25/1992	0	A	NA	NA	1,120	NA	NA	<0.6 UJ5	NA	311	NA	<0.2 U	NA	NA	NA
9613W191	IR12MW19A	03/25/1996	0	A	NA	NA	991	NA	<0.1 U	<0.25 U	NA	359	NA	<0.02 U	<0.15 U	NA	NA
0110P005	IR12MW19A	03/12/2001	0	A	NA	NA	899	NA	NA	NA	NA	295	NA	<0.01 U	<0.005 U	<0.01 U	NA
9234X694	IR12MW20A	08/19/1992	0	A	NA	NA	799	NA	NA	<0.2 U	NA	130	NA	<0.05 U	<0.5 U	NA	NA
9239X799	IR12MW20A	09/25/1992	0	A	NA	NA	620	NA	NA	<0.6 UJ5	NA	120	NA	<0.2 U	NA	NA	NA
9613J971	IR12MW20A	03/25/1996	0	A	NA	NA	400	NA	0.13	<0.25 U	NA	143	NA	<0.02 U	<0.03 U	NA	NA
0109T025	IR12MW20A	03/09/2001	0	A	NA	NA	317	NA	NA	NA	NA	144	NA	<0.01 U	<0.005 U	<0.01 U	NA
9234X695	IR12MW21A	08/19/1992	0	A	NA	NA	4,600	NA	NA	<2 U	NA	20.3	NA	<0.5 U	<5 U	NA	NA
9239A459	IR12MW21A	09/23/1992	0	A	NA	NA	4,350	NA	NA	<0.6 U	NA	13.2	NA	<0.2 U	NA	NA	NA
9614Z022	IR12MW21A	04/02/1996	0	A	NA	NA	2,100	NA	0.24	<0.25 U	NA	7.6	NA	<0.1 U	<0.15 U	NA	NA
9618J076	IR12MW21A	05/02/1996	0	A	NA	NA	2,390	NA	0.23	<0.25 U	NA	2	NA	<0.1 U	<3 U	NA	NA
9134X193	IR13MW10A	08/28/1991	0	A	NA	NA	9,920	NA	<5 U	<2 U	NA	1,210	NA	<0.5 U	<5 U	NA	NA
9209X550	IR13MW10A	02/25/1992	0	A	NA	NA	10,600	NA	NA	<20 U	NA	1,290	NA	<5 U	NA	NA	NA
9209X551	IR13MW10A	02/25/1992	0	A	NA	NA	10,800	NA	NA	<20 U	NA	1,250	NA	<5 U	NA	NA	NA
9238X777	IR13MW10A	09/18/1992	0	A	NA	NA	11,800	NA	NA	<0.6 U	NA	1,500	NA	<0.2 U	NA	NA	NA
9134X190	IR13MW11A	08/28/1991	0	A	NA	NA	4,890	NA	<2 U	<2 U	NA	439	NA	<0.5 U	<5 U	NA	NA
9209X558	IR13MW11A	02/26/1992	0	A	NA	NA	1,340	NA	NA	<2 U	NA	276	NA	<0.5 U	NA	NA	NA
9238X768	IR13MW11A	09/17/1992	0	A	NA	NA	4,830	NA	NA	<0.6 U	NA	380	NA	<0.2 U	NA	NA	NA
9238X769	IR13MW11A	09/17/1992	0	A	NA	NA	4,960	NA	NA	<0.6 U	NA	377	NA	<0.2 U	NA	NA	NA
9134X191	IR13MW12A	08/28/1991	0	A	NA	NA	11,300	NA	<5 U	<2 U	NA	1,490	NA	<0.5 U	<5 U	NA	NA
9134X192	IR13MW12A	08/28/1991	0	A	NA	NA	11,300	NA	<5 U	<2 U	NA	1,510	NA	<0.5 U	<5 U	NA	NA
9209X557	IR13MW12A	02/26/1992	0	A	NA	NA	987	NA	NA	<2 U	NA	312	NA	<0.5 U	NA	NA	NA
9238X775	IR13MW12A	09/18/1992	0	A	NA	NA	11,100	NA	NA	<0.6 U	NA	1,370	NA	<0.2 U	NA	NA	NA
9238X776	IR13MW12A	09/18/1992	0	A	NA	NA	11,700	NA	NA	<0.6 U	NA	1,460	NA	<0.2 U	NA	NA	NA
9148X304	IR14MW09A	11/27/1991	0	A	NA	NA	8,030	NA	NA	<2 U	NA	1,250	NA	<0.5 U	<5 U	NA	NA
9148X305	IR14MW09A	11/27/1991	0	A	NA	NA	7,770	NA	NA	<2 U	NA	1,220	NA	<0.5 U	<5 U	NA	NA
9209X559	IR14MW09A	02/26/1992	0	A	NA	NA	3,440	NA	NA	<2 U	NA	736	NA	<0.5 U	<5 U	NA	NA
9209X560	IR14MW09A	02/26/1992	0	A	NA	NA	3,690	NA	NA	<2 U	NA	745	NA	<0.5 U	<5 U	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9238X754	IR14MW09A	09/15/1992	0	A	NA	NA	6,840 J5	NA	NA	<0.6 U	NA	1,270 J5	NA	<0.2 U	NA	NA	NA
0109T013	IR14MW09A	03/07/2001	0	A	NA	NA	1,170	NA	NA	NA	NA	341	NA	0.11	<0.005 U	0.11	NA
0230P003	IR14MW09A	07/22/2002	0	A	NA	NA	1,450	NA	NA	NA	NA	519	NA	<0.04 U1	<0.04 U1	<0.08 U1	NA
0230P004	IR14MW09A	07/22/2002	0	A	NA	NA	1,350	NA	NA	NA	NA	545	NA	<0.02 U	<0.02 U	<0.02 U	NA
0238A006	IR14MW09A	09/17/2002	0	A	NA	NA	1,380	NA	NA	NA	NA	577 J3	NA	0.05 J5	<0.02 U	0.05 J5	NA
9147X285	IR14MW10A	11/22/1991	0	A	NA	NA	19,000	NA	NA	<2 U	NA	2,680	NA	<0.5 U	<5 U	NA	NA
9147X286	IR14MW10A	11/22/1991	0	A	NA	NA	19,400	NA	NA	<2 U	NA	2,750	NA	<0.5 U	<5 U	NA	NA
9209X562	IR14MW10A	02/26/1992	0	A	NA	NA	3,950	NA	NA	<2 U	NA	689	NA	<0.5 U	<5 U	NA	NA
9238X752	IR14MW10A	09/15/1992	0	A	NA	NA	10,900	NA	NA	<0.6 U	NA	1,370	NA	<0.2 U	NA	NA	NA
9238X753	IR14MW10A	09/15/1992	0	A	NA	NA	12,600	NA	NA	<0.6 U	NA	1,470	NA	<0.2 U	NA	NA	NA
9147X272	IR14MW12A	11/20/1991	0	A	NA	NA	4,490	NA	NA	<2 U	NA	658	NA	<0.5 U	<5 U	NA	NA
9209X561	IR14MW12A	02/26/1992	0	A	NA	NA	3,850	NA	NA	<2 U	NA	721	NA	0.66	<5 U	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	NA	NA	7,870	NA	NA	<0.6 U	NA	1,210	NA	<0.2 U	NA	NA	NA
9234X696	IR14MW13A	08/19/1992	0	A	NA	NA	1,100	NA	NA	<2 U	NA	<10 U	NA	<0.5 U	<5 U	NA	NA
9239A457	IR14MW13A	09/23/1992	0	A	NA	NA	1,020	NA	NA	<0.6 U	NA	5.2	NA	<0.2 U	NA	NA	NA
9239A458	IR14MW13A	09/23/1992	0	A	NA	NA	904	NA	NA	<0.6 U	NA	5.2	NA	0.58	NA	NA	NA
9614Z021	IR14MW13A	04/02/1996	0	A	NA	NA	845	NA	0.15	<0.05 U	NA	83.3	NA	<0.02 U	<0.15 U	NA	NA
9619J102	IR14MW13A	05/09/1996	0	A	NA	NA	643	NA	0.12	<0.25 U	NA	27.3	NA	<0.1 U	<15 U	NA	NA
9917B003	IR14MW13A	04/26/1999	0	A	NA	NA	512	NA	NA	NA	NA	81.5	<0.2 U	NA	NA	<0.02 U2	NA
9147X276	IR15MW06A	11/20/1991	0	A	NA	NA	1,550	NA	NA	<2 U	NA	697	NA	<0.5 UJ5	NA	NA	NA
9209X564	IR15MW06A	02/27/1992	0	A	NA	NA	1,220	NA	NA	<2 UJ5	NA	584	NA	0.73	<0.5 U	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	NA	NA	5,690	NA	NA	<0.6 U	NA	675	NA	<0.2 U	NA	NA	NA
9238X750	IR15MW06A	09/14/1992	0	A	NA	NA	5,290	NA	NA	<0.6 U	NA	716	NA	<0.2 U	NA	NA	NA
9917Z021	IR15MW06A	04/26/1999	0	A	NA	NA	294	NA	NA	NA	NA	349	<0.2 U	NA	NA	<0.03 U2	NA
0109T011	IR15MW06A	03/07/2001	0	A	NA	NA	1,370	NA	NA	NA	NA	517	NA	0.02	<0.005 U	0.02	NA
0109T012	IR15MW06A	03/07/2001	0	A	NA	NA	1,400	NA	NA	NA	NA	514	NA	0.02	<0.005 U	0.02	NA
9147X273	IR15MW07A	11/20/1991	0	A	NA	NA	2,680	NA	NA	<2 U	NA	539	NA	<0.5 UJ5	<5 U	NA	NA
9147X274	IR15MW07A	11/20/1991	0	A	NA	NA	2,680	NA	NA	<2 U	NA	549	NA	<0.5 U	<5 U	NA	NA
9209X565	IR15MW07A	02/27/1992	0	A	NA	NA	1,360	NA	NA	<2 UJ5	NA	331	NA	<0.5 U	NA	NA	NA
9209X566	IR15MW07A	02/27/1992	0	A	NA	NA	1,420	NA	NA	<2 UJ5	NA	364	NA	<0.5 U	NA	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	NA	NA	3,460	NA	NA	<0.6 U	NA	753	NA	<0.2 U	NA	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	NA	NA	1,500	NA	NA	<2 U	NA	278	NA	<0.5 U	<5 U	NA	NA
9233X676	IR15MW08A	08/13/1992	0	A	NA	NA	1,420	NA	NA	<2 U	NA	292	NA	<0.5 U	<5 U	NA	NA
9239X792	IR15MW08A	09/24/1992	0	A	NA	NA	977	NA	NA	<0.6 UJ5	NA	180	NA	<0.2 U	NA	NA	NA
9613W201	IR15MW08A	03/28/1996	0	A	NA	NA	324	NA	0.26	<0.25 U	NA	397	NA	<0.02 U	<0.03 U	NA	NA
9613W202	IR15MW08A	03/28/1996	0	A	NA	NA	316	NA	0.26	<0.25 U	NA	401	NA	<0.02 U	<0.03 U	NA	NA
9917B002	IR15MW08A	04/26/1999	0	A	NA	NA	732	NA	NA	NA	NA	458	<0.2 U	NA	NA	<0.01 U	NA
0109P005	IR15MW08A	03/08/2001	0	A	NA	NA	211	NA	NA	NA	NA	521	NA	NA	NA	<0.01 U	NA
0231E012	IR15MW08A	08/01/2002	0	A	NA	NA	591	NA	NA	NA	NA	131	NA	<0.02 UJ2	<0.004 U	<0.02 UJ2	NA
0237J019	IR15MW08A	09/12/2002	0	A	NA	NA	602	NA	NA	NA	NA	34	NA	<0.02 UJ5	<0.03 U1J2	<0.02 U	NA
0237J020	IR15MW08A	09/12/2002	0	A	NA	NA	601	NA	NA	NA	NA	33	NA	<0.02 UJ5	<0.02 UJ2	<0.02 U	NA
9134X199	IR17MW11A	08/29/1991	0	A	NA	NA	3,610	NA	<2 U	<2 U	NA	450	NA	<0.5 U	<5 U	NA	NA
9209X570	IR17MW11A	02/28/1992	0	A	NA	NA	784	NA	NA	1.4 J5	NA	189	NA	0.3	<0.5 U	NA	NA
9238X760	IR17MW11A	09/16/1992	0	A	NA	NA	1,140	NA	NA	2.1	NA	181	NA	0.48	NA	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9238X761	IR17MW11A	09/16/1992	0	A	NA	NA	1,180	NA	NA	2.2	NA	198	NA	<0.2 U	NA	NA	NA
9134X198	IR17MW12A	08/29/1991	0	A	NA	NA	635	NA	<0.5 U	<0.2 U	NA	267	NA	0.29	<0.5 U	NA	NA
9209X568	IR17MW12A	02/27/1992	0	A	NA	NA	893	NA	NA	<2 UJ5	NA	265	NA	<0.5 U	NA	NA	NA
9238X770	IR17MW12A	09/17/1992	0	A	NA	NA	881	NA	NA	<0.6 U	NA	192	NA	<0.2 U	NA	NA	NA
9134X196	IR17MW13A	08/29/1991	0	A	NA	NA	2,010	NA	<5 U	<2 U	NA	274	NA	<0.5 U	<5 U	NA	NA
9134X197	IR17MW13A	08/29/1991	0	A	NA	NA	2,070	NA	<5 U	<2 U	NA	293	NA	<0.5 U	<5 U	NA	NA
9209X571	IR17MW13A	02/28/1992	0	A	NA	NA	3,770	NA	NA	<2 UJ5	NA	382	NA	<0.5 U	<5 U	NA	NA
9209X572	IR17MW13A	02/28/1992	0	A	NA	NA	3,620	NA	NA	<2 UJ5	NA	426	NA	<0.5 U	<5 U	NA	NA
9238X771	IR17MW13A	09/17/1992	0	A	NA	NA	2,960	NA	NA	1.3	NA	477	NA	<0.2 U	NA	NA	NA
9611J932	IR36MW09A	03/15/1996	0	A	NA	NA	1,540	NA	NA	<0.05 U	NA	439	NA	<0.04 U	<0.15 U	NA	NA
9611J924	IR36MW121A	03/13/1996	0	A	NA	NA	6,960	NA	NA	<2.5 U	NA	937	NA	<0.02 U	<1.5 U	NA	NA
9617J044	IR36MW121A	04/24/1996	0	A	NA	NA	9,820	NA	NA	<5 U	NA	908	NA	<2 U	<3 U	NA	NA
9623J175	IR36MW121A	06/04/1996	0	A	NA	NA	5,920	NA	NA	<2.5 U	NA	870	NA	<2 U	<1.5 U	NA	NA
9623J176	IR36MW121A	06/04/1996	0	A	NA	NA	6,280	NA	NA	<2.5 U	NA	957	NA	<1 U	<1.5 U	NA	NA
9611W157	IR36MW122A	03/13/1996	0	A	NA	NA	8,860	NA	NA	<2.5 U	NA	1,020	NA	<0.02 U	<1.5 U	NA	NA
9617J055	IR36MW122A	04/25/1996	0	A	NA	NA	11,800	NA	NA	<1 U	NA	1,120	NA	<0.4 U	<0.6 U	NA	NA
9623J172	IR36MW122A	06/03/1996	0	A	NA	NA	14,000	NA	NA	<5 UJ5	NA	1,090	NA	<2 U	<3 U	NA	NA
9611W165	IR36MW125A	03/15/1996	0	A	NA	NA	241	NA	NA	<0.05 U	NA	133	NA	0.17	<0.03 U	NA	NA
9617J057	IR36MW125A	04/26/1996	0	A	NA	NA	155	NA	NA	0.24	NA	169	NA	<0.14 U1	<0.03 U	NA	NA
9611J931	IR36MW126A	03/15/1996	0	A	NA	NA	27.8	NA	NA	<0.05 U	NA	121	NA	0.31	0.04	NA	NA
9618J063	IR36MW126A	04/29/1996	0	A	NA	NA	37.1	NA	NA	<0.1 U	NA	149	NA	0.24	<0.06 U	NA	NA
9611J930	IR36MW127A	03/15/1996	0	A	NA	NA	3,920	NA	NA	<0.05 U	NA	230	NA	<0.04 U	<0.3 U	NA	NA
9618J062	IR36MW127A	04/29/1996	0	A	NA	NA	5,360	NA	NA	<1 U	NA	180	NA	<0.4 U	<0.6 U	NA	NA
9611J929	IR36MW128A	03/14/1996	0	A	NA	NA	542	NA	NA	<0.05 UJ5	NA	391	NA	0.48	<0.06 U	NA	NA
9617J037	IR36MW128A	04/22/1996	0	A	NA	NA	644	NA	NA	<0.25 U	NA	385	NA	<0.12 U1	<0.15 U	NA	NA
0109T010	IR36MW12A	03/07/2001	0	A	NA	NA	1,370	NA	NA	NA	NA	208	NA	0.01	<0.005 U	0.01	NA
9611W164	IR36MW135A	03/15/1996	0	A	NA	NA	468	NA	NA	<0.05 U	NA	74.3	NA	<0.04 U	<0.03 U	NA	NA
9613W199	IR36MW139A	03/28/1996	0	A	NA	NA	1,070	NA	NA	<0.05 U	NA	244	NA	<0.02 U	<0.15 U	NA	NA
0109P006	IR36MW14A	03/08/2001	0	A	NA	NA	1,180	NA	NA	NA	NA	147	NA	NA	NA	<0.01 U	NA
0109P007	IR36MW14A	03/08/2001	0	A	NA	NA	1,100	NA	NA	NA	NA	155	NA	NA	NA	0.01	NA
0109T024	IR39MW21A	03/09/2001	0	A	NA	NA	939	NA	NA	NA	NA	256	NA	<0.01 U	<0.005 U	<0.01 U	NA
9613W204	IR39MW33A	03/29/1996	0	A	NA	NA	5,170	NA	NA	<0.05 U	NA	<0.05 U	NA	<0.02 U	<1.5 U	NA	NA
0115D004	IR39MW33A	04/17/2001	0	A	NA	NA	7,150	NA	NA	NA	NA	0.4	NA	<0.01 U	<0.005 U	<0.01 U	NA
9612J934	IR39MW35A	03/18/1996	0	A	NA	NA	364	NA	0.18	<0.05 U	NA	115	NA	<0.04 U	<0.03 U	NA	NA
9612J935	IR39MW36A	03/18/1996	0	A	NA	NA	3,120	NA	0.48	<0.25 U	NA	372	NA	<0.04 U	<3 U	NA	NA
9620J120	IR56MW39A	05/15/1996	0	A	NA	NA	196	NA	0.26	<0.25 U	NA	3	NA	<0.1 U	<0.15 U	NA	NA
0110P029	IR56MW39A	03/16/2001	0	A	NA	NA	133	NA	NA	NA	NA	62	NA	<0.01 U	<0.005 U	<0.01 U	NA
0230A014	IR56MW39A	07/25/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 U1	NA
0234E003	IR56MW39A	08/20/2002	0	A	NA	NA	164	NA	NA	NA	NA	3.3	NA	<0.02 U	<0.03 U1	<0.02 UJ2	NA
0237S008	IR56MW39A	09/10/2002	0	A	NA	NA	153	NA	NA	NA	NA	2.8	NA	<0.02 U	<0.03 U1	<0.02 U	NA
9620J119	IR72MW32A	05/15/1996	0	A	NA	NA	117	NA	<0.1 U	<0.5 U	NA	57.2	NA	3	<0.3 U	NA	NA
0110P027	IR72MW32A	03/16/2001	0	A	NA	NA	138	NA	NA	NA	NA	52.6	NA	2.6	<0.005 U	2.6	NA
0229P003	IR72MW32A	07/15/2002	0	A	NA	NA	177	NA	NA	NA	NA	56	NA	2.7	<0.004 U	2.7	NA
0238G004	IR72MW32A	09/18/2002	0	A	NA	NA	262	NA	NA	NA	NA	65	NA	3	<0.02 U	3	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
0238G005	IR72MW32A	09/18/2002	0	A	NA	NA	263	NA	NA	NA	NA	66	NA	NA	NA	NA	NA
9620J118	IR72MW33A	05/15/1996	0	A	NA	NA	51.3	NA	<0.1 U	<0.25 U	NA	52.6	NA	1.2	<0.15 U	NA	NA
9611W148	PA36MW01A	03/11/1996	0	A	NA	NA	2,120	NA	NA	<0.05 U	NA	301	NA	<0.02 U	<0.3 U	NA	NA
9611W149	PA36MW02A	03/11/1996	0	A	NA	NA	1,110	NA	NA	<0.05 U	NA	184	NA	<0.02 U	<0.15 U	NA	NA
9611J920	PA36MW03A	03/11/1996	0	A	NA	NA	376	NA	NA	<0.05 U	NA	116	NA	<0.02 U	<0.06 U	NA	NA
9611J919	PA36MW04A	03/11/1996	0	A	NA	NA	934	NA	NA	<0.05 U	NA	224	NA	<0.02 U	<0.15 U	NA	NA
9611J918	PA36MW05A	03/11/1996	0	A	NA	NA	7,010	NA	NA	<2.5 U	NA	875	NA	0.1	<1.5 U	NA	NA
9612W172	PA36MW06A	03/19/1996	0	A	NA	NA	234	NA	0.16	<0.25 U	NA	318	NA	0.14	<0.03 U	NA	NA
9615Z044	PA36MW06A	04/09/1996	0	A	NA	NA	221	NA	NA	<0.25 U	NA	337	NA	0.17	<0.03 U	NA	NA
9615Z045	PA36MW06A	04/09/1996	0	A	NA	NA	242	NA	NA	<0.25 U	NA	375	NA	0.75	<0.15 U	NA	NA
9611J922	PA36MW07A	03/12/1996	0	A	NA	NA	3,210	NA	NA	<5 U	NA	1050	NA	<0.02 U	<3 U	NA	NA
9611W151	PA36MW08A	03/12/1996	0	A	NA	NA	98	NA	NA	<0.05 U	NA	95.6	NA	<0.02 U	<0.03 U	NA	NA
9611W152	PA36MW08A	03/12/1996	0	A	NA	NA	108	NA	NA	<0.05 U	NA	93.9	NA	<0.02 U	<0.03 U	NA	NA
0109P008	PA36MW08A	03/08/2001	0	A	NA	NA	63.7	NA	NA	NA	NA	96.6	NA	NA	NA	<0.01 U	NA
9611W159	PA39MW01A	03/14/1996	0	A	NA	NA	1,500	NA	NA	<0.05 UJ5	NA	256	NA	<0.04 U	<0.15 U	NA	NA
9611W158	PA39MW02A	03/14/1996	0	A	NA	NA	580	NA	NA	0.18 J5	NA	146	NA	0.21	<0.06 U	NA	NA
9205X468	IR02MW127B	01/28/1992	0	B	NA	NA	3,240	NA	NA	4 J5	NA	<10 U	NA	<0.5 UJ5	<5 U	NA	NA
9230J175	IR02MW127B	07/21/1992	0	B	NA	NA	3,100	NA	NA	<2 U	NA	<10 U	NA	<0.5 U	<5 U	NA	NA
9235J233	IR02MW127B	08/26/1992	0	B	NA	NA	2,910	NA	NA	2	NA	<10 U	NA	<0.5 U	<5 U	NA	NA
0112P005	IR02MW127B	03/26/2001	0	B	NA	NA	3,220	NA	NA	NA	NA	0.2	NA	<0.01 U	<0.005 U	<0.01 U	NA
0230P006	IR02MW127B	07/23/2002	0	B	NA	NA	2,350	NA	NA	NA	NA	<0.4 U	NA	<0.02 U	<0.02 U	<0.02 U	NA
0237E025	IR02MW127B	09/13/2002	0	B	NA	NA	2,380	NA	NA	NA	NA	6	NA	0.02 J	<0.02 U	0.02 J	NA
0237E026	IR02MW127B	09/13/2002	0	B	NA	NA	2,960	NA	NA	NA	NA	24	NA	0.03 J	<0.02 U	0.03 J	NA
9205X480	IR02MW210B	01/30/1992	0	B	NA	NA	11,700	NA	NA	<20 U	NA	1,640	NA	<5 U	NA	NA	NA
9230J179	IR02MW210B	07/21/1992	0	B	NA	NA	9,360	NA	NA	<20 U	NA	1,400	NA	<5 U	<5 U	NA	NA
9235J235	IR02MW210B	08/26/1992	0	B	NA	NA	12,000	NA	NA	<20 U	NA	1,660	NA	<5 U	<50 U	NA	NA
9235J236	IR02MW210B	08/26/1992	0	B	NA	NA	12,000	NA	NA	<20 U	NA	1,660	NA	<5 U	<50 U	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	NA	NA	151	NA	<2 U	0.39 J5	NA	4.8	NA	0.09 J5	NA	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	NA	NA	149	NA	<2 U	0.38 J5	NA	4.6	NA	0.18 J5	NA	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	NA	NA	148	NA	0.33	0.48	NA	<10 U	NA	<0.04 U	<0.04 U	NA	NA
9235J244	IR03MW228B	08/28/1992	0	B	NA	NA	89.2	NA	NA	0.24	NA	2.6	NA	0.09	<0.05 U	NA	NA
0231E018	IR03MW228B	08/02/2002	0	B	NA	NA	68	NA	NA	NA	NA	3	NA	0.07 J2	<0.004 U	0.07 J2	NA
0237S014	IR03MW228B	09/12/2002	0	B	NA	NA	67	NA	NA	NA	NA	2.5	NA	<0.02 UJ5	<0.02 UJ25	<0.02 U	NA
9611J923	IR36MW120B	03/13/1996	0	B	NA	NA	510	NA	NA	<0.05 U	NA	2.7	NA	<0.02 U	<0.06 U	NA	NA
9617J043	IR36MW120B	04/23/1996	0	B	NA	NA	805	NA	NA	<0.1 U	NA	<1 U1	NA	<0.26 U1	<0.06 U	NA	NA
9623J174	IR36MW120B	06/04/1996	0	B	NA	NA	506	NA	NA	<0.1 U	NA	1.1	NA	<0.02 U	<0.06 U	NA	NA
9611W156	IR36MW123B	03/13/1996	0	B	NA	NA	644	NA	NA	<0.05 U	NA	18.4	NA	0.1	<0.06 U	NA	NA
9618J065	IR36MW123B	04/30/1996	0	B	NA	NA	987	NA	NA	1	NA	19.9	NA	0.1	<0.15 U	NA	NA
9623J171	IR36MW123B	06/03/1996	0	B	NA	NA	1,170	NA	NA	<0.19 U1J5	NA	19.6	NA	<0.04 U	<3 U	NA	NA
9611J927	IR36MW129B	03/14/1996	0	B	NA	NA	461	NA	NA	<0.05 UJ5	NA	0.72	NA	<0.04 U	<0.03 U	NA	NA
9611J928	IR36MW129B	03/14/1996	0	B	NA	NA	720	NA	NA	<0.05 UJ5	NA	0.47	NA	<0.04 U	<0.06 U	NA	NA
9617J041	IR36MW129B	04/23/1996	0	B	NA	NA	604	NA	NA	<0.1 U	NA	<0.56 U1	NA	<0.04 U	<0.06 U	NA	NA
9617J042	IR36MW129B	04/23/1996	0	B	NA	NA	640	NA	NA	<0.1 U	NA	<0.49 U1	NA	<0.09 U1	<0.06 U	NA	NA
9622J168	IR36MW129B	05/31/1996	0	B	NA	NA	430	NA	0.12	<0.1 UJ5	NA	<0.42 U1	NA	<0.02 U	<1.5 U	NA	NA

Table A2-5. Summary of Analytical Results for Anions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Ammonia (mg/L)	Bromide (mg/L)	Chloride (mg/L)	Cyanide (mg/L)	Fluoride (mg/L)	Orthophosphate (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Hydrogen Sulfide (mg/L)	Nitrate as Nitrogen (mg/L)	Nitrite as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Kjeldhal-Nitrogen (mg/L)
9233X679	IR15MW09F	08/14/1992	0	F	NA	NA	407	NA	NA	4.6	NA	652	NA	<0.5 U	<0.5 U	NA	NA
9239X785	IR15MW09F	09/22/1992	0	F	NA	NA	512 J5	NA	NA	2.1	NA	820 J5	NA	0.6	NA	NA	NA
9613W195	IR15MW09F	03/27/1996	0	F	NA	NA	354	NA	0.98	3.3	NA	615	NA	<0.02 U	<0.03 U	NA	NA
9233X678	IR15MW10F	08/14/1992	0	F	NA	NA	3,000	NA	NA	2.4	NA	691	NA	<0.5 U	<5 U	NA	NA
9239X786	IR15MW10F	09/22/1992	0	F	NA	NA	3,120 J5	NA	NA	2.1	NA	701 J5	NA	<0.2 U	NA	NA	NA
9613W198	IR15MW10F	03/27/1996	0	F	NA	NA	3,280	NA	1.7	2.4	NA	644	NA	<0.1 U	<3 U	NA	NA

Notes:

bgs below ground surface

mg/L milligrams per liter

Table A2-6. Summary of Analytical Results for Metals

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium V (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0111P015	IR01MW367A	03/21/2001	0	A	NA	NA	NA	NA	NA	NA	19,300	NA	NA	NA	NA	1600	NA	NA	389,000	NA	NA	NA	63600 J4	NA	NA	890000	NA	NA	5.8 J
0229P002	IR01MW367A	07/15/2002	0	A	<51 U2	4.2	<2 UJ3	335	<0.4 U	<0.4 U	9,070	<3 U	NA	<2 U	<8 U	123	0.47	100	378,000	<0.1 U	<5 U	4.9 J	58,000	<2 UJ3	<7 U	773000	<0.02 UJ2	<6 U	<6.5 U2
0238S008	IR01MW367A	09/18/2002	0	A	<30 U	0.7	<1 U	332	<0.4 U	0.6 J	16,500	<3 U	NA	<2 U	<8 U	88.6	0.1	84.6	392,000	0.11 J	<5 U	3.5 J	68300	<2 U	<7 U	1080000 J4	<0.05 U1	<6 U	<2.2 U1
9202A009	IR02MW101A1	01/07/1992	0	A	<31.5 U1	<32 U	8.5	136	<1 U	<4 U	58,000	<5 U	<0.01 U	<6 UJ3	<2 U	<26.5 U1 J3	<1 UJ3	497	158,000	<0.2 U	<20.3 U1	<17 UJ3	10000	<1 UJ3	<3 U	909000	<1 UR2	<4 U	<10.8 U1
9202A010	IR02MW101A1	01/07/1992	0	A	<32.1 U1	<32 U	8.7	135	<1 U	<4 U	55,400	<5 U	<0.01 U	<6 UJ3	4.5	<21.1 U1 J3	<1 UJ3	487	151,000	<0.2 U	<18.1 U1	<17 UJ3	9,940	<2 UJ3	<3 U	914000	<1 UR2	<4 U	<11.3 U1
9228 J155	IR02MW101A1	07/08/1992	0	A	4450 J3	<31.1 U	<10.7 U1	94.4	<0.5 U	<2.7 U	37,500	69	<0.01 U	9.9	<9.3 U1	8380	<2.2 U1	577	121,000	<0.2 U	22.6	202	6420	<2.9 U	<1.5 U	688000	<1.6 UJ3	13.7	<16.5 U
9235 J219	IR02MW101A1	08/24/1992	0	A	<42 U1	<31.1 U	2.7	98 J4	<0.5 U	4.2	42,600 J4	<2.5 U	<0.01 U	<8.8 U	3.7	<11.3 U	<1.6 U	327 J4	111,000	<0.2 U	18.6	22.6	8470	<2.9 UJ3	<1.5 U	820000	<1.6 UJ3	8.8	<16.5 U
0112D002	IR02MW101A1	03/27/2001	0	A	<83.1 U1	NA	NA	NA	NA	NA	NA	<1.4 U	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	<17.9 U1 J9	NA	NA	NA	NA	NA	NA	NA
0230E009	IR02MW101A1	07/25/2002	0	A	<10 U	NA	NA	NA	NA	NA	NA	<3 U	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	26.9	NA	NA	NA	NA	NA	NA	NA
0237G011	IR02MW101A1	09/11/2002	0	A	33.3 J	NA	NA	NA	NA	NA	NA	<3 U	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	18 J	NA	NA	NA	NA	NA	NA	NA
0830G031	IR02MW101A1	07/23/2008	0	A	<100 UJ	4 J	<5 UJ	56.2 J	<0.2 U	<0.2 U	NA	1.5 J	NA	1.8 J	<5 U	NA	<2.1 U	NA	120 J	NA	NA	5.3	NA	5R	<1 U	NA	6.6	NA	<50 U
0913B034	IR02MW101A1	03/23/2009	0	A	<100 U	<5 U	6.2	37.6	<0.2 U	<0.11 U	NA	7.3	NA	<5 U	1.9 J	NA	<5 U	NA	<5 U	NA	NA	<5 U	NA	15.2	<0.25 U	NA	<5 U	NA	<50 U
9044 J056	IR02MW101A2	10/30/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9044 J057	IR02MW101A2	10/30/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9202A012	IR02MW101A2	01/08/1992	0	A	<22.4 U1	<32 U	11.9	1760	<1 U	<4 U	253,000	<5 U	<0.01 U	9.1	13.6	<6.4 U1	1.2 J2	1900	632,000	<0.2 U	<24.5 U1	29.2	79,200	<1.9 U1	<3 U	3720000	<1 UR2	27.1	<9.5 U1
9228 J159	IR02MW101A2	07/09/1992	0	A	<149 U1	35.7	<3.5 U1	1810	<0.5 U	<2.7 U	249,000	<2.5 U	<0.01 U	12	<6.2 U1	299	<8 U	1980	659,000	<0.2 U	11.6	43.5	81,200	<29 U	<1.5 U	398000	<16 UJ3	34	<16.5 U
9235 J224	IR02MW101A2	08/25/1992	0	A	<21.6 U	<31.1 U	7.2	1950	<0.5 U	14.7	279,000	<2.5 U	<0.01 U	<8.8 U	7	<11.3 U	1.7	2050	700,000	<0.2 U	17.5	44.3	77,900	<2.9 UJ3	<1.5 U	402000	<1.6 UJ3	25.6	<16.5 U
0112D001	IR02MW101A2	03/27/2001	0	A	NA	NA	NA	75.2 J	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0232E005	IR02MW101A2	08/07/2002	0	A	NA	NA	NA	2800	NA	3.55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0238E011	IR02MW101A2	09/18/2002	0	A	NA	NA	NA	2980	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A085	IR02MW114A1	01/14/1992	0	A	<16 U	<32 U	<2.2 U1	33.6	<1 U	<4 U	186,000	<5 U	NA	<6 U	<5.8 U1	<12 U1	<1 U	15.9	158000	<0.2 U	181	<17 UJ3	17600	16.3 J3	<3 U	389000	<1 U	<4 U	<14.1 U1
9203A090	IR02MW114A1	01/15/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228 J146	IR02MW114A1	07/07/1992	0	A	<21.6 U	<31.1 UR2	2.2	13.9 J2	<0.5 U	4.7	155,000	<2.5 U	<0.01 U	<8.8 U	<4.6 U1 J2	<23.2 U1 J2	<1.6 U	<0.53 U	144000 J2	<0.2 U	166 J3	<17.3 U	12800	4.1 J3	<1.5 U	365000	<1.6 UJ3	2.2 J2	<16.5 U
9235 J225	IR02MW114A1	08/25/1992	0	A	<21.6 U	<31.1 U	2.3	22.9	<0.5 U	15.8	187,000	<2.5 U	<0.01 U	<8.8 U	2.3	<11.5 U1	<1.6 U	149	153000	<0.2 U	249	26.8	16900	3.4 J3	<1.5 U	402000	<1.6 UJ3	<4.3 U1	<16.5 U
0111P010Z	IR02MW114A1	03/20/2001	0	A	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0230A009	IR02MW114A1	07/24/2002	0	A	NA	NA	NA	NA	NA	0.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0238E019	IR02MW114A1	09/20/2002	0	A	NA	NA	NA	NA	NA	<0.16 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9044 J060	IR02MW114A2	10/31/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9044 J061	IR02MW114A2	10/31/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	<16 U	<32 U	<5.8 U1	35.9 J3	<1 U	<4 U	160,000	<5 U	<0.01 U	<6 U	16.7	<9.2 U1	<1 U	863	210000	<0.2 U	<34.8 U1	18.6 J3	12800	<5.1 U1 J3	<3 U	1370000	<1.6 U1	<4 U	<7.9 U1
9228 J166	IR02MW114A2	07/10/1992	0	A	16200 J3	<31.1 U	<6.1 U1	242	<0.5 U	<2.7 U	264,000	148	<0.01 U	18.6	32.9	21900	<11.8 U1	1600	324000	<0.2 U	47.8	267	14600	<29 U	<1.5 U	617000	<1.6 UJ3	39.8	58.3
9235 J226	IR02MW114A2	08/25/1992	0	A	<21.6 U	<31.1 U	5	71.2	<0.5 U	8.1	272,000	<2.5 U	<0.01 U	8.8	4.1	<15.9 U1	<1.6 U	1270	344000	<0.2 U	51.9	22.2	17400	<2.9 UJ3	<1.5 U	762000	<1.6 UJ3	<1.8 U1	<16.5 U
0110P024	IR02MW114A2	03/15/2001	0	A	158 J	NA	NA	NA	NA	<0.3 U	NA	<0.7 U	<0.01 U	NA	<3.5 U1	NA	NA	NA	NA	NA	NA	9.9 J	NA	NA	NA	NA	NA	NA	NA
0230A015	IR02MW114A2	07/26/2002	0	A	<30 U	NA	NA	NA	NA	1.48	NA	<3 U	<0.01 U	NA	<8 U	NA	NA	NA	NA	NA	NA	<013 U1	NA	NA	NA	NA	NA	NA	NA
0237 J017	IR02MW114A2	09/12/2002	0	A	<30 U	NA	NA	NA	NA	<0.54 U1	NA	<3 U	<0.01 U	NA	<8 U	NA	NA	NA	NA	NA	NA	16.5 J	NA	NA	NA	NA	NA	NA	NA
9044 J063	IR02MW114A3	11/01/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9044 J064	IR02MW114A3	11/01/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	<18.9 U1	<32 U	<1 U	972	<1 U	<4 U	421,000	5.7	<0.01 U	<6 U	<7 U1	<5 U	<1 U	5.6	655000	<0.2 U	<14.4 U1	22.2 J3	237000	<1 UJ3	<3 U	2490000	<5 U	<4 U	<7.1 U1
9228 J153	IR02MW114A3	07/08/1992	0	A	<40.6 U1J2	<31.1 UR2	<2 U	1050 J2	<0.5 U	7.3	557,000	<2.5 U	<0.01 U	<8.8 U	<2.5 U1 J2	<11.3 U	<1.6 U	4130	793000 J2	<0.2 U	10.6 J3	43.5 J2	145000	<2.9 UJ3	<1.5 U	2440000	<1.6 UJ3	1.6 J2	<16.5 U
9235 J232	IR02MW114A3	08/26/1992	0	A	<45.3 U1	<31.1 U	<2 U	1120	<0.5 U	37.9	694,000	<2.5 U	<0.01 U	<8.8 U	6.1	<11.3 U	<1.6 UJ3	9310 J3	862000	<0.2 U	7.8	20.4	69300	<29 UR2	<1.5 U	2640000	<1.6 UJ3	<1.4 U	<16.5 U
0112P015	IR02MW114A3	03/29/2001	0	A	NA	NA	NA	434	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0230E002	IR02MW114A3	07/22/2002	0	A	NA	NA	NA	167	NA	1.63	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237E013	IR02MW114A3	09/11/2002	0	A	NA	NA	NA	151	NA	<02.45 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9044 J068	IR02MW126A	11/02/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9044 J069	IR02MW126A	11/02/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	<16 U	<32 U	1.3	1020	<1.1 U1	<4 U	72,800	<5 U	<0.01 U	<6 UJ3	2.8	<44.4 U1 J3	<1 UJ3	333	231000	<0.2 U	<9.6 U1	<17 UJ3	174000	<1 UJ3	<3 U	3170000	<1 UR2	15.3	<13.5 U1
9228 J157	IR02MW126A	07/08/1992	0	A	<21.6 U	<31.1 U	<2 UJ3	436	<0.5 U	<2.7 U	52,400	<2.5 U	<0.01 U	<8.8 U	<4 U1	<65.2 U1	<1.6 U	273	146000	<0.2 U	20.3	<17.3 U	118000	<2.9 U	<1.5 U	1760000	<1.6 UJ3	37.8	<16.5 U
9228 J158	IR02MW126A	07/08/1992	0	A	616 J3	<31.1 U	<2 UJ3	858	<0.5 U	<2.7 U	54,300	9.1	<0.01 U	<8.8 U	161	1390	26.7	197	139000	0.46	18.6	18.6	116000	<2.9 U	<1.5 U	1680000	<1.6 UJ3	66	125
9235X717	IR02MW126A	08/25/1992	0	A	<21.6 U	<31.1 U	<2 U	524	<0.5 U	<2.7 U	58,600	<6.7 U1	<0.01 U	<8.8 U	<1.8 U	<66.4 U1	1.7	187	150000	<0.2 U	12.4	<17.3 U	129000	<2.9 UJ3	<1.5 U	1890000	<1.6 UJ3	28.1	<16.5 U
0110P011	IR02MW126A	03/13/2001	0	A	NA	NA	NA	404	NA	NA	103000	NA	NA	NA	18.7 J	43.8 J	<1.6 U	NA	165000	NA	NA	NA	96200	NA	NA	1180000 J4	NA	NA	37.5
0233D013	IR02MW126A	08/15/2002	0	A	NA	NA	NA	716	NA	NA	NA	NA	NA	NA	<4 U	NA	0.16 J2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	240
0239 J006	IR02MW126A	09/24/2002	0	A	NA	NA	NA	1020	NA	NA	NA	NA	NA	NA	<8 U	NA	<0.12 U2 J2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<98.6 U2
0424M014	IR02MW126A	06/10/2004	0	A	<100 U	<5 U	<5 U	297 J4	<2 U	<5 U	NA	<5 U	NA	<5 U	43.2	NA	<5 U	310 J4	NA	<0.09 U1	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	252 J3
0437P033	IR02MW126A	09/10/2004	0	A	<100 U	<8.8 U1	<5 U	672 J4	<2 U	<5 U	NA	<5 UJ2	NA	<5 U	10.8	NA	11.5	559	NA	<0.2 U	NA	4.1 J	NA	8	<1 U	NA	<5 U	NA	221
0447C010	IR02MW126A	11/17/2004	0	A	<100 U	42.1	<5.9 U1	1380	<2 U	0.97 J	NA	6.6	NA	4.2 J	<5 U	NA	<5 U	1010	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	157
0511G050	IR02MW126A	03/17/2005	0	A	100	<17.6 U1	5	208 J3	2	<5 UJ3	NA	3 J3	NA	<5 UJ3	269	NA	<5 UJ3	316	NA	<0.11 U1	NA	7.9 J3	NA	<7.4 U1 J3	1	NA	<5 UJ3	NA	625 J3
0526G049	IR02MW126A	06/29/2005	0	A	<100 U	8.8 J3	<5 UJ3	311 J3	<2 U	<5 UJ3	NA	2.5 J3	NA	<5 UJ3	<2.4 U1	NA	<5 UJ3	353 J4	NA	<0.07 U1	NA	<5 UJ3	NA	<5 UJ3	<1 U	NA	<5 UJ3	NA	174 J3
0538A043	IR02MW126A	09/23/2005	0	A	<100 U	<5 U	<5 U	543	<2 U	<5 UJ	NA	2.2	NA	<5 UJ	<1.7 U	NA	<5 UJ	521	NA	<0.041 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 UJ	NA	<166 UJ
0602T033	IR02MW126A	01/10/2006	0	A	<64.2 U	57.2	8.5	205	<2 U	<5 U	NA	10.7	NA	<.78 U	1000	NA	<5 U	281	NA	<0.34 U	NA	12.2	NA	<5 U	<1 U	NA	<5 U	NA	1620
0611 J035	IR02MW126A	03/17/2006	0	A	<100 U	80.1	<5 U	358 J	<2 U	1 J	NA	7.6	NA	2 J	732 J	NA	<5 U	381 J	NA	<0.52 U	NA	23.4	NA	6	<1 U	NA	2.7 J	NA	2320 J
0623D040	IR02MW126A	06/06/2006	0	A	<100 U	14.6	<5 U	260	<2 U	<5 U	NA	3.3 J	NA	<5 U	296	NA	<5 U	243	NA	<0.11 U	NA	10.1	NA	<5 U	<1 U	NA	<5 U	NA	1050
0649G043	IR02MW126A	12/06/2006	0	A	<100 U	41.7	<5 U	211 J	<2 U	<5 U	NA	7.9	NA	<5 U	508	NA	<5 U	163 J	NA	<0.32 U	NA	9.4	NA	5.6	<1 U	NA	<5 U	NA	857

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0709W026	IR02MW126A	02/28/2007	0	A	<100 U	<8.6 U	<5 U	477	0.28 J	<5 U	NA	<5 UJ	NA	<5 U	136	NA	<5 U	564	NA	<0.2 U	NA	4.2 J	NA	<5 U	<1 UJ	NA	<5 U	NA	514
0720 J051	IR02MW126A	05/14/2007	0	A	<100 U	<6.6 U	<6.3 U	476 J	<2 U	<5 U	NA	<5 U	NA	<5 U	68.2	NA	<5 U	412	NA	<0.087 U	NA	<5 U	NA	28.3 J	<1 U	NA	<5 UJ	NA	241 J
0732 J005	IR02MW126A	08/10/2007	0	A	<100 U	<5 U	<6.2 U	665 J	<2 U	<5 U	NA	<5 U	NA	2.2 J	31.9	NA	<5 U	512	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	206
0740W013	IR02MW126A	10/03/2007	0	A	<100 U	8.8	<5 U	732	<2 U	<5 U	NA	1.4 J	NA	<5 U	21.6	NA	<5 U	500	NA	<0.2 U	NA	<5 U	NA	17.4	<1 U	NA	<5 U	NA	216
0808E010	IR02MW126A	02/21/2008	0	A	<100 U	2.5 J	<5 U	279 J	<2 U	<5 U	NA	1.5 J	NA	1.7 J	24.4	NA	<5 U	367 J	NA	<0.12 U	NA	5.4	NA	<5 UJ	<1 U	NA	7.2 J	NA	195
0817H036	IR02MW126A	04/21/2008	0	A	<100 U	<5 U	15.4	263	<2 U	<5 U	NA	1.8 J	NA	<5 U	23.8	NA	<5 U	455	NA	<0.2 U	NA	4.4 J	NA	<5 U	<1 U	NA	<5 U	NA	178
0830D021	IR02MW126A	07/21/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.3	NA	<3.7 U	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	120
0841H027	IR02MW126A	10/10/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 UJ	NA	<5 UJ	NA	NA	NA	NA	<1.1 UJ	NA	NA	NA	NA	NA	NA	<77.5 UJ
0912W038	IR02MW126A	03/17/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8 J	NA	<5 U	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	30.8 J
0920B015	IR02MW126A	05/13/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	<2.2 U	NA	NA	NA	NA	NA	NA	<50 U
0928B010	IR02MW126A	07/07/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	<5 UJ	NA	NA	NA	NA	1.1 J	NA	NA	NA	NA	NA	NA	44.3 J
0941W016	IR02MW126A	10/05/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	<1.2 U	NA	NA	NA	NA	NA	NA	35.2 J
9205X468	IR02MW127B	01/28/1992	0	B	<20 U	<26.3 U	2.1 J3	108	<0.9 U	<2.8 U	109,000	<2.7 U	<0.01 U	<7.9 UJ3	<2.6 U1	3230	1.8	2250	233000	<0.2 U	5	<28.8 UJ3	99900	<2.5 UR2	<1.7 U	1720000	<1.8 UR2	<1.4 U	7.8
9230 J175	IR02MW127B	07/21/1992	0	B	<21.6 U	<31.1 U	<2 UJ3	107	<0.5 U	<2.7 U	112,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	3810	<1.6 U	2310	236000	<0.2 U	<5.4 U	<17.3 U	99900	<29 UR2	<1.5 U	1790000	<1.6 UJ3	<1.4 U	<16.5 U
9235 J233	IR02MW127B	08/26/1992	0	B	<21.6 U	<31.1 U	<2 U	96.5	<0.5 U	3.2	109,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	2110	8.2 J3	2300 J3	235000	<0.2 U	<5.4 U	<17.3 U	99300	<29 UR2	<1.5 U	1840000	<1.6 UJ3	<1.6 U1	<16.5 U
0112P005	IR02MW127B	03/26/2001	0	B	NA	NA	NA	NA	NA	NA	111,000	NA	NA	NA	NA	4760	NA	NA	235000	NA	NA	NA	99600	NA	NA	1810000	NA	NA	NA
0230P006	IR02MW127B	07/23/2002	0	B	NA	NA	NA	NA	NA	NA	126,000	NA	NA	NA	NA	4240	NA	NA	246000	NA	NA	NA	98500	NA	NA	1760000	NA	NA	NA
0237E025	IR02MW127B	09/13/2002	0	B	NA	NA	NA	NA	NA	NA	105,000	NA	NA	NA	NA	4140	NA	NA	219000	NA	NA	NA	80100	NA	NA	1570000	NA	NA	NA
0237E026	IR02MW127B	09/13/2002	0	B	NA	NA	NA	NA	NA	NA	110,000	NA	NA	NA	NA	4360	NA	NA	229000	NA	NA	NA	82600	NA	NA	1580000	NA	NA	NA
9218Z059	IR02MW141A	05/07/1992	0	A	<20 U	47.8	<1.7 U	81.7	<0.9 U	<2.8 U	71,200	<2.7 U	<0.01 U	<7.9 U	<14.6 U1	<14.4 U1	<6.4 U1	772	239000	<0.2 U	64.5	35.8	126000	<2.5 U	<1.7 U	1710000	<1.8 UJ3	<4 U1	136
9218Z060	IR02MW141A	05/07/1992	0	A	<20 U	62.6	<1.7 U	82	<0.9 U	<2.8 U	72,600	<2.7 U	<0.01 U	9.4	<20 U1	<9 U1	<7.9 U1	736	227000	<0.2 U	67.1	34.6	123000	<2.5 U	<1.7 U	1580000	<1.8 UJ3	<6.3 U1	154
9230 J177	IR02MW141A	07/21/1992	0	A	21100	757	26.1 J3	1270	0.7	113	125,000	491	<0.01 U	76.7	17800 J3	99500	9790	4080	396000	54	52.6	1450	162000	<2.9 UR2	67.2	2780000	<128 UJ3	1090	30600
9230 J178	IR02MW141A	07/21/1992	0	A	22600	771	22.4 J3	1220	0.64	110	125,000	517	<0.01 U	79.8	19800 J3	100000	10200	4030	407000	44	48.8	1450	165000	<2.9 UR2	68.9	2810000	<1.6 UJ3	1210	31100
9235X715	IR02MW141A	08/25/1992	0	A	<21.6 U	<31.1 U	<2 U	74.6	<0.5 U	3.6	77,600	<2.5 U	<0.01 U	14.4	36.2	<20.2 U1	6.4	981	379000	<0.2 U	47.9	32	168000	<2.9 UJ3	<1.5 U	3000000	<1.6 UJ3	<5.3 U1	154
9235X716	IR02MW141A	08/25/1992	0	A	<21.6 U	<31.1 U	<2 U	71.2	<0.5 U	3.3	76,100	<2.5 U	<0.01 U	12.3	28	<47.5 U1	5.6	953	377000	<0.2 U	53	42.2	168000	<2.9 UJ3	<1.5 U	2990000	<1.6 UJ3	<4.6 U1	121
0110P015	IR02MW141A	03/14/2001	0	A	<28.4 U	<5 U1	NA	96 J	NA	0.3 J	48,400	<0.7 U	<0.01 U	NA	<8.9 U1	1300	3 J	NA	286000	<0.1 U	NA	4.1 J	124000	NA	<1.3 U1	1370000	NA	NA	42 J4
0110P016	IR02MW141A	03/14/2001	0	A	NA	NA	NA	NA	NA	NA	48,500	NA	NA	NA	NA	1290	NA	NA	283000	NA	NA	NA	128000	NA	NA	1380000	NA	NA	NA
0231E002	IR02MW141A	07/29/2002	0	A	47.7 J	5.07	NA	63.3	NA	2.12	50,800 J4	<3 U	<0.01 U	NA	<8 U	812 J4	<0.32 U2	NA	429000 J4	<0.1 UJ1	NA	<03.5 U1	134000 J4	NA	0.24	2770000	NA	NA	<21.3 U2
0239 J001	IR02MW141A	09/23/2002	0	A	<57.7 U1	4.35	NA	53.7	NA	<0.43 U1	46,200	<3 U	<0.01 U	NA	<8 U	846	0.21	NA	384000	<0.1 U	NA	<01.9 U1	140000	NA	0.3	2380000	NA	NA	15.9
0239 J002	IR02MW141A	09/23/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<02 U1	NA	NA	NA	NA	NA	NA	NA
9205X478	IR02MW146A	01/30/1992	0	A	<20 U	<26.3 U	<1.7 U	189	<0.9 U	<2.8 U	120,000	6.8 J2	<0.01 U	<7.9 U	<1.6 U	1340	<0.8 U	215	948000	<0.2 U	11.4	<28.8 U	477000	<75 U	<1.7 U	9880000	<1.8 UR2	<1.4 U	<1.9 U
9205X479	IR02MW146A	01/30/1992	0	A	<20 U	<26.3 U	1.9	195	<0.9 U	<2.8 U	123,000	8.7 J2	<0.01 U	<7.9 U	4.7	938	<0.8 U	218	963000	<0.2 U	12.3	<28.8 U	489000	<25 U	<1.7 U	9980000	<1.8 UR2	<1.4 U	<1.9 U
9613W194	IR02MW146A	03/26/1996	0	A	<19.1 U	1.8	<1.4 U	310	<0.1 U	<0.2 U	71,400	<0.4 U	<0.01 U	<0.4 U	<0.5 U	<11 U	<0.8 U	132	695000	<0.1 U	<0.81 U1	<0.7 U	223000	3.4	<0.5 U	5940000	<1.9 U	<0.4 U	<6.8 U1
9622 J162	IR02MW146A	05/29/1996	0	A	202	<6 U	<6.5 U	325 J4	<0.5 U	<1.5 U	88,500	<3.5 U	NA	<2.5 U	<4 U	<62 U	<5 U	103 J4	680000	<0.1 U	<3.5 U	<4.5 U	207000	<11 U	<3.5 U	5400000 J4	<8.5 U	<3.5 U	<44.2 U1 J2
9622 J163	IR02MW146A	05/29/1996	0	A	<20.4 U	<1.2 U	<1.4 U1	276 J4	<0.1 U	<0.3 U	75,000	<0.88 U1	NA	1.4	<0.8 U	<37.6 U1	<1 U	83.8 J4	589000	<0.1 U	<1.9 U1	1.3	236000	<3.5 U1 J2	<0.7 U	6140000 J4	<1.7 U	1.6	<8.2 U1 J2
9044 J067	IR02MW147A	11/02/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203X415	IR02MW147A	01/15/1992	0	A	30.1	<32 U	2.6	794	<1 U	<4 U	309,000	<5 U	<0.01 U	9	7.5	147	1	4820	901000	<0.2 U	<16.5 U1	<17 U	116000	<1 U	<3 U	5150000	<5 UJ3	<4 U	14.9
9228 J167	IR02MW147A	07/10/1992	0	A	<26.8 U1	<31.1 U	<2.9 U1	745	<0.5 U	<2.7 U	320,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	590	<4.6 U1	3500	1020000	<0.2 U	16.5	<17.3 U	97400	<29 U	<1.5 U	5630000	<16 UJ3	<1.4 U	<82.5 U
9235X719	IR02MW147A	08/25/1992	0	A	<21.8 U1	<31.1 U	2.5	873	<0.5 U	3.4	325,000	<2.5 U	<0.01 U	16.7	4	320	<1.6 UJ3	3510 J3	1150000	<0.2 U	9	<17.3 U	116000	<29 UR2	<1.5 U	6230000	<16 UJ3	<1.6 U1	<16.5 U
0229A009	IR02MW147A	07/17/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0239E009	IR02MW147A	09/25/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425S036	IR02MW147A	06/15/2004	0	A	<38.5 U1 J3	<5 UJ3	<5 U	505 J34	<.63 U1 J39	<5 UJ3	NA	<5 UJ3	NA	<5 UJ3	<5 U	NA	<5 UJ3	1580 J34	NA	<0.05 U1	NA	<5 UJ3	NA	<5 UJ3	<1 U	NA	<5 UJ39	NA	<50 UJ3
0437P022	IR02MW147A	09/07/2004	0	A	<100 U	7.3 J3	<5 U	1130	<2 U	<5 U	NA	<5 U	NA	<5 U	3.4 J	NA	<5 U	3910	NA	<0.2 U	NA	<5 U	NA	5	<1 U	NA	<5 U	NA	<50 U
0449P022	IR02MW147A	11/29/2004	0	A	<100 U	26.2	7.7	154	<2 U	1.1 J	NA	6.4	NA	<4 U1	15.6	NA	<5 U	328	NA	<0.05 U1	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<41.4 U2
0511G044	IR02MW147A	03/15/2005	0	A	<100 U	<5 U	8.2	159	<2 U	<1.1 U1	NA	3.6 J	NA	<5 U	8.2	NA	<5 U	276	NA	<0.07 U1	NA	<5 U	NA	<8 U1	<1 U	NA	<5 U	NA	<50 U
0511G045	IR02MW147A	03/15/2005	0	A	<100 U	<5 U	7.2	166	<2 U	<1.2 U1	NA	2.9 J	NA	<5 U	8.2	NA	<5 U	309	NA	<0.04 U1	NA	<5 U	NA	<6.1 U1	<1 U	NA	<5 U	NA	<50 U
0526M052	IR02MW147A	06/29/2005	0	A	<22.5 U1	19 J3	<5 UJ39	295 J3	<2 U	1.2 J3	NA	<5 UJ3	NA	<1.8 U1 J3	<22.6 U1	NA	<5 UJ39	736 J4	NA	<0.07 U1	NA	5.5 J3	NA	<8.4 U1 J3	1	NA	<2.9 U1 J3	NA	<50 UJ3
0538T028	IR02MW147A	09/22/2005	0	A	<100 UJ	<13.9 UJ	<7.7 UJ	293 J	<2 UJ	<5 UJ	NA	2.3 J	NA	<5 UJ	<5 UJ	NA	<5 UJ	1340 J	NA	<0.2 U	NA	5.9 J	NA	<5 UJ	<1 UJ	NA	<5 UJ	NA	<50 UJ
0602T037	IR02MW147A	01/12/2006	0	A	<100 U	<5 U	11.5	218	<.3 U	1.4 J	NA	6.7	NA	<1.8 U	4.5 J	NA	3 J	211	NA	<0.12 U	NA	<5 U	NA	<5 U	<1 U	NA	<5.1 U	NA	<50 U
0612 J041	IR02MW147A	03/21/2006	0	A	<100 U	<5 U	<5 U	257 J	<2 U	1.2 J	NA	2.7 J	NA	2 J	9.9	NA	<5 U	596 J	NA	<0.071 U	NA	5.4	NA	<5 U	<1 U	NA	7.5 J	NA	<50 U
0623D037	IR02MW147A	06/05/2006	0	A	<100 UJ	<5 U	<5 U	213 J	<2 U	<5 UJ	NA	2.9 J	NA	<5 U	28.3	NA	<5 UJ	833 J	NA	<0.14 U	NA	<5 U	NA	<5 U	<1 U	NA	<6.5 UJ	NA	<50 U
0636D042	IR02MW147A	09/07/2006	0	A	<100 U	<5 U	<5 U	281 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 UJ	NA	<5 U	1760 J	NA	<0.2 U	NA	13	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0649B030	IR02MW147A	12/07/2006	0	A	<100 U	<3.3 U	<5 U	321 J	<2 U	<5 U	NA	<5 U	NA	<5 U	1.6 J	NA	<5 U	1000 J	NA	<0.39 U	NA	<5 U	NA	4 J	0.93 J	NA	<5 U	NA	<50 U
0709L015	IR02MW147A	02/28/2007	0	A	<100 U	5.3	<5 U	204	<2 U	<5 U	NA	<5 U	NA	<5 U	<2.6 U	NA	<5 U	567	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0720B001	IR02MW147A	05/17/2007	0	A	<100 U	<5 U	<5 U	299 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	1150 J	NA	<0.092 U	NA	7.1	NA	<5 UJ	<1 U	NA	<5 U	NA	<50 U
0732 J006	IR02MW147A	08/10/2007	0	A	<100 U	<2.4 U	<5 U	310 J	<2 U	<5 U	NA	<5 U	NA	<5 U	2.7 J	NA	<5 U	830	NA	<0.2 U	NA	4.4 J	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0740G019	IR02MW147A	10/05/2007	0	A	<100 UJ	6.8	6.8	418 J	<2 UJ	0.67 J	NA	<5 U	NA	<5 UJ	2.6 J	NA	<5 UJ	1770 J	NA	<0.2 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	<7.7 UJ	NA	<50 UJ
0810E051	IR02MW147A	03/04/2008	0	A	<100 U	<5 U	<5 U	228	<2 U	<5 U	NA	3.3 J	NA	<5 U	<4.7 U	NA	<5 U	548	NA	<0.2 U	NA	<5 U	NA	4.6 J	<1 U	NA	<5 U	NA	<50 U
0817G029	IR02MW147A	04/22/2008	0	A	<100 U	3.7 J	7.4	376	<2 U	0.67 J	NA	1.5 J	NA	<5 U	3.1 J	NA	1.9 J	2100	NA	<0.2 U	NA	5.7	NA	<4 U	<1 U	NA	5.7	NA	4 J
9112X067	IR02MW149A	03/21/1991	0	A	<16.3 U	22.8	3.3	691	<1.3 U1	<2.7 U	303,000	<1.4 U	<0.01 U	9.2	<7.1 U1	<16.4 U2	<2.1 U	947	1040000	<0.2 U	NA	58.5	88200	<23 U	<1.2 U	4070000	<12.5 U	7.4	21.6
9202N019	IR02MW149A	01/10/1992	0	A	<25.9 U1	<32 U	3.2	300	<1 U	<4 U	264,000	<5 U	<0.01 U	<6 U	5.8	<10.5 U1	<1 U	1490	910000	<0.2 U	41.7	<17 U	98200	<1 UJ3	<3 U	3970000	<1 UR2	<4 U	<8.5 U1
9235X718	IR02MW149A	08/25/1992	0	A	<21.6 U	<31.1 U	4.2	208 J4	<0.5 U	<2.7 U	219,000 J4	<2.5 U	<0.01 U	<8.8 U	5.4 J9	<11.3 U	<8 UJ3	1270 J34	956000	<0.2 U	23.3	<17.3 U	143000	<2.9 UR2	<1.5 U	5660000 J4	<16 UJ3	<6.5 U1 J9	<16.5 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9530X880	IR02MW149A	07/26/1995	0	A	<16.3 U	<2.1 U	<2.8 U	272.51	<0.1 U	<0.6 U1	213,219	<1.8 U	NA	<1.68 U1	<4.05 U1	<15.7 U	<1.5 U	128.91	714647	<0.1 U	31.13	14.14	74459.8 J4	<3.4 U	<0.6 U	3588751	4.41	7.9	:22.79 U1 J
9530X881	IR02MW149A	07/26/1995	0	A	<16.3 U	<2.1 U	<2.8 U	264.66	<0.1 U	<0.73 U1	195,992	<1.8 U	NA	<1.14 U1	<3.76 U1	<15.7 U	<1.5 U	214.96	735225	<0.1 U	29.63	14.67	91003.3 J4	<3.4 U	<0.6 U	3855153	<2 U	8.77	:17.24 U1 J
0112P008	IR02MW149A	03/27/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<44.9 U1 J9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0231E006	IR02MW149A	07/30/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	<0.1 UJ1	NA	NA	NA	NA	NA	NA	NA	NA	NA
0239E005	IR02MW149A	09/24/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0424M011	IR02MW149A	06/10/2004	0	A	83.5 J	<5 U	<5 U	332 J34	<2 U	<5 U	NA	<5 U	<0.02 U	2.4 J	<5 U	NA	<2.9 U2	888 J4	NA	<0.04 U1	NA	9.4	NA	<5 U	<1 U	NA	<5 UJ3	NA	<50 U
0424M012	IR02MW149A	06/10/2004	0	A	97.7 J	<5 U	<5 U	324 J34	<2 U	<5 U	NA	<5 U	<0.02 U	2.4 J	<5 U	NA	<3 U2	903 J4	NA	<0.13 U1	NA	10.2	NA	<5 U	<1 U	NA	<5 UJ3	NA	<50 U
0438T002	IR02MW149A	09/13/2004	0	A	<100 U	9.6	<5 U	220	<2 U	<5 U	NA	<5 U	<0.02 U	<5 U	7.5	NA	<5 U	1070	NA	<0.2 U	NA	8	NA	9.7	<1 U	NA	<5 U	NA	<50 U
0448C015	IR02MW149A	11/22/2004	0	A	<200 U	28.8	15.3	271	<4 U	2 J	NA	<10 U	<0.02 U	7 J	<10 U	NA	<10 U	1180	NA	<0.2 U	NA	<10 U	NA	<10 U	<2 U	NA	<10 U	NA	<100 U
0510G024	IR02MW149A	03/10/2005	0	A	<100 U	<5 U	22.1	214	<2 U	3.2 J	NA	<5 U	0.02	3 J	2.7 J	NA	<5 U	1240	NA	<0.2 U	NA	9.9	NA	<10.5 U1	<1 U	NA	<5 U	NA	<50 U
0526G038	IR02MW149A	06/27/2005	0	A	<63 U1	18.3	<5 U	176	<2 U	2.5 J	NA	<5 U	0.02	4.7 J	<5 U	NA	<5 U	834	NA	<0.2 U	NA	10.3	NA	<7.8 U1	<1 U	NA	<5 U	<5 U	<50 U
0538T024	IR02MW149A	09/21/2005	0	A	<100 U	<9.8 U	<5 U	263	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	894	NA	<0.2 U	NA	11.2	NA	<5 U	<1 U	NA	7.5	NA	<50 U
0602T036	IR02MW149A	01/12/2006	0	A	<100 U	<5 U	9.5	144	<.26 U	<5 U	NA	<5 U	<0.02 U	<1.8 U	5.9	NA	<5 U	443	NA	<0.069 U	NA	10.4	NA	<5 U	<1 U	NA	<3.3 U	NA	<50 U
0612 J040	IR02MW149A	03/21/2006	0	A	<100 U	<5 U	<5 U	187 J	<2 U	1.4 J	NA	<5 U	<0.02 U	2.8 J	<5.6 U	NA	<5 U	836 J	NA	<0.16 U	NA	16.7	NA	<5 U	<1 U	NA	6.6 J	NA	<50 U
0622D020	IR02MW149A	05/30/2006	0	A	<100 U	5.4	<5 U	226 J	<2 U	0.63 J	NA	<5 U	0.0000005	<5 U	9.7	NA	3.1 J	1110	NA	<0.055 U	NA	12.4 J	NA	<5 U	<1 U	NA	<5.5 U	NA	<50 U
0636D041	IR02MW149A	09/07/2006	0	A	<100 U	2.9 J	<5 UJ	241 J	<2 U	<5 U	NA	<5 U	0.000006	<5 U	80 J	NA	<5 U	1270 J	NA	<0.098 U	NA	13.7	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0649W033	IR02MW149A	12/07/2006	0	A	<100 U	<3 U	<2.7 U	219 J	<2 U	<5 U	NA	<5 U	).0000005 U	<5 U	14	NA	<5 U	795 J	NA	<0.2 U	NA	17.2	NA	7	1.6	NA	3 J	NA	<50 U
0709L017	IR02MW149A	03/01/2007	0	A	<100 U	<10.9 U	<5 U	55.8	0.38 J	<5 U	NA	<5 UJ	0.0000005	<5 U	10.2	NA	<5 U	42.5	NA	<0.2 U	NA	5.2	NA	<5 U	<1 UJ	NA	<5 U	NA	<50 U
0720N007	IR02MW149A	05/15/2007	0	A	<100 U	<13.2 U	<5 U	163 J	<2 U	<.55 U	NA	<5 U	0.0000013	<5 U	<1.5 U	NA	<5 U	565	NA	<0.2 U	NA	17.4	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 U
0732D004	IR02MW149A	08/08/2007	0	A	<100 UJ	<3.4 UJ	<5 UJ	164 J	<2 UJ	<5 UJ	NA	<5 UJ	0.0000026	0.97 J	1.5 J	NA	<5 UJ	1260 J	NA	<0.2 U	NA	16.6 J	NA	<5 UJ	<1 UJ	NA	<5 UJ	NA	<50 UJ
0740G006	IR02MW149A	10/02/2007	0	A	<100 UJ	<4.9 UJ	<7.3 UJ	181 J	<2 UJ	1.2 J	NA	<5 UJ	0.0000021	3.3 J	<5 U	NA	4.2 J	1480 J	NA	<0.2 U	NA	16.2 J	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0810E052	IR02MW149A	03/04/2008	0	A	<100 U	<5 U	<5 U	157	<2 U	<5 U	NA	<5 U	0.000001	<5 U	<3.7 U	NA	<5 U	846	NA	<0.2 U	NA	11.4	NA	3.8 J	0.78 J	NA	<5 U	NA	<50 U
0817D032	IR02MW149A	04/21/2008	0	A	<100 U	2.2 J	18.1	140	<2 U	1.5 J	NA	<5 U	<0.0005 U	<5 U	3.2 J	NA	<3.1 U	897	NA	<0.2 U	NA	17.2	NA	<5 U	<1 U	NA	<11.2 U	NA	<50 U
9205X474	IR02MW173A	01/29/1992	0	A	<20 U	<26.3 U	54.6	4250	<0.9 U	<2.8 U	127,000	6.9 J2	<0.01 U	<7.9 U	<1.6 U	303	<0.8 U	1400	700000	<0.2 U	7.2	<28.8 U	390000	<50 U	<1.7 U	9040000	<1.8 UR2	<1.4 U	<1.9 U
9205X475	IR02MW173A	01/29/1992	0	A	<20 U	<26.3 U	49.6	4110	<0.9 U	<2.8 U	124,000	7.6 J2	<0.01 U	<7.9 U	<1.6 U	220	<0.8 U	1330	687000	<0.2 U	7.8	<28.8 U	383000	<50 U	<1.7 U	9340000	<1.8 UR2	<1.4 U	<1.9 U
9613W193	IR02MW173A	03/26/1996	0	A	<19.1 U	<1.6 U	75.7	2880	<0.1 U	<0.2 U	65,900	<0.4 U	<0.01 U	<1.4 U1	<0.5 U	<36.2 U1	<0.8 U	480	522000	<0.1 U	<0.73 U1	<0.7 U	212000	<2.3 U	<0.5 U	6100000	<1.9 U	<0.43 U1	<14.8 U1
9622 J166	IR02MW173A	05/30/1996	0	A	<20.4 U	<1.2 UJ9	73.7	2720 J4	<0.1 U	<0.3 U	66,300	<0.7 UJ9	NA	0.65 J9	<3.1 U1	<79.6 U1	<1 UJ9	470 J4	462000	<0.1 U	<1.1 U1	<0.9 UJ9	228000	<6.6 U1 J2	<0.7 UJ9	6260000 J4	<1.7 UJ9	<0.7 UJ9	:10.4 U1 J2
9043 J045	IR02MW175A	10/25/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A089	IR02MW175A	01/14/1992	0	A	<22.4 U1	<32 U	<1.3 U1	99.4	<1 U	<4 U	262,000	<5 U	<0.01 U	<6 U	<2 U	854	<3 U	595	810000	<0.2 U	<8.9 U1	<17 UJ3	349000	<1 UJ3	<3 U	9100000	<5 U	90.9	<7.9 U1
9228X669	IR02MW175A	07/10/1992	0	A	1710 J3	41.8	<20 UJ3	110	<0.5 U	<2.7 U	292,000	<2.5 U	<0.01 U	<8.8 U	<6.8 U1	5300	<16 U	615	925000	<0.2 U	<5.4 U	<17.3 U	298000	<29 U	<1.5 U	8680000	<16 UJ3	115	<16.5 U
9228X670	IR02MW175A	07/10/1992	0	A	664 J3	<31.1 U	<20 UJ3	104	<0.5 U	<2.7 U	294,000	<2.5 U	<0.01 U	<8.8 U	<3.9 U1	2690	<16 U	584	935000	<0.2 U	<5.4 U	24	301000	<29 U	<1.5 U	8800000	<16 UJ3	99	<82.5 U
9235 J230	IR02MW175A	08/25/1992	0	A	<21.6 U	<31.1 U	<2 U	109	<0.5 U	<2.7 U	295,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	<165 U1	<16 U	584	961000	<0.2 U	<5.4 U	<17.3 U	341000	<2.9 UJ3	<1.5 U	9650000	<8 UJ3	75.2	<16.5 U
0110P002	IR02MW175A	03/12/2001	0	A	<28.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0229P014	IR02MW175A	07/18/2002	0	A	<47.5 U1	1.44	1.1 J	94.1	<1 U	<9.4 U1	362,000	<3 U	NA	<4 U	<4 U	62.3	0.26 J2	272	995000	<0.1 U1	<3 U	<20 U	317000	<5 U	<4 U	8690000	<0.08 U	146	<2 U
0229P015	IR02MW175A	07/18/2002	0	A	<56.9 U1	4.28	1.2 J	88.7	<1 U	<4.5 U1	339,000	<3 U	NA	<4 U	<4 U	61.2	0.22 J2	255	930000	<0.1 U	<5.9 U1	<20 U	293000	<5 U	<4 U	8020000	<0.08 U	137	<2.7 U1
0239G002	IR02MW175A	09/23/2002	0	A	<30 U	<0.4 U	<5 UJ3	99.6	<0.4 U	<0.9 U1	379,000	<3 U	NA	<2 U	<8 U	106	<0.08 U	291	1100000	<0.1 U	<5 U	<0.9 U	331000	5R2	<7 UJ3	8910000	<0.08 U	128	<2 U
0425H032	IR02MW175A	06/17/2004	0	A	44.6 J	<5 U	<5 U	64.4	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	298	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0438 J028	IR02MW175A	09/15/2004	0	A	<100 U	25.3	<5 U	99.3	<2 U	<5 U	NA	<5 U	NA	<5 U	1.5 J	NA	<5 U	284	NA	<0.04 U1	NA	<5 U	NA	22.9	<1 U	NA	<5 U	NA	<50 U
0438 J029	IR02MW175A	09/15/2004	0	A	<500 U	33.5	<25 U	104	<10 U	<25 U	NA	<25 U	NA	<25 U	<25 U	NA	<25 U	302	NA	<0.2 U	NA	<25 U	NA	25.5	<5 U	NA	<25 U	NA	<250 U
0447R006	IR02MW175A	11/17/2004	0	A	<200 U	61.8	13.7	81.7	<4 U	2.8 J	NA	<10 U	NA	12.7	<10 U	NA	<10 U	298	NA	<0.2 U	NA	<10 U	NA	<10 U	<2 U	NA	<10 U	NA	<100 U
0511Z023	IR02MW175A	03/17/2005	0	A	88.2 J	5	<17.5 U1	67.2 J3	2	2.8 J3	NA	<5 UJ3	NA	3.7 J3	5	NA	<5 UJ3	599	NA	<0.14 U1	NA	<5 UJ3	NA	<11.9 U1 J3	1	NA	<5 UJ3	NA	<50 UJ3
0511Z024	IR02MW175A	03/17/2005	0	A	109	<5u	<19.2 U1	65.5 J3	<2u	2.5 J3	NA	<5 UJ3	NA	3.7 J3	<5u	NA	<5 UJ3	555	NA	<0.15 U1	NA	<5 UJ3	NA	<9.2 U1 J3	<1u	NA	<5 UJ3	NA	<50 UJ3
0721 J065	IR02MW175A	05/21/2007	0	A	<100 U	<5 U	15.2	67.7	<2 U	<5 U	NA	<5 U	0.0000051	<5 U	<5 U	NA	<5 U	489	NA	<0.09 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0732W010	IR02MW175A	08/10/2007	0	A	<100 U	<5 U	<5 U	77.1 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	619	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0740W007	IR02MW175A	10/02/2007	0	A	<100 UJ	<4.9 UJ	<4.9 UJ	80.7 J	<2 UJ	0.91 J	NA	<5 UJ	NA	0.82 J	1.8 J	NA	4.6 J	621 J	NA	<0.2 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0808D008	IR02MW175A	02/21/2008	0	A	<100 U	3.2 J	<5 U	75.6 J	<2 U	2.9 J	NA	<5 U	NA	<5 U	<5 U	NA	<2 U	575 J	NA	<0.2 U	NA	<5 U	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 U
0817D033	IR02MW175A	04/21/2008	0	A	<100 U	2.8 J	<12.1 U	76.4	<2 U	0.77 J	NA	<5 U	NA	<5 U	3.5 J	NA	<1.6 U	636	NA	<0.2 U	NA	2.6 J	NA	<5 U	<1 U	NA	<11.6 U	NA	<50 U
0830H034	IR02MW175A	07/23/2008	0	A	<100 UJ	4.4 J	<5 UJ	73.8 J	<0.2 U	<0.2 U	NA	5.8	NA	2.3 J	<5 U	NA	18.4	NA	434 J	NA	NA	<5 U	NA	5R	<1 U	NA	21.8	NA	<50 U
0912D036	IR02MW175A	03/17/2009	0	A	<100 U	<5 U	6.6	76.1	<0.2 U	<0.059 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	294 J	NA	NA	<5 U	NA	<5 U	<0.69 U	NA	<5 U	NA	<50 U
9044 J050	IR02MW179A	10/29/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9044 J051	IR02MW179A	10/29/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A086	IR02MW179A	01/14/1992	0	A	<17.5 U1	<32 U	<1.9 U1	32.5	<1 U	<4 U	263,000	<5 U	<0.01 U	<6 U	<3.4 U1	<5 U	<5 U	9.6	821000	<0.2 U	<13 U1	<17 UJ3	362000	<1 UJ3	<3 U	8360000	<5 U	<4 U	<17.6 U1
9224X616	IR02MW179A	06/09/1992	0	A	<21.6 U	<31.1 U	<40 U	36.8	<0.5 U	<2.7 U	286,000	<2.5 UJ3	<0.01 U	<8.8 UJ3	<2.8 U1	<11.3 UJ3	<2.4 U1 J3	<0.53 UJ3	928000	<0.2 U	11.3	20 J3	308000	<2.9 UR2	<1.5 U	9150000	<8 UJ3	<2.8 U1	<16.5 UJ3
9235 J231	IR02MW179A	08/25/1992	0	A	<21.6 U	<31.1 U	<2 U	34.1	<0.5 U	8.4	309,000	<2.5 U	<0.01 U	<8.8 U	4.5	<11.3 U	<16 U	<0.53 U	1000000	<0.2 U	10.7	<17.3 U	347000	<29 UJ3	<1.5 U	9700000	<8 UJ3	<3 U1	<16.5 U
0110P004	IR02MW179A	03/12/2001	0	A	NA	NA	NA	NA	NA	<0.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4 J	NA	NA	NA	NA	NA	NA	NA
0229D010	IR02MW179A	07/17/2002	0	A	<30 U	1.01	<03.1 U1	37.8	<0.4 UJ3	0.9 J	281,000	<3 U	NA	<2 U	<8 U	<24.5 U2	0.16 J	744	910000	<0.1 U	<5 U	<0.9 U	299000	5R2	<7 U	7400000	<0.08 U	<6 U	<2 U
0229D011	IR02MW179A	07/17/2002	0	A	<30 U	0.59 J	<03.1 U1	41.2	<0.4 UJ3	0.7 J	280,000	<3 U	NA	<2 U	<8 U	<24.9 U2	0.17 J	585	902000	<0.1 U	<5 U	<0.9 U	273000	5R2	<7 U	7460000	<0.08 U	<6 U	<2 U
0238 J020	IR02MW179A	09/20/2002	0	A	<42.7 U1	0.76 J	<5 UJ3	43.7	<0.4 U	<0.8 U1	355,000	<3 U	NA	<2 U	<8 U	26.7	<0.08 U	506	1070000	<0.1 U	<5 U	<0.9 U	314000	<5 UJ3	<7 UJ3	8580000	<0.08 U	<6 U	<2 U
0425R001	IR02MW179A	06/17/2004	0	A	724	<5 U	<5.4 U1	36.9	<2 U	<5 U	NA	<5 U	NA	1.2 J	1.6 J	NA	<1.9 U1	5280	NA	<0.2 U	NA	4 J	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0438 J033	IR02MW179A	09/16/2004	0	A	<500 U	31.2	<25 U	61.8	<10 U	<25 U	NA	<25 U	NA	<25 U	4.8 J	NA	<25 U	49.3	NA	<0.2 U	NA	<25 U	NA	<29.9 U1	<5 U	NA	<25 U	NA	<250 U
0448P014	IR02MW179A	11/23/2004	0	A	<200 U	46.1	17.3	50.7	<4 U	1.8 J9	NA	<10 U	NA	8 J	<10 UJ9	NA	<10 U	57.6	NA	<0.08 U1	NA	<10 U	NA	<10 UJ9	<2 U	NA	<10 UJ9	NA	<100 U
0448P015	IR02MW179A	11/23/2004	0	A	<200 U	47.3	17.1	50	<4 U	2 J	NA	<10 U	NA	8.2 J	<10 UJ9	NA	<10 U	177	NA	<0.05 U1	NA	<10 U	NA	<10 UJ9	<2 U	NA	<10 UJ9	NA	<100 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0511R051	IR02MW179A	03/17/2005	0	A	56.9 J	<5 U	<14.5 U1	26.3 J3	<2 U	1.4 J3	NA	<5 UJ3	NA	<2.2 U1 J3	<5 U	NA	<5 UJ3	14.2	NA	<0.2 U	NA	<5 UJ3	NA	<9.5 U1 J3	<1 U	NA	<5 UJ3	NA	<50 UJ3
0511R052	IR02MW179A	03/17/2005	0	A	75 J	<5 U	<15.3 U1	24.4 J3	<2 U	1.4 J3	NA	<5 UJ3	NA	<2.7 U1 J3	2.1 J	NA	<5 UJ3	41.5	NA	<0.12 U1	NA	<5 UJ3	NA	<8 U1 J3	<1 U	NA	<5 UJ3	NA	<50 UJ3
0526G047	IR02MW179A	06/29/2005	0	A	<69.7 U1	20.7 J3	<5 UJ39	25.6 J3	<2 U	1.9 J3	NA	<5 UJ3	NA	<5.3 U1 J3	<5 UJ9	NA	3 J3	816 J4	NA	<0.2 U	NA	<5 UJ3	NA	<10.2 U1 J3	<1 U	NA	<3.1 U1 J3	NA	<50 UJ3
0538A041	IR02MW179A	09/23/2005	0	A	<100 U	<8.5 U	10	30.5	<2 U	<5 UJ	NA	<5 U	NA	<5 UJ	<5 U	NA	<5 UJ	1460	NA	<0.041 U	NA	<5 U	NA	<5 U	<1 U	NA	4.9 J	NA	<50 UJ
0538A042	IR02MW179A	09/23/2005	0	A	<100 U	<10.3 U	11.2	25.6	<2 U	<5 UJ	NA	<5 U	NA	<5 UJ	<5 U	NA	<5 UJ	2860	NA	<0.06 U	NA	<5 U	NA	<5 U	<1 U	NA	3 J	NA	<50 UJ
0602H049	IR02MW179A	01/12/2006	0	A	<100 U	<5 U	14.7	55.2	<.39 U	<5 U	NA	<5 U	NA	<1.2 U	<5 U	NA	<5 U	10.3	NA	<0.077 U	NA	<5 U	NA	<5 U	<1 U	NA	<4.9 U	NA	<50 U
0611 J036	IR02MW179A	03/17/2006	0	A	<100 U	<5 U	<5 U	35.6 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<4.1 UJ	NA	<5 U	110 J	NA	<0.14 U	NA	<5 U	NA	<5 U	<1 U	NA	3 J	NA	<50 UJ
0611 J037	IR02MW179A	03/17/2006	0	A	<100 U	<5 U	<5 U	37 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<4.9 UJ	NA	<5 U	133 J	NA	<0.17 U	NA	<5 U	NA	<5 U	<1 U	NA	4.3 J	NA	<50 UJ
0623D042	IR02MW179A	06/06/2006	0	A	<100 U	<5 U	<5 U	48.4	<2 U	0.53 J	NA	<5 U	NA	<5 U	7.6	NA	1.9 J	322	NA	<0.14 U	NA	<5 U	NA	8.8	<1 U	NA	<4.6 U	NA	<50 U
0649W038	IR02MW179A	12/08/2006	0	A	<100 U	<2.3 U	5.3	42.1 J	<2 UJ	<5 UJ	NA	<5 UJ	NA	<5 UJ	6	NA	<5 UJ	2510 J	NA	<0.062 U	NA	<5 UJ	NA	7	<1 U	NA	<5 UJ	NA	<50 UJ
0708L007	IR02MW179A	02/22/2007	0	A	<100 U	3.8 J	5.5	56	0.24 J	<5 U	NA	<5 U	NA	<5 U	<1.9 U	NA	<5 U	1440 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0720 J056	IR02MW179A	05/16/2007	0	A	<100 U	<5 U	<6.1 U	57.7	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	1580	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0732D010	IR02MW179A	08/10/2007	0	A	<100 U	<5 U	<5 U	46.2 J	<2 U	<5 U	NA	<5 U	NA	<5 U	1.7 J	NA	<5 U	2830	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0740D008	IR02MW179A	10/02/2007	0	A	<100 UJ	<6.4 UJ	<7.7 UJ	45.1 J	<2 UJ	1.1 J	NA	<5 UJ	NA	1.4 J	2 J	NA	5.7 J	2780 J	NA	<0.2 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0809P002	IR02MW179A	02/25/2008	0	A	<100 U	<5 U	13.5	47.3 J	<2 U	<5 UJ	NA	<5 UJ	NA	<5 UJ	<1.4 U	NA	<5 UJ	171 J	NA	<0.2 U	NA	<5 UJ	NA	<5 U	1.3	NA	<5 UJ	NA	<50 UJ
0817H037	IR02MW179A	04/21/2008	0	A	<100 U	4.1 J	19.6	46.3	<2 U	0.84 J	NA	<5 U	NA	<5 U	2.8 J	NA	<3 U	2320	NA	<0.2 U	NA	3.4 J	NA	<5 U	<1 U	NA	<10.9 U	NA	<50 U
0830H037	IR02MW179A	07/23/2008	0	A	<100 UJ	10.7	<5 UJ	49.1 J	<0.2 U	<0.2 U	NA	5.8	NA	2.2 J	<5 U	NA	14.7	NA	598 J	NA	NA	<5 U	NA	5R	<1 U	NA	14.3	NA	<50 U
0912D035	IR02MW179A	03/17/2009	0	A	<100 U	<5 U	11.6	58.6	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	1.1 J	NA	<5 U	NA	682 J	NA	NA	<5 U	NA	<5 U	<0.53 U	NA	<5 U	NA	<50 U
9045 J072	IR02MW183A	11/05/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9045 J073	IR02MW183A	11/05/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	<36 U1	<32 U	8.5	261	<1 U	<4 U	142,000	<5 U	<0.01 U	<6 U	<2.3 U1	91.7	<1 U	2720	439000	<0.2 U	<12.8 U1	<17 UJ3	159000	<1 U1 J3	<3 U	4240000	<5 U	24	<11.5 U1
9203A088	IR02MW183A	01/14/1992	0	A	<29.8 U1	<32 U	8.3	254	<1 U	<4 U	142,000	5.2	<0.01 U	<6 U	<3 U1	294	<1 U	2760	433000	<0.2 U	<13.3 U1	<17 UJ3	156000	<1 UJ3	<3 U	4290000	<5 U	19.2	<17 U1
9224X618	IR02MW183A	06/09/1992	0	A	<21.6 U	<31.1 U	<2 U	365	<0.5 U	<2.7 U	163,000	<2.5 UJ3	<0.01 U	<8.8 UJ3	<2.3 U1	2170 J3	<3.1 U1 J3	2400 J3	641000	<0.2 U	<5.4 U	<17.3 UJ3	183000	<2.9 UR2	1.6	6490000	<8 UJ3	5.2	<16.5 UJ3
9235 J234	IR02MW183A	08/26/1992	0	A	<21.6 U	<31.1 U	13.5	346	<0.5 U	<2.7 U	150,000	<2.5 U	<0.01 U	10.3	<1.8 U	859	1.6 J3	2690 J3	529000	<0.2 U	6.2	<17.3 U	159000	<2.9 UR2	<1.5 U	5290000	<1.6 UJ3	8.3	<16.5 U
0227E003	IR02MW183A	07/01/2002	0	A	39.7 J	2.76	<05 UJ2	218	<0.4 U	<0.4 U	100,000	<3 U	NA	<2 U	<8 U	349	0.14 J2	1620	289000	0.1 J	<5 U	<0.9 U	96200	<5 UJ3	<7 UJ3	2180000	<0.02 U	<6 U	<4.4 U1
0227E004	IR02MW183A	07/01/2002	0	A	<30 U	0.59	<05 UJ2	281	<0.4 U	<0.4 U	119,000	<3 U	NA	<2 U	<8 U	640	0.09 J2	1910	362000	0.1 J	<5 U	<0.9 U	112000	<5 UJ3	<7 UJ3	2780000	<0.02 U	<6 U	<2.1 U1
0237G010	IR02MW183A	09/11/2002	0	A	<30 U	<0.1 U	<5.5 U1	150	<0.4 U	<0.4 U	79,300	<3 U	NA	<2 U	<8 U	71.7	<0.06 U2	1300	209000	<0.1 U	<5 U	<0.9 U	75000	5R2	<7 U	1590000	0.02 J	<6 U	<2 U
9112X063	IR02MW196A	03/21/1991	0	A	22.6	26.9	4.1	141	<1.3 U1	<2.7 U	768,000	<1.4 U	<0.01 U	<6.6 U	<11.3 U1	1360	<2.1 U	2290	436000	<0.2 U	NA	<14.5 U	110000	<23 U	<1.2 U	3150000	<12.5 U	16.4	18.4
9112X064	IR02MW196A	03/21/1991	0	A	<16.3 U	<21.7 U	3.7	135	<1.4 U1	<2.7 U	707,000	<1.4 U	<0.01 U	<6.6 U	<1.1 U	1330	<10.5 U	2240	428000	<0.2 U	NA	24.2	107000	<23 U	<1.2 U	2910000	<12.5 U	20.6	17.4
9202A017	IR02MW196A	01/08/1992	0	A	<16 U	<32 U	1.3	121	<1 U	<4 U	618,000	<5 U	<0.01 U	<6 U	<2 U	2550	<1 U	2740	369000	<0.2 U	<7 U	<17 U	113000	<5 UJ3	<3 U	2810000	<1 UR2	<4 U	<15.6 U1
9235X722	IR02MW196A	08/26/1992	0	A	<39.9 U1	<31.1 U	<2 U	96	<0.5 U	<2.7 U	537,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	2850	<1.6 UJ3	2570 J3	294000	<0.2 U	<5.4 U	<17.3 U	93300	<29 UR2	<1.5 U	2630000	<16 UJ3	<1.4 U	<16.5 U
9044 J052	IR02MW206A1	10/29/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	<17.5 U1	<32 U	<1 U	39	<1 U	<4 U	267,000	<5 U	<0.01 U	<6 U	12.3	<5 U	1.2 J2	70	798000	<0.2 U	<12.5 U1	<17 U	324000	<5 UJ3	<3 U	7510000	<1 UR2	<4 U	<10.4 U1
9224X615	IR02MW206A1	06/09/1992	0	A	<21.6 U	<31.1 U	<40 U	31.5 J4	<0.5 U	<2.7 U	299,000 J4	<2.5 UJ3	<0.01 U	<8.8 UJ3	<4.5 U1 J9	<31.9 U1 J3	<1.6 UJ3	98.4 J34	960000	<0.2 U	6.5	<17.3 UJ3	324000	<14.5 UR2	<1.5 U	9900000	<8 UJ3	<1.4 U	<16.5 UJ3
9235X720	IR02MW206A1	08/25/1992	0	A	<21.6 U	36.4	<2 U	37.1	<0.5 U	<2.7 U	316,000	<2.5 U	<0.01 U	<8.8 U	3.2	<23.1 U1	2.1 J3	113 J3	1200000	<0.2 U	6.1	<17.3 U	347000	<29 UR2	<1.5 U	1.02E+07	<16 UJ3	<1.4 U	<16.5 U
0230D012	IR02MW206A1	07/25/2002	0	A	<13.7 U1	1.88	5.4 J3	51.1	<1 U	8.3 J9	375,000	<3 UJ9	NA	<4 U	<4 UJ9	<20 U	0.42 J2	<1 U	1140000	<0.1 U	<16.7 U1 J9	<20 U	352000	<5 UJ3	<4 UJ39	9310000	<0.08 UJ2	<7.5 U1 J9	<2.4 U2 J9
0230D013	IR02MW206A1	07/25/2002	0	A	<10 U	2.87	<5 UJ3	48.5	<1 U	7	375,000	<3 U	NA	<4 U	<4 U	<20 U	0.57 J2	1.3 J	1120000	<0.1 U	<14.2 U1	<20 U	350000	<5 UJ3	<4 UJ3	9390000	<0.08 UJ2	<6.6 U1	<2.3 U2
0239A007	IR02MW206A1	09/24/2002	0	A	<41.7 U1	1.09	<5 U	44.5	<0.4 U	<0.4 U	378,000	<3 U	NA	<2 U	<8 U	<28.4 U2	0.65 J2	2.3 J	1160000	<0.1 U	6.7 J	<01.8 U1	336000	<4 UJ3	<7 U	9180000	<0.08 U	<6 U	<3.9 U2
9044 J053	IR02MW206A2	10/29/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	<21.2 U1	<32 U	<1 U	132	<1 U	<4 U	303,000	<5 U	<0.01 U	<6 U	2.3	2680	<5 U	1580	924000	<0.2 U	<11.9 U1	<17 U	398000	<1 UJ3	<3 U	8560000	<1 UR2	<4 U	<18.3 U1
9224X611	IR02MW206A2	06/08/1992	0	A	<32.4 U1	<31.1 U	<40 U	106	<0.5 U	<2.7 U	307,000	<2.5 UJ3	<0.01 UJ3	<8.8 UJ3	<5.1 U1	2250 J3	<1.6 UJ3	1380 J3	981000	<0.2 U	8.4	<17.3 UJ3	327000	<14.5 UR2	<1.5 U	9440000	<8 UJ3	<1.4 U	<16.5 UJ3
9235X723	IR02MW206A2	08/26/1992	0	A	<28.4 U1	<31.1 U	<2 U	127	<0.5 U	<2.7 U	310,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	1460	<16 UJ3	1710 J3	979000	<0.2 U	9.7	<17.3 U	328000	<29 UR2	<1.5 U	9570000	<16 UJ3	<1.4 U	<16.5 U
0229D014	IR02MW206A2	07/18/2002	0	A	<56.4 U1	4.34	1.7 J	131	<1 U	<8.1 U1	349,000	<3 U	NA	<4 U	<4 U	4450	0.29 J2	2140	1030000	<0.24 U1	<7 U1	<20 U	311000	<5 U	<4 U	8540000	<0.08 U	7.9 J	<2 U
0238 J018	IR02MW206A2	09/20/2002	0	A	<30 U	<0.4 U	<5 UJ3	124	<0.4 U	<0.5 U1	368,000	<3 U	NA	<2 U	<8 U	4800	0.09 J	1800	1090000	<0.1 U	5 J	<0.9 U	329000	<5 UJ3	<7 UJ3	8830000	<0.08 U	<6 U	<2 U
0238 J019	IR02MW206A2	09/20/2002	0	A	<30 U	<0.4 U	<5 UJ3	127	<0.4 U	<0.9 U1	372,000	<3 U	NA	<2 U	<8 U	4890	<0.08 U	1830	1110000	<0.1 U	<5 U	<0.9 U	334000	<5 UJ3	<7 UJ3	9030000	<0.08 U	<6 U	<2 U
9044 J054	IR02MW209A	10/29/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	<22.7 U1	<32 U	<1 U	69.6	<1 U	<4 U	300,000	<5 U	<0.01 U	<6 U	<2 U	200	<5 U	651	941000	<0.2 U	<14.2 U1	<17 U	401000	<1 U1	<3 U	9380000	<1 UR2	<4 U	<3.3 U1
9202A014	IR02MW209A	01/08/1992	0	A	<16 U	<32 U	2.1	71.2	<1 U	<4 U	301,000	<5 U	<0.01 U	<6 U	2.6	271	<5 U	663	949000	<0.2 U	<11.1 U1	<17 U	410000	<6.2 U1	<3 U	9330000	<1 UR2	<4 U	<4.3 U1
9224X609	IR02MW209A	06/08/1992	0	A	<23.4 U1	31.9	<2 U	54.8	<0.5 U	<2.7 U	292,000	<2.5 UJ3	<0.01 U	<8.8 UJ3	<2.1 U1	288 J3	<8 UJ3	589 J3	954000	<0.2 U	6.5	<17.3 UJ3	328000	<14.5 UR2	<1.5 U	9460000	<8 UJ3	<2 U1	<16.5 UJ3
9224X610	IR02MW209A	06/08/1992	0	A	<21.6 U	<31.1 U	<40 U	54.5	<0.5 U	3.3	291,000	<2.5 UJ3	<0.01 U	12.2 J3	<1.8 U	226 J3	<8.5 U1 J3	594 J3	955000	<0.2 U	5.7	<17.3 UJ3	328000	<14.5 UR2	<1.5 U	9300000	<8 U1 J3	<1.5 U1	<16.5 UJ3
9235X725	IR02MW209A	08/26/1992	0	A	<29 U1	<31.1 U	<2 U	69	<0.5 U	<2.7 U	298,000	<2.5 U	<0.01 U	10.5	<1.8 U	511	<16 UJ3	676 J3	993000	<0.2 U	<5.4 U	<17.3 U	335000	<29 UR2	<1.5 U	9110000	<16 UJ3	<1.4 U	<16.5 U
0425G037	IR02MW209A	06/17/2004	0	A	44.3 J	<5 U	<5 U	32.8	<0.57 U1	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	536	NA	<0.2 U	NA	<5 U	NA	<5 U	0.73 J	NA	<5 U	NA	<50 U
0438C046	IR02MW209A	09/15/2004	0	A	<500 U	30.6	<25 U	49.8	<10 U	<25 U	NA	<25 U	NA	<25 U	<25 U	NA	<25 U	895	NA	<0.2 U	NA	<25 U	NA	<25 U	<5 U	NA	<25 U	NA	<250 U
0438C047	IR02MW209A	09/15/2004	0	A	<500 U	22.2 J	<25 U	53.3	<10 U	<25 U	NA	<25 U	NA	<25 U	<25 U	NA	<25 U	857	NA	<0.2 U	NA	<25 U	NA	23.8 J	<5 U	NA	<25 U	NA	<250 U
0449C023	IR02MW209A	11/29/2004	0	A	<400 U	<55.7 U1	10.1 J	58.5	<8 U	<20 U	NA	<20 U	NA	<18 U1	<20 U	NA	<20 U	993	NA	<0.04 U1	NA	<20 U	NA	<20 U	<4 U	NA	<20 U	NA	<200 U
0511G049	IR02MW209A	03/17/2005	0	A	87.9 J	<5 U	<24.2 U1	38.4 J3	<2 U	3.3 J3	NA	<5 UJ3	NA	3.9 J3	<5 U	NA	<5 UJ3	1050	NA	<0.2 U	NA	<5 UJ3	NA	<6.4 U1 J3	<1 U	NA	<5 UJ3	NA	<50 UJ3
0525G036	IR02MW209A	06/24/2005	0	A	<90.6 U1	21	<5 U	41.8	<2 U	2.2 J	NA	<5 U	NA	5.6	<5 U	NA	4.1 J	857	NA	<0.06 U1	NA	<5 U	NA	<12.4 U1	<1 U	NA	2.3 J	<5 U	<50 U
0525G037	IR02MW209A	06/24/2005	0	A	<75.4 U1	22	<5 U	42.3	<2 U	2.2 J	NA	<5 U	NA	5.7	<5 U	NA	4.6 J	827	NA	<0.2 U	NA	<5 U	NA	<11.7 U1	<1 U	NA	<5 U	<5 U	<50 U
0539T036	IR02MW209A	09/26/2005	0	A	<100 UJ	<9.2 U	<6.7 UJ	38.3 J	<2 UJ	<5 UJ	NA	<5 UJ	NA	<5 UJ	<5 U	NA	3.9 J	603 J	NA	<0.11 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	9.8 J	NA	<50 UJ
0602H051	IR02MW209A	01/12/2006	0	A	<100 U	<5 U	5.8	40.4 J	<.45 U	0.89 J	NA	<5 U	NA	<1.3 U	<5 U	NA	<5 UJ	530 J	NA	<0.095 U	NA	<5 U	NA	<5 UJ	<1 U	NA	<5.1 UJ	NA	<50 UJ
0611H036	IR02MW209A	03/17/2006	0	A	<100 U	<5 U	<5 U	41.5 J	<2 U	1.7 J	NA	<5 U	NA	<5 U	<5 UJ	NA	<5 U	620 J	NA	<0.14 U	NA	<5 U	NA	<5 U	<1 U	NA	8.6	NA	<50 UJ
0623P048	IR02MW209A	06/05/2006	0	A	<100 U	6.2	<5 U	41.4	<2 U	<5 U	NA	<5 U	NA	<5 U	1.4 J	NA	3.9 J	696	NA	<0.14 U	NA	<5 U	NA	<5 U	<1 U	NA	10.3	NA	<50 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium V (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0636B016	IR02MW209A	09/06/2006	0	A	<100 U	<5 UJ	<5 U	33.3	<2 UJ	<5 U	NA	10.5	NA	<5 U	<5 U	NA	<5 U	496	NA	<0.11 U	NA	<5 U	NA	3.6 J	<1 U	NA	<5 U	NA	<50 U
0636B017	IR02MW209A	09/06/2006	0	A	<100 U	<5 U	<5 U	34.1	<2 UJ	<5 U	NA	11.1	NA	<5 U	<5 U	NA	<5 U	486	NA	<0.13 U	NA	<5 U	NA	6.8	<1 UJ	NA	<5 U	NA	<50 U
0649G049	IR02MW209A	12/08/2006	0	A	<100 U	<5 U	<5 U	34.2 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	633 J	NA	<0.15 U	NA	<5 U	NA	6	1.2	NA	2.1 J	NA	<50 UJ
0649G050	IR02MW209A	12/08/2006	0	A	<100 U	<5 U	<5 U	30.3 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	580 J	NA	<0.21 U	NA	<5 U	NA	4.8 J	0.76 J	NA	2.3 J	NA	<50 U
0708L006	IR02MW209A	02/22/2007	0	A	<100 U	7.5	<5 U	45.8 J	0.25 J	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	753 J	NA	0.96	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0720 J057	IR02MW209A	05/16/2007	0	A	<100 U	<5 U	<3 U	34.5	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	602	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0732W009	IR02MW209A	08/10/2007	0	A	<100 U	<5 U	<5 U	30.2 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	637	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0740W008	IR02MW209A	10/02/2007	0	A	<100 UJ	<6.6 UJ	<7.3 UJ	30.3 J	<2 UJ	1.1 J	NA	<5 UJ	NA	0.96 J	1.9 J	NA	6.3 J	590 J	NA	<0.2 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0808H012	IR02MW209A	02/21/2008	0	A	<100 U	3.3 J	<5 U	33.5 J	<2 U	3.3 J	NA	<5 U	NA	<5 U	<5 U	NA	<3.1 U	515 J	NA	<0.075 U	NA	<5 U	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 U
0817E036	IR02MW209A	04/22/2008	0	A	<100 U	2.1 J	<5 U	34	<2 U	0.82 J	NA	<5 U	NA	<5 U	3 J	NA	3 J	698	NA	<0.2 U	NA	3.2 J	NA	<7.9 U	<0.29 U	NA	8	NA	4.6 J
0830H033	IR02MW209A	07/23/2008	0	A	<100 UJ	6.8	<5 UJ	26.9 J	<0.2 U	<0.2 U	NA	5.7	NA	2 J	<5 U	NA	17.1	NA	610 J	NA	NA	<5 U	NA	5R	<1 U	NA	23	NA	<50 U
0912H028	IR02MW209A	03/17/2009	0	A	<100 U	<5 U	7.1	44.4	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	0.77 J	NA	<5 U	NA	594 J	NA	NA	<5 U	NA	<5 U	<0.86 U	NA	<5 U	NA	<50 U
9205X480	IR02MW210B	01/30/1992	0	B	<20 U	<26.3 U	5.2	77.1	<0.9 U	2.9	928,000	10.3 J2	<0.01 U	<7.9 U	4.7	<5.6 U	<0.8 U	822	980000	<0.2 U	34.4	<28.8 U	239000	<25 U	<1.7 U	6500000	<18 UR2	8.2	<1.9 U
9230 J179	IR02MW210B	07/21/1992	0	B	<129 U1	<31.1 U	4.3 J3	52.1	<0.5 U	<2.7 U	583,000	<2.5 U	<0.01 U	<8.8 U	<7.3 U1 J3	<178 U1	<8 U	1060	725000	<0.2 U	86	<17.3 U	162000	<2.9 UR2	<1.5 U1	4750000	<16 UJ3	2.4	<16.5 U
9235 J235	IR02MW210B	08/26/1992	0	B	<43.9 U1	<31.1 U	5.1	17.2	<0.5 U	<2.7 U	725,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	215	<8 UJ3	2220 J3	934000	<0.2 U	7.8	<17.3 U	161000	<29 UR2	<1.5 U	5920000	<1.6 UJ3	<1.4 U	<16.5 U
9235 J236	IR02MW210B	08/26/1992	0	B	<43.8 U1	<31.1 U	4.5	16	<0.5 U	<2.7 U	722,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	239	<8 UJ3	2210 J3	930000	<0.2 U	7.8	<17.3 U	161000	<29 UR2	<1.5 U	5910000	<1.6 UJ3	<1.4 U	<16.5 U
0226E019	IR02MW210B	06/27/2002	0	B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237 J018	IR02MW210B	09/12/2002	0	B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228 J152	IR02MW298A	07/08/1992	0	A	7510 J2	<31.1 UR2	5.6	133 J2	<0.5 U	<2.7 U	235,000	70.6 J2	<0.01 U	22.4	20.3 J23	10200 J2	3.9	851	515000 J2	<0.2 U	42.2 J3	200 J2	15600	<2.9 UJ3	<1.5 U	665000	<32 UJ3	22.2 J2	19.6 J2
9235X728	IR02MW298A	08/27/1992	0	A	<21.6 U	<31.1 U	2.4 J3	137	<0.5 U	<2.7 U	396,000	<2.5 U	<0.01 U	11.3	7.9	<11.3 U	<1.6 UJ3	1310 J3	903000	<0.2 U	54.4	41.6	18000	<29 UR2	<1.5 U	1060000	<1.6 UR2	<2.8 U1	<16.5 U
9612W182	IR02MW298A	03/22/1996	0	A	<49.3 U1	6.4	2.2	15.4	<0.1 U	<0.2 U	71,400	<0.65 U1	<0.01 U	<1.2 U1	16.5	<19.4 U1	<0.8 U	7.8	126000	<0.1 U	24.6	23.1	5010	<3.3 U1	<0.5 U	165000	<1.9 U	4.1	<17.8 U1
0111P006	IR02MW298A	03/20/2001	0	A	<41.8 U	NA	NA	NA	NA	<0.2 U	NA	<1.4 U	<0.01 U	NA	12.7 J	NA	NA	NA	NA	NA	NA	22.5 J	NA	NA	NA	NA	NA	NA	NA
0231D003	IR02MW298A	07/29/2002	0	A	53.8	NA	NA	NA	NA	1.05	NA	<3 U	<0.01 U	NA	<8 U	NA	NA	NA	NA	NA	NA	41.4	NA	NA	NA	NA	NA	NA	NA
0238E012	IR02MW298A	09/18/2002	0	A	41.8 J	NA	NA	NA	NA	0.96	NA	<3 U	<0.01 U	NA	8.78	NA	NA	NA	NA	NA	NA	43.2	NA	NA	NA	NA	NA	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	<39.9 U1 J2	<31.1 UR2	<2 U	44.2 J2	<0.5 U	<2.7 U	185,000 J4	<2.5 U	<0.01 U	<8.8 U	<7.2 U1 J2	<51 U1 J24	<1.6 U	480 J4	212000 J2	<0.2 U	6.8 J3	<17.3 U	49300	3.5 J3	<1.5 U	1550000 J8	<1.6 UJ3	2.1 J24	<16.5 U
9235 J238	IR02MW299A	08/26/1992	0	A	<21.6 U	<31.1 U	<2 U	50.7 J4	<0.5 U	<2.7 U	293,000 J4	<2.5 U	<0.01 U	<8.8 U	3.9 J9	<11.3 U	11.5 J3	794 J34	359000	<0.2 U	6.1	<17.3 U	72600	<2.9 UR2	<1.5 U	2610000 J4	<1.6 UJ3	<2.2 U1 J9	<16.5 U
9612 J946	IR02MW299A	03/21/1996	0	A	<74.8 U1	<1.6 U	<1.4 U	27.9	<0.1 U	<0.2 U	22,400	0.62	<0.01 U	<0.94 U1	7.3	<62.5 U1	<0.8 U	16.1 J4	21300	<0.1 U	7	<2.9 U1	10700	<2.3 UJ3	<0.5 U	274000	<1.9 U	5.9	<12.3 U1
0112P002	IR02MW299A	03/26/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0233A013	IR02MW299A	08/15/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237 J002	IR02MW299A	09/09/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228X660	IR02MW300A	07/06/1992	0	A	<21.7 U1 J2	<31.1 UR2	2.2	78.4 J2	<0.5 U	3.2	289,000	<2.5 U	<0.01 U	<8.8 U	<6.9 U1 J23	201 J2	<1.6 U	174	932000 J2	<0.2 U	9.7 J3	32.2 J2	319000	<14.5 UJ3	<1.5 U	8220000	<8 UJ3	4 J2	87.9 J2
9235X726	IR02MW300A	08/26/1992	0	A	<21.6 U	<31.1 U	<2 U	85.8	<0.5 U	3.1	288,000	<2.5 U	<0.01 U	<8.8 U	7.2	<11.3 U	<1.6 UJ3	90.9 J3	963000	<0.2 U	11.7	<17.3 U	335000	<29 UR2	<1.5 U	9740000	<16 UJ3	<5.4 U1	21.5
9612 J943	IR02MW300A	03/20/1996	0	A	<34.9 U1	13.6 J9	2.7 J9	69.8	<0.1 U	<0.91 U1 J9	130,000	5.9 J9	<0.01 U	<1.2 U1 J9	45.8 J9	<29.5 U1 J9	<0.8 U	3.5 J49	370000	<0.1 U	15.1	11.8 J9	122000	<2.3 UJ39	<0.93 U1 J9	3340000	<1.9 U	12.6 J	174 J9
0112T012	IR02MW300A	03/28/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.3	NA	NA	NA	NA	NA	NA	10.8 J	NA	NA	NA	NA	NA	NA	117
0229D006	IR02MW300A	07/16/2002	0	A	<30 U	16.7	<02 U	73.6	<0.4 UJ3	2.2 J	273,000	3.7 J	NA	<2 U	41.4	<28.5 U2	0.42	3 J	900000	<0.1 U	6 J	11.4 J	307000	10R2	<7 U	6770000	<0.08 U	18.2	125
0238G007	IR02MW300A	09/20/2002	0	A	<30 U	17	<5 UJ3	76.2	<0.4 U	<02.5 U1	353,000	<3 U	NA	<2 U	<38.7 U1	25.5	0.25 J	3.8 J	1110000	<0.1 U	7.6 J	11.7 J	343000	<5 UJ3	7.5 J3	9180000	<0.08 U	15.8	145
0425H030	IR02MW300A	06/16/2004	0	A	736	<5.1 U1	<5 U	69.8	<2 U	1.3 J	NA	<5 U	NA	0.96 J	114	NA	<7.3 U1	79.5	NA	<0.14 U1	NA	10.5	NA	<5 U	<1.3 U1	NA	<5 U	NA	108
0438G050	IR02MW300A	09/15/2004	0	A	<500 U	45.3	<25 U	93.5	<10 U	<25 U	NA	<25 U	NA	<25 U	53	NA	11.9 J	<25 U	NA	<0.2 U	NA	18.6 J	NA	<41.6 U1	<5 U	NA	<25 U	NA	182 J
0449C031	IR02MW300A	11/30/2004	0	A	76.7 J	51.1	<10.5 U1	56 J4	<4 U	2.7 J	NA	<10 U	NA	10.8	31.3	NA	<10 U	<10 U	NA	<0.2 U	NA	<10 U	NA	<10 U	<2 U	NA	<10 U	NA	88.1 J
0511Z021	IR02MW300A	03/15/2005	0	A	91.5 J	<6.8 U1	<5.1 U1	45.7 J3	<2 U	1.6 J3	NA	6.5 J3	NA	<2.3 U1 J3	36	NA	<5 UJ3	<5 U	NA	<0.2 U	NA	6.2 J3	NA	<5.9 U1 J3	<1 U	NA	<5 UJ3	NA	93.5 J3
0720 J061	IR02MW301A	05/18/2007	0	A	<100 U	11.2	<5 UJ	79.7 J	<2 UJ	<5 UJ	NA	<5 UJ	NA	<5 UJ	<5 U	NA	<5 UJ	282 J	NA	<0.085 U	NA	<5 UJ	NA	20.8 J	<1 U	NA	14.2 J	NA	<50 UJ
0732D009	IR02MW301A	08/10/2007	0	A	<100 U	<5 U	<5 U	77.8 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	183	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0740D007	IR02MW301A	10/02/2007	0	A	<100 UJ	<5.5 UJ	<3.7 UJ	75.5 J	<2 UJ	1.1 J	NA	<5 UJ	NA	0.86 J	1.7	NA	6.2 J	150 J	NA	<0.2 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0808D007	IR02MW301A	02/21/2008	0	A	<100 U	3.4 J	<5 U	51 J	<2 U	2.9 J	NA	1.4 J	NA	<5 U	<5 U	NA	<5 U	142 J	NA	<0.2 U	NA	<5 U	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 U
0817G023	IR02MW301A	04/21/2008	0	A	<100 U	<5 U	<13.2 U	60.6	<2 U	0.76 J	NA	<5 U	NA	<5 U	4.2 J	NA	<2.4 U	175	NA	<0.2 U	NA	3.3 J	NA	<5 U	<1 U	NA	<8.3 U	NA	<50 U
0830H035	IR02MW301A	07/23/2008	0	A	<100 UJ	3.2 J	<5 UJ	66.3 J	<0.2 U	<0.2 U	NA	6.1	NA	2 J	<5 U	NA	18.3	NA	151 J	NA	NA	<5 U	NA	5R	<1 U	NA	23.5	NA	<50 U
0830H036	IR02MW301A	07/23/2008	0	A	<100 UJ	5.4	<5 UJ	61.2 J	<0.2 U	<0.2 U	NA	5.7	NA	1.9 J	<5 U	NA	16.5	NA	133 J	NA	NA	<5 U	NA	5R	<1 U	NA	26.7	NA	<50 U
0841D013	IR02MW301A	10/08/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.9 U
0912H026	IR02MW301A	03/17/2009	0	A	<100 U	<5 U	5	62.5	<0.2 U	1.8	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	88.4 J	NA	NA	<5 U	NA	<5 U	<0.62 U	NA	<5 U	NA	<50 U
0912H027	IR02MW301A	03/17/2009	0	A	<100 U	<5 U	5.7	62.4	<0.2 U	0.87	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	87.1 J	NA	NA	<5 U	NA	<5 U	<0.65 U	NA	<5 U	NA	<50 U
0920W014	IR02MW301A	05/13/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 U
0928B013	IR02MW301A	07/07/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 U
0941H022	IR02MW301A	10/05/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.8 J
9547 J609	IR02MW372A	11/22/1995	0	A	<56.9 U2	34.9	4.1	77.7	<0.1 U	<0.2 U	26,800	<0.5 U	NA	0.77	3.2	31.3	1.3	87.5	31000	<0.11 U1	123	12.2	140000	<3.9 U	<0.7 U	1140000	<1.9 U	24	<58 U2
9610W140	IR02MW372A	03/07/1996	0	A	<77.9 U1	8.4	2	40.4	<0.14 U1	<0.2 U	20,700 J4	<0.4 U	NA	<0.4 U	<3 U1	<22 U1	<0.8 UJ3	101	123000	<0.1 U	108	<3.4 U1	113000	<2.3 U	<0.5 U	345000	<1.9 U	<1.4 U1	<16.9 U1
9619 J106	IR02MW372A	05/10/1996	0	A	44.9	21.7	<1.7 U1	45.2	<0.1 U	<0.3 U	11,200	<0.7 U	NA	0.64	<1.4 U1	<71.9 U1	<1 U	49.3	68300	<0.1 U	157	5.4	107000	<2.2 U	<0.7 U	551000	<1.7 U	18.9	<17.1 U1
0112P003	IR02MW372A	03/26/2001	0	A	NA	NA	NA	NA	NA	NA	21,200	NA	NA	NA	NA	<373 U	NA	NA	203000	NA	NA	NA	152000	NA	NA	521000	NA	NA	NA
0229P009	IR02MW372A	07/17/2002	0	A	NA	NA	NA	NA	NA	NA	28,900	NA	NA	NA	NA	205	NA	NA	284000	NA	NA	NA	160000	NA	NA	432000	NA	NA	NA
0237E008	IR02MW372A	09/10/2002	0	A	NA	NA	NA	NA	NA	NA	34,300	NA	NA	NA	NA	477	NA	NA	312000	NA	NA	NA	162000	NA	NA	502000	NA	NA	NA
0237E009	IR02MW372A	09/10/2002	0	A	NA	NA	NA	NA	NA	NA	34,600	NA	NA	NA	NA	494	NA	NA	317000	NA	NA	NA	166000	NA	NA	511000	NA	NA	NA
9547 J608	IR02MW373A	11/21/1995	0	A	<51 U2	6.3	<2.8 U	187	<0.1 U	2.2	67,600	<0.5 U	NA	2.9	4.1	38.8	3.7	345	195000	<0.1 U	<5.5 U1	28.9	33900	<3.9 U	<0.7 U	672000	<1.9 U	13.5	<39.7 U2
9610 J904	IR02MW373A	03/04/1996	0	A	<60.2 U1	145	<1.4 U	59.6	<0.1 U	5.8	139,000 J4	<0.4 U	NA	14.5	1210	<11 U	28.7 J3	870	71900	0.17	12.5	543	7510	<2.3 U	<0.5 U	99500	<1.9 U	41.1	4200

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9619 J107	IR02MW373A	05/10/1996	0	A	33	41.8	<1.3 U	97.2	<0.1 U	3.9	169,000	<0.7 U	NA	16.8	782	<46.8 U1	17.4	1260	78500	<0.1 U	10	554	9050	<2.2 U	<0.7 U	108000	<1.7 U	10	3500
0112T001	IR02MW373A	03/26/2001	0	A	NA	72.9	NA	NA	NA	10.8	198,000	NA	NA	NA	1300	<98.7 U1	24	NA	87400	NA	NA	1460	8670	NA	NA	83400	NA	NA	9970
0230D006	IR02MW373A	07/23/2002	0	A	NA	47.8	NA	NA	NA	8.36	189,000	NA	NA	NA	369	<20 U	17.6	NA	85000	NA	NA	753	9790	NA	NA	109000	NA	NA	4930
0238S005	IR02MW373A	09/17/2002	0	A	NA	44.6	NA	NA	NA	6.51	215,000	NA	NA	NA	241	171	35.2	NA	96200	NA	NA	452	11900	NA	NA	153000	NA	NA	2970
0841B014	IR02MW373A	10/08/2008	0	A	<100 U	38.6	3.5 J	74.9 J	<0.2 UJ	1.6	NA	1.9 J	NA	5.1	10.5	NA	1.9 J	NA	980	NA	NA	281	NA	<5 U	2.1	NA	<5 U	NA	1530
0920B016	IR02MW373A	05/13/2009	0	A	<100 U	48.5	<5 U	62.3 J	<0.2 U	8.7	NA	3.1 J	NA	7.2	957	NA	23.6	NA	1320 J	NA	NA	941	NA	<5 U	<1 U	NA	<5 UJ	NA	7540R
0836G017	IR02MW374A	09/03/2008	0	A	<100 U	<5 U	<6.4 U	75.3 J	<0.2 UJ	0.45 J	NA	<5 U	<0.5 U	1.2 J	<5 UJ	NA	2.2 J	NA	990 J	NA	NA	27.9 J	NA	<5 U	1.9	NA	<5 UJ	NA	44.3 J
0842G005	IR02MW374A	10/13/2008	0	A	<100 U	<4.4 U	6.5	86.6 J	<0.2 U	0.093 J	NA	<5 UJ	NA	0.79 J	<5 UJ	NA	<5 UJ	NA	850 J	NA	NA	18.2 J	NA	<5 U	<2.4 U	NA	2.4 J	NA	<29.6 UJ
0842G006	IR02MW374A	10/13/2008	0	A	<100 U	<5 U	6.3	83.2 J	<0.2 U	0.14 J	NA	<5 UJ	NA	0.89 J	<5 UJ	NA	<5 UJ	NA	813 J	NA	NA	17.6 J	NA	3.7 J	3.2	NA	2 J	NA	<29 UJ
0912W041	IR02MW374A	03/19/2009	0	A	<100 U	<2.5 U	2.9 J	81.7 J	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	787 J	NA	NA	7.4	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0920W012	IR02MW374A	05/13/2009	0	A	<100 U	2.3 J	4.5 J	64.7 J	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	735 J	NA	NA	10.6	NA	5.4	<1 U	NA	<5 UJ	NA	<50 U
0928B011	IR02MW374A	07/07/2009	0	A	<100 U	2.1 J	7.7	72.4 J	<0.2 U	<0.2 U	NA	<5 UJ	NA	0.92 J	<5 U	NA	<5 UJ	NA	906 J	NA	NA	9.9 J	NA	8.4	<1 U	NA	<4.3 UJ	NA	<2.4 U
0941W014	IR02MW374A	10/05/2009	0	A	<100 U	3 J	9.9	75.8	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	<1.5 U	NA	<5 U	NA	1060 J	NA	NA	11.4	NA	<5 U	<1.6 U	NA	<5 U	NA	16.3 J
0836G016	IR02MW375A	09/03/2008	0	A	<100 U	5.3	<6.9 U	323 J	<0.2 UJ	0.59 J	NA	<5 U	<0.5 U	2 J	<5 UJ	NA	1.9 J	NA	837 J	NA	NA	13.9 J	NA	<5 U	2	NA	<5 UJ	NA	88.8 J
0842G004	IR02MW375A	10/13/2008	0	A	<100 U	<4.8 U	3.4 J	423 J	<0.2 U	0.071 J	NA	<5 UJ	NA	<5 UJ	<5 UJ	NA	<5 UJ	NA	489 J	NA	NA	6.7 J	NA	<5 U	<2.3 U	NA	<5 UJ	NA	<17.1 UJ
0912W042	IR02MW375A	03/19/2009	0	A	<100 U	<4.5 U	<5 U	2300 J	<0.2 U	<0.06 U	NA	<5 U	NA	<5 U	4.6 J	NA	<5 U	NA	780 J	NA	NA	1.3 J	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0920W013	IR02MW375A	05/13/2009	0	A	<100 U	4.7 J	<5 U	1530 J	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	639 J	NA	NA	<4.9 U	NA	<5 U	<1 U	NA	<5 UJ	NA	<50 U
0928B012	IR02MW375A	07/07/2009	0	A	<100 U	2.7 J	4.8 J	1580 J	<0.2 U	<0.2 U	NA	<5 UJ	NA	<5 UJ	<5 U	NA	<5 UJ	NA	1110 J	NA	NA	1.2 J	NA	6.3	<1 U	NA	<2 UJ	NA	<50 U
0941W015	IR02MW375A	10/05/2009	0	A	<100 U	9.7	5.9	1710	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	1110 J	NA	NA	17.3	NA	<5 U	<0.88 U	NA	<5 U	NA	37.1 J
9113X078	IR02MW87A	03/26/1991	0	A	<16.3 U	<21.7 U	<2.9 U	77.5	0.31	<2.7 U	18,800	<1.4 U	<0.01 U	<6.6 U	<6 U1	<7.7 U	<2.1 U	23.8	175000	<0.2 U	<5.4 U1	<14.5 U	10300	<2.3 U	<1.2 U	592000	<2.5 UJ3	8.6	7.7
9202A001	IR02MW87A	01/06/1992	0	A	<80 U	<160 U	2	128	<5 U	<20 U	10,300	<25 U	<0.01 U	<30 UJ3	<10 U	<25 UJ3	1.9 J2	67.2	181000	<0.2 U	<35 U	<85 UJ3	9840	<1 UJ3	<15 U	610000	<1 UR2	<20 U	<34.5 U1
9235X710	IR02MW87A	08/24/1992	0	A	<21.6 U	<31.1 U	<2 U	107	<0.5 U	<2.7 U	7,820	<2.5 U	<0.01 U	<8.8 U	<2.9 U1	<11.3 U	<1.6 U	38.7	145000	<0.2 U	<5.4 U	<17.3 U	8250	<2.9 U	<1.5 U	484000	<32 UJ3	<2.1 U1	<16.5 U
9204X444	IR02MW89A	01/22/1992	0	A	<20 U	<26.3 U	10.5	24.1	<0.9 U	<2.8 U	25,300	<2.7 U	<0.01 U	<7.9 U	3.2	<7.4 U1	<0.8 U	46.6	81700	<0.2 U	14.1	<28.8 U	8830	<2.5 U	<1.7 U	138000	<1.8 UJ3	<1.4 U	<1.9 U
9230 J176	IR02MW89A	07/21/1992	0	A	3560	<31.1 U	9.4 J3	45.7 J4	<0.5 U	<2.7 U	30,000 J4	44.9 J4	<0.01 U	<8.8 U	<7 U1 J3	7540 J4	4.4 J4	248 J4	106000	<0.2 U	6.6	105	7000	<2.9 UR2	<1.5 U	141000	<32 UJ3	12.1 J4	<16.5 U
9235X711	IR02MW89A	08/24/1992	0	A	<21.6 U	<31.1 U	13.2	30.2	<0.5 U	<2.7 U	32,900	<2.5 U	<0.01 U	<8.8 U	<2.8 U1	<11.3 U	<1.6 U	95.8	95000	<0.2 U	<13.5 U1	<17.3 U	7480	<2.9 U	<1.5 U	161000	<1.6 UJ3	<1.4 U	<16.5 U
0111D005	IR02MW89A	03/20/2001	0	A	<41.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.9 U2	NA	NA	NA	NA	NA	NA	NA
0229D017	IR02MW89A	07/19/2002	0	A	<16.3 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0229D018	IR02MW89A	07/19/2002	0	A	<30.4 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0238S004	IR02MW89A	09/17/2002	0	A	<30 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.9 U	NA	NA	NA	NA	NA	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	<16.3 U	<21.7 U	<2.9 U	30.7	<0.19 U	<2.7 U	7310	<1.4 U	<0.01 U	<6.6 U	<4.5 U1	<7.7 U	<2.1 U	20.1	221000	<0.2 U	NA	<14.5 U	14800	<2.3 U	<1.2 U	629000	<2.5 U	<2.1 U	<4.4 U2
9112X071	IR02MW93A	03/22/1991	0	A	35.9	<21.7 U	<2.9 U	31.3	<0.19 U	<2.7 U	7080	<1.4 U	<0.01 U	<6.6 U	<4.1 U1	<7.7 U	<2.1 U	21.7	223000	<0.2 U	NA	30	15200	<2.3 U	<1.2 U	639000	<2.5 U	<2.1 U	<4.1 U2
9202A003	IR02MW93A	01/06/1992	0	A	<17.9 U1	<32 U	<1 U	41	<1 U	<4 U	4890	<5 U	<0.01 U	<6 UJ3	2.8	<9.6 U1 J3	<1 UJ3	14.3	196000	<0.2 U	<7 U	<17 UJ3	13400	<1 UJ3	<3 U	624000	<1 UR2	<4 U	<13 U1
9202A004	IR02MW93A	01/06/1992	0	A	<16 U	<32 U	<1 U	38.7	<1 U	<4 U	4730	<5 U	<0.01 U	<6 UJ3	3.4	<5.4 U1 J3	1.4 J2	12.9	191000	<0.2 U	<7 U	<17 UJ3	13100	<1 UJ3	<3 U	621000	<1 UR2	<4 U	<4.8 U1
9235X712	IR02MW93A	08/24/1992	0	A	479	<31.1 U	<2 U	39.5 J4	<0.5 U	<2.7 U	4460 J4	<62.3 U1	<0.01 U	24.8	2.4	5590	<1.6 U	140 J4	213000	<0.2 U	<5.4 U	256	13900	<2.9 UJ3	<1.5 U	541000	<1.6 UJ3	<2.5 U1	23.7
0112P004	IR02MW93A	03/26/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8.9 U1	NA	NA	NA	NA	NA	NA	NA
0230P002	IR02MW93A	07/22/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0238A007	IR02MW93A	09/17/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9 J	NA	NA	NA	NA	NA	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	<16.3 U	29.2	<2.9 U	64.8	<0.61 U1	<2.7 U	282,000	<1.4 U	<0.01 U	<6.6 U	<11.1 U1	<39.9 U2	<2.1 U	1410	399000	<0.2 U	NA	32.2	85900	<23 U	<1.2 U	2900000	<12.5 U	13.2	20.3
9203A093	IR02MW97A	01/15/1992	0	A	<16 U	<32 U	<1 U	71.8	<1 U	<4 U	361,000	<5 U	<0.01 U	<6 U	6.5	<5 U	<1 U	2100	513000	<0.2 U	<8.5 U1	<17 U	120000	<1 U	<3 U	4070000	<5 UJ3	<4 U	13.3
9203A094	IR02MW97A	01/15/1992	0	A	<16 U	<32 U	<1 U	70.3	<1 U	<4 U	355,000	<5 U	<0.01 U	<6 U	9.2	5.8	<1 U	2570	612000	<0.2 U	<12.1 U1	<17 U	171000	<1.5 U1	<3 U	5130000	<5 UJ3	<4 U	11.4
9235 J220	IR02MW97A	08/24/1992	0	A	<21.6 U	<31.1 U	<2 U	96.3	<0.5 U	7	312,000	<2.5 U	<0.01 U	17.2	3.7	<11.3 U	<8 U	2670	622000	<0.2 U	<5.4 U	30.3	174000	<2.9 UJ3	<1.5 U	5910000	<1.6 UJ3	<1.4 U	<16.5 U
9235 J221	IR02MW97A	08/24/1992	0	A	<21.6 U	<31.1 U	<2 U	93.6	<0.5 U	3	321,000	<2.5 U	<0.01 U	<8.8 U	2.9	<11.3 U	<8 U	2800	664000	<0.2 U	<5.4 U	<17.3 U	188000	<2.9 UJ3	<1.5 U	622000	<1.6 UJ3	<1.8 U1	<16.5 U
0109T007	IR02MW97A	03/06/2001	0	A	NA	NA	<2.5 U	95.7 J	NA	<0.3 U	262,000	<0.7 U	<0.01 U	NA	NA	280	NA	NA	479000	NA	NA	4.1 J	136000 J4	NA	NA	3580000 J4	NA	NA	NA
0230P016	IR02MW97A	07/26/2002	0	A	47.1 J	2.72	<5 U	75.3	<0.4 U	3.52	246,000 J4	<3 U	<0.01 U	<2 U	<8 U	101 J4	<0.36 U2	1790 J4	602000 J4	<0.1 UJ1	<5 U	<04.7 U1	150000 J4	<5 UJ13	0.44	4800000	<0.04 U	<6 U	<3.5 U2
0238E003	IR02MW97A	09/16/2002	0	A	56.1	0.91 J	1.6 J	67.9	<0.4 U	0.7 J1	287,000	<3 U	<0.01 U	<2 U	<8 U	155	0.48	2220	704000	<0.1 U	7 J	2.1 J	175000	<4 UJ3	<7 U	5110000	0.32 J	<6 U	<2 U
9043 J038	IR02MWB-1	10/24/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A028	IR02MWB-1	01/13/1992	0	A	<19 U1	<32 U	15.8	57.1	<1 U	<4 U	463,000	<5 U	<0.01 U	<6 U	<8.7 U1	395	7.6	2220	618000	<0.2 U	<19 U1	92.1 J3	202000	<1 UJ3	<3 U	3970000	<5 U	4.6	<14.2 U1
9203A029	IR02MWB-1	01/13/1992	0	A	<20.1 U1	<32 U	12.8	56.3	<1 U	<4 U	467,000	6.1	<0.01 U	<6 U	<5.7 U1	116	<5 U	2240	621000	<0.2 U	<17.1 U1	88.3 J3	200000	<1 UJ3	<3 U	3860000	<5 U	4.6	<15.4 U1
9228 J148	IR02MWB-1	07/07/1992	0	A	<49.5 U1 J2	<31.1 UR2	50.9	55.5 J2	<0.5 U	<2.7 U	468,000	<2.5 U	<0.01 U	14.1	<1.8 U	904 J2	<8 U	2000	721000 J2	<0.2 U	30.2 J3	596 J2	228000	<2.9 UJ3	<1.5 U	4490000	<2.1 U1 J3	7 J2	<16.5 U
9228 J149	IR02MWB-1	07/07/1992	0	A	29800 J2	<31.1 UR2	65.8	95.5 J2	0.84	<2.7 U	559,000	472 J2	<0.01 U	38.8	60.4 J23	64500 J2	10.5	3090	766000 J2	<0.2 U	76.9 J3	1470 J2	223000	<2.9 UJ3	<1.5 U	4100000	<2.5 U1 J3	102 J2	99 J2
9235 J239	IR02MWB-1	08/27/1992	0	A	<31.5 U1	<31.1 U	3.1 J3	52.8 J4	<0.5 U	<2.7 U	508,000 J4	6.6	<0.01 U	26.5 J9	<1.8 U	7240	<8 UJ3	2710 J4	735000	<0.2 U	5.6 J9	696	223000	<29 UJ3	<1.5 U	5000000 J4	8 J3	<1.7 U1 J9	<16.5 U
0110P022	IR02MWB-1	03/15/2001	0	A	<28.4 U	NA	9.6 J	NA	NA	NA	NA	<0.7 U	<0.01 U	NA	<7.4 U1	NA	NA	NA	NA	NA	NA	240	NA	NA	NA	NA	NA	NA	<0.8 UJ4
0110P023	IR02MWB-1	03/15/2001	0	A	<28.4 U	NA	4.1 J	NA	NA	NA	NA	<0.7 U	NA	NA	<8.9 U1	NA	NA	NA	NA	NA	NA	198	NA	NA	NA	NA	NA	NA	<0.8 UJ4
0233A017	IR02MWB-1	08/16/2002	0	A	<30 U	NA	2.3	NA	NA	NA	NA	<3 U	<0.01 U	NA	<8 U	NA	NA	NA	NA	NA	NA	7.2 J	NA	NA	NA	NA	NA	NA	2.6 J
0238S012	IR02MWB-1	09/20/2002	0	A	<30 U	NA	<5 UJ3	NA	NA	NA	NA	<3 U	<0.01 U	NA	<8 U	NA	NA	NA	NA	NA	NA	48.8	NA	NA	NA	NA	NA	NA	5.7 J
0449C029	IR02MWB-1	11/30/2004	0	A	<100 U	42.7	<12.6 U1	56.9 J4	<2 U	0.59 J	NA	6.5	<0.02 U	4.2 J	2.3 J	NA	<5 U	1230	NA	<0.2 U	NA	9.6	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0510G027	IR02MWB-1	03/10/2005	0	A	<100 U	<5 U	3.5 J	76.4	<2 U	<5 U	NA	1.6 J	0.02	<5 U	5.7	NA	<5 U	585	NA	<0.2 U	NA	19	NA	<7.4 U1	<1 U	NA	<5 U	NA	<50 U
0526T043	IR02MWB-1	06/28/2005	0	A	<26 U1	25.3	<5 U	97.9	<2 U	1.2 J	NA	6	0.02	4.5 J	<5 U	NA	4.2 J	1490	NA	<0.05 U1	NA	32.2	NA	3.7 J	<1 U	NA	<5 U	NA	50
0538T025	IR02MWB-1	09/21/2005	0	A	<100 U	<14 U	4.2 J	113	<2 U	1.1 J	NA	5.5	NA	<5 U	<5 U	NA	6.1	2590	NA	<0.11 U	NA	39.3	NA	<3.6 U	0.77 J	NA	<5 U	NA	<50 U
0602V039	IR02MWB-1	01/12/2006	0	A	<100 U	<5 U	11.9	101	<.36 U	0.57 J	NA	4.9 J	<0.02 U	<2.1 U	<5 U	NA	<5 U	894	NA	<0.043 U	NA	17.3	NA	<5 U	<1 U	NA	<4.2 U	NA	<50 U
0611 J034	IR02MWB-1	03/16/2006	0	A	<21.4 U	3.6 J	<5 U	78.8 J	<2 U	<5 U	NA	<5 U	<0.02 UJ	<2.4 U	16.5	NA	<5 U	1230	NA	<0.13 U	NA	19.9	NA	6.6	<1 U	NA	6.8	NA	<50 U
0622D019	IR02MWB-1	05/30/2006	0	A	<100 U	6.2	<5 U	65.2 J	<2 U	<5 U	NA	4.7 J	0.0000005	<5 U	<5 U	NA	1.9 J	817	NA	<0.2 U	NA	17.8 J	NA	<5 U	<1 U	NA	<2 U	NA	<50 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium V (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0636B015	IR02MWB-1	09/06/2006	0	A	<100 U	<5 UJ	<5 U	83.3	<2 UJ	<5 U	NA	13.7	).0000005 U	<5 U	<5 U	NA	<5 U	1470	NA	<0.19 U	NA	10.1	NA	9.6	<1 U	NA	16.1	NA	<50 U
0649B029	IR02MWB-1	12/07/2006	0	A	<100 U	<2.2 U	<5 U	63.9 J	<2 U	<5 U	NA	3.4 J	).0000005 U	2.4 J	2.3 J	NA	<5 U	1610 J	NA	<0.14 U	NA	30.4	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0709W025	IR02MWB-1	02/28/2007	0	A	24.6 J	20.2	<5 U	37.6	<2 U	<5 U	NA	5.1	0.0000072	<5 U	90.7	NA	<5 U	67.1	NA	<0.2 U	NA	11.8	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0720N009	IR02MWB-1	05/17/2007	0	A	<100 U	<2.2 U	<5 U	57.5 J	<2 U	<5 U	NA	2.9 J	0.0000005	2.1 J	1.4 J	NA	<5 U	752 J	NA	<0.13 U	NA	21.1	NA	<5 UJ	<1 U	NA	<5 U	NA	<50 U
0733 J013	IR02MWB-1	08/13/2007	0	A	<100 U	7.2	32.6	70.3 J	<2 U	<5 UJ	NA	<5 U	0.0000005	<5 UJ	4.6 J	NA	<5 UJ	947 J	NA	<0.2 U	NA	29.2 J	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0741G029	IR02MWB-1	10/10/2007	0	A	<100 U	34.9	<2.7 U	65.6	0.66 J	<5 U	NA	<5 U	).0000005 U	<5 U	<5 U	NA	<5 U	1400	NA	<0.2 U	NA	13	NA	46.7	<1 U	NA	<6.1 U	NA	40.3 J
0808E011	IR02MWB-1	02/21/2008	0	A	<100 U	4.2 J	<5 U	50.9 J	<2 U	1.6 J	NA	1.7 J	0.0000005	0.65 J	<2.8 U	NA	<5 U	518 J	NA	<0.2 U	NA	16.9	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 U
0817E032	IR02MWB-1	04/21/2008	0	A	<100 U	3.2 J	16	58.6	<2 U	<5 U	NA	2 J	<0.0005 U	<5 U	<5 U	NA	<5 U	1300	NA	<0.2 U	NA	15	NA	<5 U	<1 U	NA	<11.5 U	NA	<50 U
0830H043	IR02MWB-1	07/24/2008	0	A	<100 U	<5 U	16.9	171 J	<0.2 UJ	<0.2 U	NA	<5 UJ	NA	<5 UJ	<5 U	NA	<5 UJ	NA	3460 J	NA	NA	22.5 J	NA	5.2 J	3.4	NA	<5 UJ	NA	<50 UJ
0913W050	IR02MWB-1	03/23/2009	0	A	<100 U	<5 U	10	116	<0.2 U	<0.12 U	NA	<5 U	NA	<5 U	2.9 J	NA	<5 U	NA	2460	NA	NA	1.6 J	NA	<5 U	<1.1 U	NA	<5 U	NA	<50 U
9043 J037	IR02MWB-2	10/24/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	<49.6 U1	<32 U	5.3	79.4	<1 U	<4 U	352,000	<5 U	<0.01 UJ3	<6 UJ3	4.7	<26.5 U1 J3	3.8 J2	923	850000	<0.2 U	<13.5 U1	125 J3	320000	<1 UJ3	<3 U	8390000	<1 UR2	<4 U	<16.4 U1
9228 J151	IR02MWB-2	07/07/1992	0	A	19200 J2	32.5 J3	11.2	175 J2	<0.5 U	3	358,000	544 J2	<0.01 U	16	105 J23	31700 J2	38.4	523	996000 J2	1.7	5.9 J3	235 J2	304000	<2.9 UJ3	<1.5 U	8510000	17.5 J3	59.4 J2	100 J2
9235 J240	IR02MWB-2	08/27/1992	0	A	<21.6 U	<31.1 U	2.1 J3	87.2	<0.5 U	<2.7 U	352,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	289	<16 UJ3	183	1180000	<0.2 U	<5.4 U	71.1	326000	<29 UJ3	<1.5 U	9830000	<1.6 UR2	<3.6 U1	<16.5 U
0112T011	IR02MWB-2	03/28/2001	0	A	<41.8 U	NA	NA	NA	NA	NA	290,000	15.9	<0.01 U	NA	<2.5 U	18400	<1.3 U	NA	618000	<0.1 U	NA	1720	194000 J4	NA	NA	5240000	<4.1 UJ3	NA	<4.8 U
0230P011	IR02MWB-2	07/24/2002	0	A	<21.2 U1	NA	NA	NA	NA	NA	NA	<3 U	<0.01 U	NA	<4 U	NA	0.76 J2	NA	NA	<0.1 U	NA	505	NA	NA	NA	NA	<0.08 UJ2	NA	<4.6 U2
0239 J005	IR02MWB-2	09/24/2002	0	A	<63.5 U1	NA	NA	NA	NA	NA	NA	<3 U	<0.01 U	NA	<8 U	NA	<0.29 U2 J2	NA	NA	<0.1 U	NA	120	NA	NA	NA	NA	<0.04 U	NA	<2 U
0424S032	IR02MWB-2	06/10/2004	0	A	<100 U	<5 U	<5 U	73.5 J34	<2 U	<5 U	NA	56.1	<0.02 U	4.8 J	<5 U	NA	<5 U	325 J4	NA	<0.2 U	NA	277	NA	<5 U	<1 U	NA	<5 UJ3	NA	<50 U
0438B044	IR02MWB-2	09/14/2004	0	A	500R2	<29.3 U1	<25 U	<110 U2	<10 U	<25 U	NA	<25 U	<0.02 U	<25 U	<6.2 U2	NA	<25 U	382	NA	<0.05 U1	NA	364	NA	<33.4 U1	<5 U	NA	<25 U	NA	<250 U
0448P009	IR02MWB-2	11/22/2004	0	A	<200 U	58.6	16.8	82.3	<4 U	2.3 J	NA	<10 U	<0.02 U	10.6	<10 U	NA	<10 U	200	NA	<0.07 U1	NA	76.2	NA	<10 U	<2 U	NA	<10 U	NA	<100 U
0448P010	IR02MWB-2	11/22/2004	0	A	<200 U	59.9	15.7	82.6	<4 U	2.5 J	NA	<10 U	<0.02 U	10.4	<10 U	NA	<10 U	175	NA	<0.07 U1	NA	60.3	NA	<10 U	<2 U	NA	<10 U	NA	<100 U
0839G035	IR02MWB-2	09/23/2008	0	A	<100 U	<5 U	7.4	79.2 J	<0.2 U	<0.2 U	NA	<5 U	NA	1.1	<5 U	NA	<5 U	NA	218 J	NA	NA	170	NA	5.8	6	NA	<5 U	NA	6.8
0913B033	IR02MWB-2	03/23/2009	0	A	<100 U	<5 U	<5 U	30	<0.2 U	<0.15 U	NA	11.1	NA	5.9	<5 U	NA	<5 U	NA	204	NA	NA	270 J	NA	<5 U	<0.35 U	NA	<5 U	NA	<50 U
9043 J039	IR02MWB-3	10/24/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9043 J040	IR02MWB-3	10/24/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X432	IR02MWB-3	01/20/1992	0	A	<32 U1	52.1	<1.7 U	234	2.4	<2.8 U	138,000	<2.7 U	<0.01 U	11.9	<1.6 U	270	<0.8 U	184	767000	<0.2 U	<4.4 U	<28.8 U	277000	<2.5 U	<1.7 U	7270000	<18 UJ3	<3.6 U1	<1.9 U
9228X671	IR02MWB-3	07/10/1992	0	A	8510	556	14.7 J3	325	<0.5 U	23.6	86,800	242	<0.01 U	15.7	3900 J3	33500	1350	569	346000	24	7.8	269	111000	<2.9 UR2	<5.7 U1	2690000	<64 UJ3	193	4880
9235 J241	IR02MWB-3	08/27/1992	0	A	<21.6 U	45.4	<2 UJ3	250 J4	<0.5 U	<2.7 U	80,100 J4	<2.5 U	<0.01 U	<8.8 U	2.5 J9	55.2	<1.6 UJ3	103 J4	444000	<0.2 U	<5.4 U	<17.3 U	158000	<2.9 UJ3	<1.5 U	4440000 J4	1.6 J3	22.7 J9	<16.5 U
9235 J242	IR02MWB-3	08/27/1992	0	A	<21.6 U	37.5	<2 UJ3	278	0.53	<2.7 U	73,700	<2.5 U	<0.01 U	<8.8 U	<1.8 U	92.9	<1.6 UJ3	102	434000	<0.2 U	<5.4 U	<17.3 U	156000	<2.9 UJ3	<1.5 U	4280000	<1.6 UR2	25	<16.5 U
0110P020	IR02MWB-3	03/15/2001	0	A	<28.4 U	103	NA	NA	NA	0.32 J	119,000	<0.7 U	<0.01 U	NA	<7.7 U1	215	<1.6 U	NA	411000	<0.1 U	NA	8.5 J	144000	NA	NA	2740000	NA	NA	91 J4
0110P021	IR02MWB-3	03/15/2001	0	A	<28.4 U	103	NA	NA	NA	<0.3 U	NA	<0.7 U	NA	NA	<8.9 U1	NA	<1.6 U	NA	NA	<0.1 U	NA	8.1 J	NA	NA	NA	NA	NA	NA	88.5 J4
0229P020	IR02MWB-3	07/19/2002	0	A	<42.8 U1	18.5	NA	NA	NA	<1.15 U1	NA	<3 U	<0.01 U	NA	<4 U	NA	0.27 J	NA	NA	<0.1 U	NA	<20 U	NA	NA	NA	NA	NA	NA	<11 U1
0239 J003	IR02MWB-3	09/23/2002	0	A	<70.7 U1	23.8	NA	NA	NA	<0.5 U	NA	<3 U	<0.01 U	NA	<8 U	NA	0.31	NA	NA	<0.1 U	NA	1.1 J	NA	NA	NA	NA	NA	NA	<2 U
0425S045	IR02MWB-3	06/17/2004	0	A	<100 U	23.8	<5 U	199	<.24 U1	<5 U	NA	<5 U	NA	<5 U	8.2	NA	<5 U	41.2	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	37.5 J
0438C055	IR02MWB-3	09/17/2004	0	A	<100 U	26.8	<5 UJ9	275	<2 U	<5 U	NA	<5 U	NA	<5 U	<4.3 U2 J9	NA	<2.7 U2 J9	101 J3	NA	<0.2 U	NA	<5 U	NA	<8.8 U1	<1 U	NA	<5 UJ39	NA	<50 U
0448C019	IR02MWB-3	11/23/2004	0	A	<200 U	36.1	9.8 J	284	<4 U	<10 U	NA	<10 U	NA	5.8 J	<10 UJ9	NA	<10 U	127	NA	<0.16 U1	NA	<10 U	NA	<10 UJ9	<2 U	NA	<10 UJ9	NA	<100 U
0511G047	IR02MWB-3	03/15/2005	0	A	38.7 J	265	5	79.4 J3	2	<5 UJ3	NA	2.6 J3	NA	<5 UJ3	12.1	NA	<5 UJ3	32.3	NA	<0.2 U	NA	13.2 J3	NA	47.1 J3	1	NA	<5 UJ3	NA	<50 UJ3
9043 J043	IR02MWB-5	10/25/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9043 J044	IR02MWB-5	10/25/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	<20 U	<26.3 U	4.4	106	3	<2.8 U	297,000	<2.7 U	<0.01 U	<7.9 U	18.1	<30.6 U1	<0.8 U	716	845000	0.28	<4.4 U	47.2	260000	<50 U	<1.7 U	7410000	<18 UJ3	<1.4 U	<4.2 U1
9224X613	IR02MWB-5	06/09/1992	0	A	<21.6 U	<31.1 U	<40 U	139	<0.5 U	<2.7 U	266,000	<2.5 UJ3	<0.01 U	<8.8 UJ3	<7.3 U1	175 J3	<1.6 UJ3	1150 J3	765000	<0.2 U	5.7	42.9 J3	249000	<14.5 UR2	<1.5 U	7370000	<8 UJ3	<1.4 U	<16.5 UJ3
9224X614	IR02MWB-5	06/09/1992	0	A	<21.6 U	<31.1 U	<40 U	135	<0.5 U	<2.7 U	267,000	<2.5 UJ3	<0.01 U	<8.8 UJ3	<5.6 U1	276 J3	<1.6 UJ3	1160 J3	778000	<0.2 U	7.3	37 J3	253000	<14.5 UR2	<1.5 U	7590000	<8 UJ3	<1.4 U	<16.5 UJ3
9235 J245	IR02MWB-5	08/28/1992	0	A	<21.6 U	<31.1 U	<2 U	104	<0.5 U	4.5	238,000	<2.5 U	<0.01 U	<8.8 U	2.9	441	<8 UJ3	1330 J3	721000	<0.2 U	<5.4 U	<17.3 U	239000	<2.9 UR2	<1.5 U	7340000	<2.4 U1 J3	<1.9 U1	<16.5 U
0110D004	IR02MWB-5	03/13/2001	0	A	NA	NA	NA	NA	NA	NA	217,000	NA	NA	NA	NA	30100	NA	NA	630000	NA	NA	3430	239000	NA	NA	5360000 J4	NA	NA	NA
0229A018	IR02MWB-5	07/19/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0238G006	IR02MWB-5	09/20/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<06.5 U1	NA	NA	NA	NA	NA	NA	NA
9045 J074A	IR03MW218A1	11/06/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9045 J075	IR03MW218A1	11/06/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	52.8	<26.3 U	2.5 J3	157	1.6	<2.8 U	286,000	<2.7 U	<0.01 U	<7.9 UJ3	<8.9 U1	1110	<0.8 U	326	184000	<0.2 U	4.6	<28.8 UJ3	26900	<25 UR2	<1.7 U	334000	<18 UR2	15.6	5
9204X457	IR03MW218A1	01/24/1992	0	A	<20 U	<26.3 U	<1.7 UJ3	716	1	<2.8 U	272,000	3.2	<0.01 U	<7.9 UJ3	<4.2 U1	344	1.8	654	271000	<0.2 U	<4.4 U	<28.8 UJ3	67100	<25 UR2	<1.7 U	1680000	<18 UR2	10.9	<1.9 U
9228X666	IR03MW218A1	07/09/1992	0	A	185 J3	<31.1 U	<20 UJ3	4830	<0.5 U	<2.7 U	345,000	<2.5 U	<0.01 U	<8.8 U	25.9 J9	1910	23.4	879	331000	<0.2 U	<5.4 U	<17.3 U	76900	<29 UJ3	<1.5 U	2350000	<1.6 UJ3	15.4	<16.5 U
9045 J081	IR03MW218A2	11/07/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9045 J082	IR03MW218A2	11/07/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	<16 U	<32 U	<1 U	17300	<1 U	<4 U	243,000	<5 U	<0.01 U	<6 U	5.9	411	<2.4 U1	558	325000	<0.2 U	<21.8 U1	<17 U	262000	<1 U	<3 U	5550000	<5 UJ3	<4 U	6.7
9228X664	IR03MW218A2	07/09/1992	0	A	463 J3	<31.1 U	<20 UJ3	18800	<0.5 U	<2.7 U	256,000	<2.5 U	<0.01 U	<8.8 U	68.8	4240	83	574	380000	<0.2 U	15.1	<17.3 U	235000	<29 U	<1.5 U	6750000	<16 UJ3	<1.4 U	94.5
9235X730	IR03MW218A2	08/27/1992	0	A	<43.9 U1	<31.1 U	<2 UJ3	19400	<0.5 U	<2.7 U	253,000	<2.5 U	<0.01 U	<8.8 U	2.5	268	<1.6 UJ3	576	385000	<0.2 U	16.2	<17.3 U	256000	<29 UJ3	<1.5 U	7400000	2.1 J3	<1.4 U	<16.5 U
0110T012	IR03MW218A2	03/14/2001	0	A	NA	NA	NA	9350	NA	NA	175,000	NA	NA	NA	<8.9 U1	951	10.9	NA	125000	NA	NA	NA	185000	NA	NA	4210000	NA	NA	29.4 J4
0110T013	IR03MW218A2	03/14/2001	0	A	NA	NA	NA	9880	NA	NA	NA	NA	NA	NA	<10.8 U1	NA	11.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 J4
0231D006	IR03MW218A2	07/30/2002	0	A	59	1.2	<5 U	13900	<0.4 U	<0.4 UJ1	374,000 J4	<3 U	NA	<2 U	<8 U	1940 J4	0.19 J	297 J4	103000 J4	0.19 J1	28.5	<04.4 U1	146000 J4	<5 UJ13	0.18 J	4090000	0.06 J	<6 U	<2.7 U2
0232E013	IR03MW218A2	08/09/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0239A002	IR03MW218A2	09/23/2002	0	A	<30 U	0.62	<5 UJ3	7820	<0.4 U	<0.9 U1	180,000	<3 U	0.02	<2 U	<8 U	825	0.23	209	83800	<0.1 U	17.4	<02.9 U1	136000	5R2	<7 UJ3	3450000	<0.04 U	<6 U	<2 U
0425H025	IR03MW218A2	06/15/2004	0	A	<100 U	<5 U	<5 U	11700	<2 U	<5 U	NA	<5 UJ2	0.0092 J	2.6 J	<3.6 U1	NA	<5 U	209	NA	<0.2 U	NA	<5 U	NA	<5 U	0.76 J	NA	<5 U	NA	<50 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0438 J022	IR03MW218A2	09/14/2004	0	A	100R2	<10.3 U1	<5 U	9000	<2 U	<5 U	NA	<5 U	<0.02 U	<5 U	1.6 J	NA	5.6	203	NA	<0.2 U	NA	5.6	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0448C020	IR03MW218A2	11/23/2004	0	A	61 J	25.5	7.7	7560	<2 U	<5 U	NA	<5 U	0.03	4.1 J	<5 UJ9	NA	<5 U	211	NA	<0.04 U1	NA	<5 U	NA	<5 UJ9	<1 U	NA	<5 UJ9	NA	<50 U
0510G025	IR03MW218A2	03/10/2005	0	A	<26.3 U1	5	5	6910	2	5	NA	5	0.02	1.8 J	6.7	NA	5	187	NA	0.2	NA	5	NA	<3.4 U1	1	NA	5	NA	50
0526G039	IR03MW218A2	06/27/2005	0	A	<29.9 U1	21.7	<5 U	7670	<2 U	<5 U	NA	1.5 J	0.02	<5 U	<5 U	NA	2.5 J	172	NA	<0.2 U	NA	3.7 J	NA	<7 U1	<1 U	NA	<5 U	<5 U	<50 U
0538A027	IR03MW218A2	09/21/2005	0	A	<100 U	<5.4 U	<5 U	5730	<2 U	<5 U	NA	<5 U	NA	13.9	<5 U	NA	<5 U	166	NA	<0.2 U	NA	3.7 J	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0602H042	IR03MW218A2	01/10/2006	0	A	<100 U	<5 U	4.9 J	6660	<.29 U	<5 U	NA	<5 U	0.019 J	11.6	<5 U	NA	<5 U	166	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0623T023	IR03MW218A2	06/08/2006	0	A	<100 U	<5 U	<5 U	6010	<2 U	<5 U	NA	<5 U	).0000005 U	8.8	<5 U	NA	<5 U	164	NA	<0.14 U	NA	<5 U	NA	16.7	<1 U	NA	<5 U	NA	<50 U
0636D036	IR03MW218A2	09/06/2006	0	A	<100 U	<3.1 U	3.4 J	4490	<2 UJ	<5 U	NA	4.8 J	0.0000005	6.9	<5 U	NA	<5 U	115	NA	<0.15 U	NA	4.9 J	NA	4.8 J	<1 UJ	NA	9.7	NA	<50 U
0650B043	IR03MW218A2	12/12/2006	0	A	<100 U	<5 U	<5 U	5790 J	<2 UJ	<5 UJ	NA	<5 UJ	).0000013 J	4.4 J	<5 U	NA	<5 UJ	140 J	NA	<0.047 U	NA	<5 UJ	NA	<5 U	<1 U	NA	<5 UJ	NA	<6.9 UJ
0709L012	IR03MW218A2	02/27/2007	0	A	<100 U	<5 U	<5 U	5380	<2 U	<5 U	NA	<5 U	2.4E-07 J	<5 U	<5 U	NA	<5 U	136 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	7.9 J
0719G001	IR03MW218A2	05/10/2007	0	A	<100 U	<7.9 U	<11.8 U	3360 J	<2 UJ	<5 UJ	NA	<5 U	0.0000005	<5 UJ	<3.1 U	NA	<5 UJ	114	NA	<0.2 U	NA	4.1 J	NA	24.5 J	<1 U	NA	<5 UJ	NA	4.4 J
0734D035	IR03MW218A2	08/21/2007	0	A	<100 U	<5 U	<4.4 U	3960 J	<2 U	<5 UJ	NA	<5 UJ	0.0000005	<5 UJ	1.7 J	NA	<5 UJ	122 J	NA	<0.2 U	NA	<5 UJ	NA	<8.3 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0741D035	IR03MW218A2	10/08/2007	0	A	<100 U	<5 U	2.9 J	3480 J	<2 U	<5 U	NA	<5 U	0.0000005	<5 U	2.3 J	NA	<5 U	95.9	NA	<0.2 U	NA	5.1	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0810D051	IR03MW218A2	03/04/2008	0	A	<100 U	<1.9 U	<5 U	3970	<2 U	<5 U	NA	<5 U	0.0000005	<5 U	<5 U	NA	<5 U	129	NA	<0.2 U	NA	<5 U	NA	7.5	<1 U	NA	<5 U	NA	<50 U
0823H060	IR03MW218A2	06/04/2008	0	A	<100 U	<5 U	2.8 J	4330 J	<2 U	<5 U	NA	<5 U	<0.0005 U	<5 U	<5 U	NA	<5 U	149 J	NA	<0.11 U	NA	2.1 J	NA	3.3 J	2	NA	<5 U	NA	<50 U
9045 J076	IR03MW218A3	11/06/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203X416	IR03MW218A3	01/16/1992	0	A	<19.7 U1	<32 U	<3.7 U1	1460	<1 U	<4 U	123,000	<5 U	<0.01 U	<6 U	<6.3 U1 J9	<15 U1	<5 U	1600	592000	<0.2 U	<15.5 U1	<17 U	265000	<1 U	<3 U	6280000	<5 UJ3	<19.5 U1 J9	<3.2 U1 J9
9228X665	IR03MW218A3	07/09/1992	0	A	<21.6 U	39.7	24 J3	1580	<0.5 U	<2.7 U	124,000	<2.5 U	<0.01 U	<8.8 U	<2.2 U1	<25.2 U1	<5.5 U1	1320	660000	<0.2 U	<5.4 U	<17.3 U	217000	<29 U	<1.5 U	7070000	<16 UJ3	18.5	<82.5 U
9235X729	IR03MW218A3	08/27/1992	0	A	<21.6 U	<31.1 U	5.9 J3	1540	<0.5 U	<2.7 U	122,000	<2.5 U	<0.01 U	<8.8 U	5	18.3	<1.6 UJ3	1490	687000	<0.2 U	<5.4 U	<17.3 U	240000	<29 UJ3	<1.5 U	8020000	<1.6 UR2	21.9	<16.5 U
0110T014	IR03MW218A3	03/14/2001	0	A	NA	NA	NA	2660	NA	NA	115,000	NA	NA	NA	NA	173	NA	NA	615000	NA	NA	NA	299000	NA	NA	6980000	NA	NA	NA
0231E013	IR03MW218A3	08/01/2002	0	A	<30 U	20.2	13.6	1690	<0.4 U	<0.4 U1	100,000	<3 U	<0.01 U	<2 U	<8 U	50.8 J4	0.96	892	600000	<0.1 U	6.5 J	11.9 J	206000	<5 U	<7 U	6080000	<0.08 U	22.1	<6.4 U2
0239E007	IR03MW218A3	09/25/2002	0	A	<75 U1	2.84	11 J	1850	<0.4 U	<0.4 U	106,000	<3 U	<0.01 U	<2 U	<8 U	1450	0.61 J2	946	605000	<0.1 U	10.4	<04.1 U1	210000	<4 UJ3	<7 U	5910000	<0.08 U	<6 U	<3.3 U2
9204X451	IR03MW224A	01/23/1992	0	A	<20 U	<26.3 U	<1.7 UJ3	73.2	3.4	<2.8 U	390,000	3	<0.01 U	<7.9 UJ3	<4.2 U1	<5.6 U	<0.8 U	2460	935000	<0.2 U	5.5	<28.8 UJ3	264000	<25 UR2	2.7	8320000	<18 UR2	2	<1.9 U
9230 J196	IR03MW224A	07/24/1992	0	A	<21.6 U	<31.1 U	<2 U	47.9	<0.5 U	<2.7 U	373,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	<29.1 U1	3.2	1930	889000	<0.2 U	<5.4 U	<17.3 U	244000	<14.5 U	<1.5 U	8040000	<1.7 U1	<1.4 U	<165 U
9235X734	IR03MW224A	08/28/1992	0	A	20200	<31.1 U	3.2 J3	509	1.4	<2.7 U	373,000	63.6	<0.01 U	14.5	34.5	21500	13.3 J3	3030	919000	<0.2 U	<5.4 U	73.8	247000	<2.9 UJ3	<1.5 U	8260000	<8 UR2	41.4	80.9
9235X735	IR03MW224A	08/28/1992	0	A	<21.6 U	<31.1 U	<2 UJ3	50.6	<0.5 U	<2.7 U	364,000	<2.5 U	<0.01 U	<8.8 U	1.8	52.4	<1.6 UJ3	2270	910000	<0.2 U	<5.4 U	<17.3 U	252000	<29 UJ3	<1.5 U	8570000	<8 UR2	<1.4 U	<16.5 U
0109P003	IR03MW224A	03/06/2001	0	A	<28.4 U	NA	3.5 J	298	NA	NA	248,000	<0.7 U	<0.01 U	NA	<1.5 U	206	NA	NA	615000	NA	NA	17.8 J	190000 J4	NA	NA	4920000 J4	NA	NA	NA
0230A007	IR03MW224A	07/23/2002	0	A	<34 U1	2.94	3.7	255	<1 U	5.1	281,000	<3 U	<0.01 U	<4 U	<4 U	198	0.2	1630	661000	<0.1 U	<9.7 U1	<20 U	178000	<5 U	<4 U	5310000	<0.04 U	<6.5 U1	2 J
0237S010	IR03MW224A	09/11/2002	0	A	<30 U	<0.4 U	<5 U	119	<0.4 U	<0.4 U	268,000	<3 U	<0.01 U	<2 U	<8 U	146	0.15 J	1760	683000	<0.1 U	<5 U	<01.9 U1	149000	5R2	<7 U	5040000	<0.08 U	<6 U	3.6 J
0438 J023	IR03MW224A	09/14/2004	0	A	100R2	<8.7 U1	<5 U	142	<2 U	<5 U	NA	<5 U	NA	<5 U	2.1 J	NA	2.2 J	1850	NA	<0.2 U	NA	<5 U	NA	3.8 J	<1 U	NA	<5 U	NA	<50 U
0449C025	IR03MW224A	11/29/2004	0	A	<52.3 U1	36.4	7.4	72.6	<2 U	<5 U	NA	6	NA	6.3	<5 U	NA	<5 U	1770	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0449C026	IR03MW224A	11/29/2004	0	A	<100 U	21	4.8 J	94	<2 U	<5 U	NA	5.4	NA	4.1 J	<5 U	NA	<5 U	2190	NA	<0.18 U1	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0511Z018	IR03MW224A	03/15/2005	0	A	<100 U	<5 U	<5 U	185	<2 U	<5 U	NA	<5 U	NA	<5 U	<2.3 U2	NA	<5 U	495	NA	<0.05 U1	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0526G044	IR03MW224A	06/28/2005	0	A	<100 U	17.1	<5 U	107	<2 U	<5 U	NA	2.3 J	NA	<5 U	<5 U	NA	<5 U	726	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0526G045	IR03MW224A	06/28/2005	0	A	<100 U	<12 U1	<5 U	149	<2 U	<5 U	NA	2.7 J	NA	1.1 J	<1.2 U1	NA	<5 U	850	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0538T029	IR03MW224A	09/22/2005	0	A	<100 UJ	14.8 J	3.6 J	93.6 J	<2 UJ	<5 UJ	NA	2.4 J	NA	<5 UJ	<5 UJ	NA	<5 UJ	1010 J	NA	<0.2 U	NA	<5 UJ	NA	<5 UJ	<1 UJ	NA	<5 UJ	NA	<50 UJ
0602V032	IR03MW224A	01/10/2006	0	A	<100 U	<5 U	6.3	209	<2 U	<5 U	NA	3.9 J	NA	0.83 J	<5 U	NA	<5 U	989	NA	<0.073 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0611S013	IR03MW224A	03/14/2006	0	A	<100 U	<5 U	<5 U	38.2	<2 U	<5 U	NA	<5 U	NA	<5 U	3 J	NA	<5 U	25.9	NA	<0.2 U	NA	<5 U	NA	4 J	<1 U	NA	<5 U	NA	<50 U
0623P049	IR03MW224A	06/06/2006	0	A	<100 U	<5 U	<5 UJ	220	<2 U	<5 U	NA	1.7 J	NA	<5 UJ	<5 U	NA	<5 U	769	NA	<0.082 U	NA	<5 U	NA	<5 UJ	<1 UJ	NA	<4.4 U	NA	<50 U
0634G007	IR03MW224A	08/25/2006	0	A	<100 U	<2.5 U	<5 U	257	<2 U	<5 U	NA	<5 U	NA	2.7 J	<5 U	NA	<5 U	1070	NA	<0.2 U	NA	4.7 J	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0649B038	IR03MW224A	12/08/2006	0	A	<100 U	<4 U	<5 U	220 J	<2 UJ	<5 UJ	NA	<5 UJ	NA	<5 UJ	<5 U	NA	<5 UJ	2470 J	NA	<0.056 U	NA	<5 UJ	NA	4.6 J	<1 U	NA	<5 UJ	NA	<50 UJ
0709G047	IR03MW224A	02/28/2007	0	A	<100 U	<11.4 U	<5 U	151	0.49 J	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	510	NA	<0.11 U	NA	<5 U	NA	<5 U	<1 U	NA	<8.5 U	NA	<50 U
0720W046	IR03MW224A	05/18/2007	0	A	<100 U	6.1	<5 UJ	137 J	<2 UJ	<5 UJ	NA	<5 UJ	NA	1.2 J	<5 U	NA	<5 UJ	990 J	NA	<0.13 U	NA	4.4 J	NA	<5 UJ	<1 U	NA	5.2 J	NA	<50 UJ
0734H057	IR03MW224A	08/20/2007	0	A	<100 U	3.3 J	<5 U	182 J	<2 U	<5 U	NA	<5 U	NA	<5 U	1.7 J	NA	<5 U	1180 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	2 J	NA	<50 UJ
0740D024	IR03MW224A	10/04/2007	0	A	<100 UJ	6.1	<5 U	120 J	<2 UJ	<5 UJ	NA	<5 U	NA	<5 UJ	<5 U	NA	<5 UJ	840 J	NA	<0.2 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0809E022	IR03MW224A	02/27/2008	0	A	<100 U	<5 U	4.6 J	44.3 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<1.2 U	NA	<5 U	1080 J	NA	<0.2 U	NA	<5 U	NA	7.6	0.74 J	NA	<5 U	NA	<50 U
0817E029	IR03MW224A	04/21/2008	0	A	<100 U	<5 U	<13.1 U	55.9	<2 U	<5 U	NA	<5 U	NA	<5 U	1.4 J	NA	<5 U	1550	NA	<0.2 U	NA	2.8 J	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
9205X470	IR03MW225A	01/28/1992	0	A	<20 U	<26.3 U	3.2 J3	369	2.6	<2.8 U	175,000	2.8	<0.01 U	<7.9 UJ3	<5.1 U1	<9 U1	<0.8 U	596	792000	<0.2 U	17.6	31 J3	259000	<25 UR2	<1.7 U	7680000	<18 UR2	4.1	<1.9 U
9205X471	IR03MW225A	01/28/1992	0	A	<20 U	<26.3 U	2.8 J3	425	2.6	<2.8 U	184,000	<2.7 U	<0.01 U	<7.9 UJ3	<3.2 U1	<5.6 U	<0.8 U	633	803000	<0.2 U	18.6	<28.8 UJ3	262000	32 J3	<1.7 U	7770000	<18 UR2	2.8	<1.9 U
9614Z024	IR03MW225A	04/03/1996	0	A	<20.4 U	<2.1 U1	<2.4 U1	641	<0.1 U	<0.3 U	149,000	<0.7 U	<0.01 U	<0.5 U	<0.8 U	53	<1 U	290	791000	<0.1 U	<2.3 U1	<0.9 U	228000	<2.2 U	<0.7 U	5710000	<1.7 U	<0.7 U	5.4
9625Z049	IR03MW225A	06/19/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9625Z050	IR03MW225A	06/19/1996	0	A	32	<1.2 U	5.3	385	<0.1 U	<0.3 U	153,000	<0.7 U	NA	0.76	1.4	317	<1 U	288	853000	<0.1 U	2.1	4.1 J2	263000	<2.2 U	<0.7 U	6720000	<1.7 U	1.4	15.7 J2
9205X461	IR03MW226A	01/27/1992	0	A	<20 U	<26.3 U	1.7 J3	96.2	2.5	<2.8 U	393,000	<2.7 U	<0.01 UR2	<7.9 UJ3	<3.8 U1	5810	1.4	541	369000	<0.2 U	<4.4 U	57.8 J3	48800	<25 UR2	1.8	1270000	<18 UR2	2.5	125
9205X462	IR03MW226A	01/27/1992	0	A	<20 U	<35 U1	2.2 J3	92.7	2.1	<2.8 U	381,000	<2.7 U	<0.01 U	<7.9 UJ3	<6 U1	5010	1.6	549	360000	<0.2 U	7.5	42.6 J3	46900	<25 UR2	<1.7 U	1230000	<18 UR2	3	93.3
9230 J197	IR03MW226A	07/24/1992	0	A	<21.6 U	<31.1 U	6.8	7070	<0.5 U	<2.7 U	132,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	15800	<1.6 U	507	396000	<0.2 U	5.7	<17.3 U	155000	<2.9 U	<1.5 U	4630000	<1.6 U	<1.4 U	<16.5 U
9230 J198	IR03MW226A	07/24/1992	0	A	4900	63.9	20.3	6830	<0.5 U	3.6	140,000	68.6	<0.01 U	16.7	824	31700	613	772	408000	0.8	8.2	146	148000	<2.9 U	<1.5 U	4400000	<1.6 U	38	1180
9235X732	IR03MW226A	08/27/1992	0	A	<21.6 U	<31.1 U	<2 UJ3	85.4	<0.5 U	2.7	289,000	<2.5 U	<0.01 U	<8.8 U	6.4	<11.3 U	<1.6 UJ3	90.6	959000	<0.2 U	14.4	<17.3 U	336000	<29 UJ3	<1.5 U	9180000	<8 UR2	<6.5 U1	32.9
9119M013	IR03MW228B	05/06/1991	0	B	<16.3 U	<21.7 U	3.9	39.4	<0.19 U	<2.7 U	12,000	<1.4 U	<0.01 U	<6.6 U	<11.5 U1	51.3	<2.1 U	288	12900	<0.2 U	<2.9 U	<14.5 U	5390	<2.3 U	<1.2 U	186000	<2.5 U	<5.6 U1	3.2
9119M014	IR03MW228B	05/06/1991	0	B	25.5	<21.7 U	3.6	37.6	<0.19 U	<2.7 U	12,600	<1.4 U	<0.01 U	<6.6 U	<10.8 U1	92.8	<2.1 U	286	13700	<0.2 U	<2.9 U	<14.5 U	5820	<2.3 U	<1.2 U	188000	<2.5 U	<6.1 U1	3.9
9203X417	IR03MW228B	01/16/1992	0	B	19.1	<32 U	5.2	34.9	<1 U	<4 U	12,900	<5 U	<0.01 U	<6 U	5.2	21.4	<1 U	294	11600	<0.2 U	<7 U	<17 U	5080	<1 U	<3 U	166000	<1 UJ3	<4 U	5.1
9235 J244	IR03MW228B	08/28/1992	0	B	<21.6 U	<31.1 U	4.7	36.4	<0.5 U	5.6	13,900	<2.5 U	<0.01 U	<8.8 U	6.4	<11.3 U	<1.6 UJ3	230 J3	12100	<0.2 U	<5.4 U	<17.3 U	<3460 U1	<2.9 UR2	<1.5 U	133000	<1.6 UJ3	<1.4 U	<16.5 U
0231E018	IR03MW228B	08/02/2002	0	B	<30 U	0.43	<03.4 U1	43.3	<0.4 U	<0.4 U	14,000	<3 U	<0.01 U	<2 U	<8 U	25.6 J4	<0.03 U2	318	11900	<0.1 U	<5 U	<01.6 U1	2180	<01.2 U1 J2	<7 U	106000	<0.004 U	<6 U	<2 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0231E019	IR03MW228B	08/02/2002	0	B	<30 U	2.74	<03.9 U1	44.6	<0.4 U	<0.4 U	14,400	<3 U	NA	<2 U	<8 U	26.6 J4	0.07	326	12200	<0.1 U	<5 U	<0.9 U1	2250	<02.7 U1 J2	<7 U	109000	<0.004 U	<6 U	<3.2 U2
0237S014	IR03MW228B	09/12/2002	0	B	<30 U	0.71	4.1 J	48.3	<0.4 U	<0.4 U	14,400	<3 U	<0.01 U	<2 U	<8 U	69.3	0.04	438	12100	<0.1 U	<5 U	<0.9 U	2520	<1 U	<7 U	107000	<0.004 U	<6 U	3.8 J
9228X647	IR03MW342A	07/06/1992	0	A	2570 J2	<31.1 UR2	7.4	1380 J2	<0.5 U	<2.7 U	317,000	21.9 J2	<0.01 U	<8.8 U	101 J23	4640 J2	92.5	484	580000 J2	0.4	<5.4 UJ3	74.8 J2	286000	<14.5 UJ3	<1.5 U	8220000	<8 UJ3	18 J2	208 J2
9235X736	IR03MW342A	08/28/1992	0	A	14000	<31.1 U	12 J3	1800	<0.5 U	2.8	239,000	165	<0.01 U	31.7	422	25700	324 J3	1360	632000	2	<5.4 U	332	268000	<29 UJ3	<1.5 U	8660000	<1.6 UR2	75.6	866
9530X863	IR03MW342A	07/24/1995	0	A	<16.3 U	<3.51 U1 J9	<2.8 U	2007.45	<0.1 U	<0.2 UJ9	133,024	<1.8 U	NA	1.52 J9	<0.89 U1 J9	96.66	<1.5 U	744.77	621706	<0.1 U	<5.64 U1 J9	<3.3 U	264859	<3.4 U	<0.6 U	7484915	<2 UJ9	4.33 J9	:13.2 U1 J2
9612 J944	IR03MW342A	03/21/1996	0	A	<44.2 U1	<1.6 U	2.7	1270	<0.1 U	<0.2 U	77,900	<0.4 U	<0.01 U	<1.1 U1	<1.8 U1	<93.4 U1	<0.8 U	361 J4	279000	<0.1 U	11.7	<0.7 U	106000	<2.3 UJ3	<0.5 U	3240000	<1.9 U	2.8	<19.1 U1
9612 J945	IR03MW342A	03/21/1996	0	A	<22.9 U1	<1.6 U	2.7	1230	<0.1 U	<0.2 U	79,300	<0.4 U	<0.01 U	<0.81 U1	<1 U1	121	<0.8 U	372 J4	271000	<0.1 U	13.3	<0.7 U	90500	<2.3 UJ3	<0.5 U	2620000	<1.9 U	3.1	<12.6 U1
0110T017	IR03MW342A	03/15/2001	0	A	<28.4 U	NA	<2.5 U	488	NA	NA	85,300	<0.7 U	<0.01 U	NA	<4.5 U1	311	<1.6 U	NA	128000	<0.1 U	NA	2.2 J	24000	NA	NA	697000	NA	NA	66.2 J4
0230A013	IR03MW342A	07/25/2002	0	A	<10 U	2.02	7.1 J3	1590	<1 U	3.4 J9	199,000	<3 UJ9	<0.01 U	<4 U	<4 UJ9	2050	<0.08 U2 J2	1910	345000	<0.1 U	<14.1 U1 J9	<20 U	23200	<5 UJ3	<4 UJ39	1520000	<0.02 UJ2	<5.1 U1 J9	<3.1 U2 J9
0238 J004	IR03MW342A	09/16/2002	0	A	<30 U	0.26	2.4 J	1720	<0.4 U	<0.4 U	167,000	3.7 J	<0.01 U	<2 U	56.2	2660	<0.09 U2	1610	365000	<0.1 U	13.7	<0.9 U	26600	<2 UJ3	<7 U	1480000	<0.06 U1	<6 U	35.2
0425S039	IR03MW342A	06/16/2004	0	A	95 J	<5 U	2.5 J	951	<2 U	<5 U	NA	6.6 J2	<0.02 U	1.1 J	271	NA	<5 U	881	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0438G042	IR03MW342A	09/14/2004	0	A	100R2	<6.9 U1	<5 U	1340	<2 U	<5 U	NA	<5 U	<0.02 U	<5 U	<3.6 U2	NA	<5 U	1140	NA	<0.04 U1	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0448C016	IR03MW342A	11/22/2004	0	A	76 J	16.4	9.6	246	<2 U	<5 U	NA	8.6	<0.02 U	1.3 J	<5 U	NA	<5 U	245	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0510G026	IR03MW342A	03/10/2005	0	A	<100 U	<5 U	3.6 J	247	<2 U	<5 U	NA	<5 U	0.02	<5 U	4.3 J	NA	<5 U	387	NA	<0.2 U	NA	<5 U	NA	<5.1 U1	<1 U	NA	<5 U	NA	<50 U
0526G043	IR03MW342A	06/28/2005	0	A	<100 U	27.7	<5 U	1270	<2 U	<5 U	NA	7.3	0.02	<5 U	3.8 J	NA	<5 U	1180	NA	<0.2 U	NA	7.7	NA	<6.1 U1	<1 U	NA	<5 U	NA	<50 U
0538A028	IR03MW342A	09/21/2005	0	A	<100 U	<6.6 U	<5 U	1520	<2 U	<5 U	NA	7	NA	<5 U	<5 U	NA	<5 U	1330	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0602H043	IR03MW342A	01/10/2006	0	A	<100 U	<5 U	3.5 J	118	<.24 U	<5 U	NA	2.9 J	<0.02 U	<5 U	14.9	NA	<5 U	234	NA	<0.064 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0602H044	IR03MW342A	01/10/2006	0	A	<100 U	<5 U	4.5 J	122	<.25 U	<5 U	NA	2.5 J	<0.02 U	<5 U	15	NA	<5 U	241	NA	<0.065 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0611S012	IR03MW342A	03/14/2006	0	A	<100 U	<5 U	<5 U	104	<2 U	<5 U	NA	3.9 J	<0.02 U	<5 U	61.6	NA	<5 U	5.9	NA	<0.095 U	NA	<5 U	NA	4.1 J	<1 U	NA	<5 U	NA	<50 U
0622S011	IR03MW342A	06/01/2006	0	A	<100 U	<5 U	<5 U	1030 J	<2 U	<5 U	NA	6.7	0.0000005	<5 U	<5 U	NA	<5 U	2310 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<2.4 U	NA	<50 U
0636D037	IR03MW342A	09/06/2006	0	A	<100 U	<3 U	4.4 J	1390	<2 U	<5 U	NA	9	0.0000005	1.6 J	<5 U	NA	<5 U	2210	NA	<0.19 U	NA	<5 U	NA	<5 U	<1 U	NA	4.1 J	NA	<50 U
0636D038	IR03MW342A	09/06/2006	0	A	<100 U	<5 U	4.7 J	1410	<2 U	<5 U	NA	9.1	0.0000005	1.3 J	<5 U	NA	<5 U	2370	NA	<0.1 U	NA	<5 U	NA	<5 U	<1 U	NA	4.9 J	NA	<50 U
0650W041	IR03MW342A	12/11/2006	0	A	<100 U	<5 U	<5 U	484 J	<2 UJ	<5 UJ	NA	3.4 J	1.9E-07 J	<5 UJ	4.6 J	NA	<5 UJ	612 J	NA	<0.07 U	NA	<5 UJ	NA	6	<1 U	NA	<5 UJ	NA	<6.2 UJ
0708L005	IR03MW342A	02/22/2007	0	A	<100 U	2 J	<5 U	165 J	<2 U	<5 U	NA	<5 U	0.0000005	<5 U	<1.4 U	NA	<5 U	203 J	NA	<0.075 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0720G016	IR03MW342A	05/15/2007	0	A	<100 U	<6.2 U	<5 U	722 J	<2 U	<5 U	NA	3 J	0.0000005	<5 U	<5 U	NA	<5 U	1450	NA	<0.085 U	NA	<5 U	NA	23.7 J	<1 U	NA	<5 UJ	NA	5.8 J
0735W059	IR03MW342A	08/27/2007	0	A	<100 U	<5 U	<5 U	1250	<2 U	<5 U	NA	3.3 J	0.0000005	<5 U	<3.2 U	NA	<5 U	2500	NA	<0.2 U	NA	<5 U	NA	8	<1 U	NA	<5 U	NA	<50 U
0741G024	IR03MW342A	10/08/2007	0	A	<100 U	<5 U	<5 U	1010 J	<2 U	<5 U	NA	2.6 J	0.0000005	<5 U	1.2 J	NA	<5 U	1690	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<2.5 U	NA	<50 U
0809D031	IR03MW342A	02/28/2008	0	A	<100 U	<5 U	3.9 J	108	<2 U	<5 U	NA	<5 U	0.0000005	<5 U	<5.4 U	NA	<5 U	89.6	NA	<0.16 U	NA	<5 U	NA	6.2	<1 U	NA	<5 U	NA	<6.9 U
0817E034	IR03MW342A	04/22/2008	0	A	<100 U	<5 U	4 J	454	<2 U	<5 U	NA	2.9 J	<0.0005 U	<5 U	<5 U	NA	<5 U	840	NA	<0.2 U	NA	3.9 J	NA	<5 U	<1 U	NA	2.2 J	NA	7.3 J
9548 J613	IR03MW369A	11/29/1995	0	A	<18.8 U	<3 U	<2.8 U	142	<0.1 U	<0.2 U	75,400	<0.5 U	NA	0.77	2.2	59.8 J3	<1.2 U	124	631000	<0.11 U1 J3	<1.9 U1	1.5	250000	<3.9 U	0.86	6430000	2 J3	0.98	<31.8 U1
9610 J911	IR03MW369A	03/06/1996	0	A	<19.1 U	<1.6 U	2.9	279	<0.1 U	<0.35 U1	87,900 J4	<0.79 U1	NA	<1.4 U1	<0.5 U	90.9	<0.8 UJ3	164	699000	<0.1 U	<3.2 U1	<2.6 U1	273000	<2.3 U	<2.2 U1	6810000	<1.9 U	<1.6 U1	<9.7 U1
9621 J126	IR03MW369A	05/20/1996	0	A	<20.4 U	<1.2 U	<1.3 U	534	<0.1 U	<0.3 UJ9	73,500	<0.7 U	NA	0.72 J9	<0.88 U2	<68.3 U2	<1 UJ9	179	478000	<0.1 U	<3.3 U1	<3.1 U1 J9	224000	<2.2 UJ9	<0.7 U	5900000	<1.7 U	<0.7 UJ9	<43.2 U1 J9
9548 J615	IR03MW370A	11/30/1995	0	A	<94 U	<15 U	<14 U	1830	<0.5 U	<1 U	70,000	<2.5 U	NA	<2.5 U	<4 U	96.4 J3	<6 U	82.4	701000	<0.1 UJ3	<6 U	<6.5 U	243000	<19.5 U	<3.5 U	6550000	<9.5 UJ3	16.5	<22.1 U1
9610 J908	IR03MW370A	03/06/1996	0	A	<20.8 U1	<1.6 U	<1.4 U	2110	<0.1 U	<0.2 UJ9	53,000 J4	<0.4 UJ9	NA	<0.4 U	<1.3 U1 J9	<11 U	<0.8 UJ39	56.5	614000	<0.1 U	<0.6 UJ9	<0.7 U	226000	<2.3 UJ9	<0.5 U	5710000	<1.9 U	<0.74 U1 J9	<26.8 U2 J9
9620 J125	IR03MW370A	05/16/1996	0	A	<20.4 U	<1.2 U	<1.3 U	1800	<0.1 U	<0.3 U	73,900	<0.7 U	NA	1.7	<0.8 U	<70.4 U1	<1 U	79.9	566000	<0.1 U	<0.7 U	<0.9 U	221000	<2.2 U	1.2	5780000	<1.7 U	4	<6.6 U1
9548 J617	IR03MW371A	11/30/1995	0	A	<18.8 U	<3 U	<2.8 U	229	<0.1 U	<0.2 U	311,000	<0.5 U	NA	<0.5 U	<0.8 U	39.5 J3	<1.2 U	85.5	984000	<0.1 UJ3	<2.6 U1	<1.3 U	274000	<3.9 U	<0.7 U	7210000	<1.9 UJ3	37.1	<18.1 U1
9548 J618	IR03MW371A	11/30/1995	0	A	<18.8 U	<3 U	<2.8 U	227	<0.1 U	<0.2 U	308,000	1	NA	<0.5 U	<0.8 U	180 J3	<1.2 U	85.6	926000	<0.1 UJ3	<1.2 U	1.8	259000	<3.9 U	<0.7 U	6720000	3.3 J3	37	<18.2 U1
9610 J912	IR03MW371A	03/06/1996	0	A	<42.3 U1	7.4	4.3	48.3	<0.1 U	<0.2 U	242,000 J4	<2.3 U1	NA	<0.71 U1	5.3	111	<0.8 UJ3	19	234000	<0.1 U	<3.4 U1	<7.4 U1	80700	<2.3 U	<0.75 U1	1680000	<1.9 U	63.2	<21.4 U1
9620 J123	IR03MW371A	05/16/1996	0	A	<20.4 U	9.6	<1.3 U	137	<0.1 U	<0.3 U	451,000	2.3	NA	<0.5 U	2.9	169	<1 U	23.9	715000	<0.1 U	5.5	12.5	214000	<3.2 U1	<0.7 U	5670000	<1.7 U	46.8	30.3
9620 J124	IR03MW371A	05/16/1996	0	A	<20.4 U	<8.1 U1	<1.3 U	139	<0.1 U	<0.3 U	456,000	2.3	NA	<0.5 U	3.5	143	<1 U	24.4	705000	<0.1 U	6.3	12.5	212000	<2.8 U1	<0.7 U	5380000	<1.7 U	48	33.2
0425S037	IR03MW373B	06/15/2004	0	B	27 J	<5 U	<5 U	7.6	<.27 U1	<5 U	NA	16.8 J2	NA	<5 U	<5 U	NA	<5 U	8.3	NA	<0.2 U	NA	4.6 J	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0438 J024	IR03MW373B	09/14/2004	0	B	<100 U	<4.8 U1	<5 U	7.9	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	1.9 J	<5 U	NA	<0.2 U	NA	<5 U	NA	<10.6 U1	<1 U	NA	<5 U	NA	<50 U
0447C013	IR03MW373B	11/19/2004	0	B	<100 U	<6.1 U1	6.2	7.7	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	1.9 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	47.7 J
0510R032	IR03MW373B	03/10/2005	0	B	<100 U	<5 U	<5 U	11.7	<2 U	<5 U	NA	<5 U	NA	<5 U	1.5 J	NA	<5 U	1.7 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0526G046	IR03MW373B	06/28/2005	0	B	<100 U	5 J3	<5 UJ3	11.3 J3	<2 U	<5 UJ3	NA	<5 UJ3	NA	<5 UJ3	<2.4 U1	NA	<5 UJ3	<2.6 U1 J4	NA	<0.2 U	NA	<5 UJ3	NA	<5 UJ3	<1 U	NA	<5 UJ3	NA	<50 UJ3
0538A040	IR03MW373B	09/23/2005	0	B	<100 U	<5 U	<5 U	11.7	<2 U	<5 UJ	NA	<5 U	NA	<5 UJ	<1.1 U	NA	<5 UJ	<5 U	NA	<0.11 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 UJ	NA	<50 UJ
0602H041	IR03MW373B	01/09/2006	0	B	<100 U	<5 U	4.2 J	11.1	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	2.5 J	NA	<0.068 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0611S026	IR03MW373B	03/17/2006	0	B	<24.7 U	<5 U	<5 U	12 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<2.4 UJ	NA	<5 U	1.5 J	NA	<0.055 U	NA	<5 U	NA	4 J	<1 U	NA	<5 U	NA	<50 UJ
0623P056	IR03MW373B	06/08/2006	0	B	<100 U	<5 U	<5 U	12.6	<2 U	<5 U	NA	<5 U	NA	<5 U	1.7 J	NA	<5 U	1.8 J	NA	<0.14 U	NA	<5 U	NA	7.9	<1 U	NA	<5 U	NA	<50 U
0634G006	IR03MW373B	08/25/2006	0	B	<100 U	16	<5.4 U	15.3	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<3 U	2 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0649G031	IR03MW373B	12/04/2006	0	B	<100 U	<2.1 U	<5 U	12.7	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	1.8 J	NA	<0.12 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0709G048	IR03MW373B	02/28/2007	0	B	<100 U	<5 U	<5 U	14.8	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0720A055	IR03MW373B	05/17/2007	0	B	<100 U	<5 U	<7.2 UJ	13.2 J	<2 UJ	<5 UJ	NA	<5 UJ	NA	1.1 J	<5 U	NA	<5 UJ	<5 UJ	NA	<0.11 U	NA	<5 UJ	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<6.8 UJ
0735W060	IR03MW373B	08/27/2007	0	B	<100 U	<5 U	<5 U	14.4	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<0.2 U	NA	<5 U	NA	5	<1 U	NA	<5 U	NA	<50 U
0740D023	IR03MW373B	10/04/2007	0	B	29.1 J	2.4 J	<5 U	15.3 J	<2 UJ	<5 UJ	NA	<5 U	NA	<5 UJ	1.8 J	NA	<5 UJ	<5 U	NA	<0.2 U	NA	<5 UJ	NA	19 J	<1 U	NA	<5 UJ	NA	<50 UJ
0809E020	IR03MW373B	02/27/2008	0	B	<100 U	<5 U	2.7 J	14.9 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<1.2 U	NA	<5 U	<5 U	NA	<0.2 U	NA	<5 U	NA	4.6 J	<1 U	NA	<5 U	NA	<6.9 U
0809E021	IR03MW373B	02/27/2008	0	B	<100 U	<5 U	2.6 J	16 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<1.7 U	NA	<5 U	<5 U	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<7.6 U
0817E028	IR03MW373B	04/21/2008	0	B	<100 U	<5 U	<13.9 U	15.3	<2 U	<5 U	NA	<5 U	NA	<5 U	1.4 J	NA	<1.8 U	<5 U	NA	<0.2 U	NA	0.7 J	NA	<5 U	<1 U	NA	<5 U	NA	<8.6 U
9043 J048	IR03MWO-1	10/26/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	<20 U	<26.3 U	182 J3	557	2.1	<2.8 U	215,000	15.5	<0.01 U	<7.9 UJ3	<3.7 U1	5140	<0.8 U	1080	503000	<0.2 U	7.7	365 J3	155000	<25 UR2	<1.7 U	4980000	<1.8 UR2	6	<1.9 U
9204X453	IR03MWO-1	01/23/1992	0	A	<20 U	<26.3 U	138 J3	827	1.7	<2.8 U	188,000	10.5	<0.01 U	<7.9 UJ3	<3.1 U1	3340	<0.8 U	941	524000	<0.2 U	9.5	237 J3	181000	<25 UR2	2	5520000	<18 UR2	3.7	<1.9 U
9228X667	IR03MWO-1	07/09/1992	0	A	37000 J3	<31.1 U	1180 J3	11100	0.74	<5.5 U1	141,000	567	<0.01 U	89.4	3240	75400	65	1820	556000	1.2	37.8	1140	182000	<29 U	<1.5 U	5590000	<1.6 UJ3	125	2400

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9235X737	IR03MWO-1	08/28/1992	0	A	<21.6 U	<31.1 U	367 J3	10800	<0.5 U	<2.7 U	129,000	<2.5 U	<0.01 U	<8.8 U	2.2	3160	<1.6 UJ3	737	504000	<0.2 U	<5.4 U	<17.3 U	190000	<29 UJ3	<1.5 U	5750000	<1.6 UR2	<1.4 U	<16.5 U
9049 J086	IR04MW09A	12/03/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9049 J088	IR04MW09A	12/03/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	<15.3 U	<27.6 U	<8.1 U2	55	<0.35 U	<2.3 U	34,200	<3 U	<0.01 U	<10.4 U	<3.4 U1	<6.3 U	<2 U	197	92200	<0.2 U	<11.9 U1	32.8	7500	<2.5 U	<4.9 UJ3	285000	<2 U	<3.9 U	<6.1 U
9207X526	IR04MW09A	02/13/1992	0	A	<18.68 U1	22.76	<6.08 U1	54.92	<0.2 U	<1.8 U	23,414.10	<2.1 U	<0.01 U	<3 U	<8.07 U1	<3.7 U	6.47	63.56	58595.6	<0.27 U	11.75	<4.4 U	4593.87	<1.8 UJ3	<2 U	182739	<23 UR2	<3.2 U	<4.43 U1
9225X620	IR04MW09A	06/15/1992	0	A	<21.6 U	<31.1 U	5.5	63.6	<0.5 U	<2.7 U	28,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	<11.3 U	<1.6 U	113	67200	<0.2 U	16.4	<17.3 U	5230	<2.9 U	<1.5 U	221000	<1.6 UJ3	4.2	<16.5 U
9146X259	IR04MW13A	11/14/1991	0	A	<28.5 U1	<27.6 U	<4.1 U2	57.4	<0.35 U	<2.3 U	127,000	<3 U	<0.01 U	16.3	<1.9 U1	<59.3 U1	<2 U	710	336000	<0.2 U	20.2	92.2	16200	<2.5 U	<4.9 UJ3	589000	<2 U	4.5	<6.1 U
9207X518	IR04MW13A	02/12/1992	0	A	17.95	<14.5 U	8.43	60.11	<0.27 U1	<1.8 U	128,300	<2.1 U	<0.01 U	5.55	4.46	<3.7 U	<4.85 U1 J3	852.37	344703	<0.2 U	11.64	58.59	10355.1	<1.8 UJ3	<2 U	498388	<23 UR2	5.35	<1.6 U
9207X519	IR04MW13A	02/12/1992	0	A	23.35	<14.5 U	7.05	60.45	<0.27 U1	<1.8 U	121,613	<2.1 U	<0.01 U	6.54	<1.5 U	<3.7 U	<2.78 U1 J3	684.9	328747	<0.27 U	7.76	59.45	10206.4	<1.8 UJ3	<2 U	503862	<23 UR2	7.13	<1.6 U
9225X627	IR04MW13A	06/17/1992	0	A	<21.6 U	<31.1 U	3.7	48.8	<0.5 U	<2.7 U	124,000	<2.5 U	<0.01 U	10.7	2	<11.3 U	<1.6 U	1080	331000	<0.2 U	14.8	65.8	6940	<2.9 U	<1.5 U	541000	<1.6 UJ3	3.5	<16.5 U
9225X628	IR04MW13A	06/17/1992	0	A	<21.6 U	<31.1 U	3.7	51	<0.5 U	<2.7 U	123,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	<11.3 U	2	964	329000	<0.2 U	12.3	62.5	6720	<2.9 U	<1.5 U	532000	<1.6 UJ3	4	<16.5 U
0110P006	IR04MW13A	03/12/2001	0	A	NA	NA	NA	NA	NA	NA	101,000	NA	NA	NA	NA	58 J	NA	NA	298000	NA	NA	NA	6770	NA	NA	513000 J4	NA	NA	NA
0229P012	IR04MW13A	07/18/2002	0	A	NA	NA	NA	NA	NA	NA	85,000	NA	NA	NA	NA	<20 U	NA	NA	250000	NA	NA	NA	4510	NA	NA	431000	NA	NA	NA
0238 J002	IR04MW13A	09/16/2002	0	A	NA	NA	NA	NA	NA	NA	91,800	NA	NA	NA	NA	<22.7 U1	NA	NA	288000	NA	NA	NA	5260	NA	NA	422000	NA	NA	NA
0427S052	IR04MW13A	06/28/2004	0	A	<19.6 U1	<5 U	<7 U1	71.3	<2 U	<5 U	NA	<5 U	NA	2.4 J	<4.3 U1	NA	<2.8 U1	595	NA	<0.18 U1	NA	24.5	NA	<5 U	<1 U	NA	<5 U	NA	60.5
0438G051	IR04MW13A	09/16/2004	0	A	<100 U	5.7	<5 U	80.8	<2 U	<5 U	NA	<5 U	NA	2.4 J	1.6 J	NA	6.7	776	NA	<0.2 U	NA	26.3	NA	<8.8 U1	<1 U	NA	<5 U	NA	<50 U
0450G051	IR04MW13A	12/06/2004	0	A	<100 U	17.5	7.5 J9	98	<2 U	<5 U	NA	<5 U	NA	5.2	<5 UJ9	NA	<5 U	592	NA	<0.2 U	NA	23	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0509G009	IR04MW13A	03/03/2005	0	A	<100 U	<5 U	<5 U	85.5 J4	<2 U	<5 U	NA	<5 U	NA	1.5 J	2.2 J	NA	<5 U	538	NA	<0.2 U	NA	30.1	NA	<3.4 U1	<1 U	NA	<5 U	NA	<50 U
0526T039	IR04MW13A	06/27/2005	0	A	<100 U	12.3	<5 U	78.3	<2 U	<5 U	NA	2.1 J	NA	<2.6 U1	<5 U	NA	<5 U	774	NA	<0.2 U	NA	30.1	NA	<5 U	<1 U	NA	<5 U	1.4	<50 U
0537T010	IR04MW13A	09/15/2005	0	A	<100 U	<3.5 U	<5 U	77.8	<2 U	<5 U	NA	1.8 J	NA	<5 U	<5 U	NA	2.9 J	539 J	NA	<0.091 U	NA	23.2	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0537T011	IR04MW13A	09/15/2005	0	A	<100 U	<5 U	<5 U	82.6	<2 U	<5 U	NA	1.5 J	NA	<5 U	<5 U	NA	3.8 J	553 J	NA	<0.15 U	NA	23.6	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0602D039	IR04MW13A	01/11/2006	0	A	<36.2 U	<5 U	5.1	110	<.68 U	<5 U	NA	3.2 J	NA	<3.2 U	<5 U	NA	<5 U	597	NA	<0.066 U	NA	26.6	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0611 J032	IR04MW13A	03/16/2006	0	A	<34.3 U	<5 U	<5 U	90.1 J	<2 U	<5 U	NA	<5 U	NA	<3 U	2.2 J	NA	<5 U	732	NA	<0.2 U	NA	29.5	NA	6.1	<1 U	NA	<5 U	NA	<50 U
0611 J033	IR04MW13A	03/16/2006	0	A	<57.9 U	<5 U	<5 U	95 J	<2 U	<5 U	NA	<5 U	NA	5.7	2.3 J	NA	<5 U	1020	NA	<0.13 U	NA	32.5	NA	7.4	<1 U	NA	<5 U	NA	<50 U
0622T013	IR04MW13A	05/31/2006	0	A	<100 U	<5 U	<5 UJ	80.6	<2 U	<5 U	NA	<5 U	NA	1.5 J	<5 U	NA	<5 U	804	NA	<0.15 U	NA	27.4	NA	<5 U	<1 U	NA	<5 UJ	NA	<50 U
0649D036	IR04MW13A	12/07/2006	0	A	<100 U	<5 U	<5 U	82.3 J	<2 U	<5 U	NA	<5 U	NA	<5 U	1.3 J	NA	<5 U	448 J	NA	<0.11 U	NA	19.4 J	NA	6	<1 U	NA	<5 U	NA	<50 UJ
0708G030	IR04MW13A	02/21/2007	0	A	50.6 J	4.3 J	<5 U	99.4	<2 U	<5 U	NA	<5 U	NA	<5 U	<2.6 U	NA	<5 U	669	NA	<0.067 U	NA	22.8	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0719W020	IR04MW13A	05/10/2007	0	A	<100 U	<3.4 U	<3.9 U	85 J	<2 UJ	<5 UJ	NA	<5 U	NA	3.2 J	<5 U	NA	<5 UJ	688	NA	<0.2 U	NA	23.6 J	NA	26.6 J	<1 U	NA	<5 UJ	NA	<50 UJ
0734D031	IR04MW13A	08/20/2007	0	A	<100 U	1.8 J	<5 U	102 J	<2 U	<5 U	NA	<5 U	NA	<3.3 U	1.3 J	NA	<5 U	632 J	NA	<0.2 U	NA	25.3	NA	<5 U	<1 U	NA	<5 UJ	NA	<50 UJ
0741D034	IR04MW13A	10/08/2007	0	A	<100 U	<5 U	3 J	114 J	<2 U	<5 U	NA	<5 U	NA	3.1 J	<5 U	NA	2.4 J	567	NA	<0.1 U	NA	24.5	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0809H025	IR04MW13A	02/27/2008	0	A	<100 U	<5 U	6.9	95 J	<2 U	<5 U	NA	<5 U	NA	3.6 J	<2.1 U	NA	<5 U	1200 J	NA	<0.2 U	NA	25.4	NA	5.6	0.83 J	NA	<5 U	NA	<50 U
0823H062	IR04MW13A	06/04/2008	0	A	<100 U	<5 U	<5 U	93.5 J	<2 U	<5 U	NA	<5 U	NA	4.1 J	<5 U	NA	<5 U	NA	755 J	<0.2 U	NA	25.4	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0830H028	IR04MW13A	07/22/2008	0	A	<100 U	<5 U	<5 U	103 J	<0.2 U	<0.085 U	NA	4.7 J	NA	4.6 J	<5 U	NA	<6.8 U	NA	608 J	<0.2 U	NA	23.4	NA	4.5 J	<1 U	NA	<5 U	NA	<50 U
0912N016	IR04MW13A	03/16/2009	0	A	<100 U	<5 U	<5 U	109	<0.2 U	<0.2 U	NA	<5 U	NA	<2.7 U	<5 U	NA	<5 U	NA	878 J	<0.2 U	NA	24.6	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0916P013	IR04MW13A	04/16/2009	0	A	<100 U	<5 U	3.6 J	102	<0.2 U	<0.031 U	NA	<5 U	NA	2.8 J	<5 U	NA	<5 U	NA	935	0.11 J	NA	25.2	NA	<5 U	<1.3 U	NA	<5 U	NA	<50 U
9049 J089	IR04MW31A	12/03/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X256	IR04MW31A	11/14/1991	0	A	<36.2 U1	<27.6 U	<1.4 U	115	<0.35 U	<2.3 U	128,000	<3 U	<0.01 U	20	<8.2 U1	<34.8 U1	<2 U	2260	450000	<0.2 U	<12.9 U1	76.3	4990	<2.5 U	<4.9 UJ3	945000	<2 U	6	<6.1 U
9207X517	IR04MW31A	02/12/1992	0	A	<15.9 U	<14.5 U	4.32	94.11	<0.2 U	<1.8 U	117,627	<2.1 U	<0.01 U	3.7	5.63	<3.7 U	<2.7 U1 J3	1016.4	333156	<0.2 U	4.4	14.17	4426.69	<1.8 UJ3	<2 U	652621	<23 UR2	8.2	<5.4 U1
9225X629	IR04MW31A	06/17/1992	0	A	<21.6 U	<31.1 U	208	116	<0.5 U	<2.7 U	46,600	<2.5 U	<0.01 U	<8.8 U	<1.8 U	328	<1.6 U	1040	134000	<0.2 U	<5.4 U	<17.3 U	6550	<2.9 U	<1.5 U	216000	<8 UJ3	<1.4 U	<16.5 U
0110P026	IR04MW31A	03/16/2001	0	A	NA	NA	<3 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0230A008	IR04MW31A	07/23/2002	0	A	NA	NA	4.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237 J011	IR04MW31A	09/11/2002	0	A	NA	NA	8.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9049 J085	IR04MW35A	12/03/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	<26.8 U1	<27.6 U	<2 U2	470	<0.35 U	3.8	139,000	<3 U	<0.01 U	35.6	<1.6 U	<6.3 U	<2 U	3870	716000	<0.2 U	<5.2 U1	147	29500	<2.5 U	<4.9 UJ3	1820000	<2 U	<3.9 U	<6.1 U
9207X520	IR04MW35A	02/12/1992	0	A	26.72	22.02	2.18	27.65	<0.2 U	<1.8 U	29,048.70	6.08	<0.01 U	<3 U	6.59	<3.7 U	<6.45 U1 J3	84.28	90073.5	<0.2 U	<3.4 U	11.51	9716.55	<1.8 UJ3	2.25	264184	<23 UR2	6.59	<1.6 U
9225X623	IR04MW35A	06/15/1992	0	A	<21.6 U	<31.1 U	2	177	<0.5 U	4.3	70,700	<2.5 U	<0.01 U	17.8	2.7	11.4	<1.6 U	1620	287000	<0.2 U	5.8	46.1	18100	<2.9 U	<1.5 U	729000	<1.6 UJ3	3	<16.5 U
0111P003	IR04MW35A	03/19/2001	0	A	NA	NA	NA	NA	NA	NA	47,100	NA	NA	NA	NA	<99.5 U1	NA	NA	211000	NA	NA	28.9 J	19200 J4	NA	NA	680000	NA	NA	NA
0229E020	IR04MW35A	07/19/2002	0	A	NA	NA	NA	NA	NA	NA	40,600	NA	NA	NA	NA	<20 U	NA	NA	218000	NA	NA	41.5	10700	NA	NA	554000	NA	NA	NA
0237G008	IR04MW35A	09/10/2002	0	A	NA	NA	NA	NA	NA	NA	39,600	NA	NA	NA	NA	23.3	NA	NA	224000	NA	NA	38.9	9560	NA	NA	530000	NA	NA	NA
9049 J108	IR04MW36A	12/07/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9049 J109	IR04MW36A	12/07/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X254	IR04MW36A	11/14/1991	0	A	<18.4 U1	<27.6 U	156	141 J4	<0.35 U	<2.3 U	54,700 J4	<3 U	<0.01 UJ5	<10.4 U	<1.6 U	283	<2 U	1340 J4	176000 J4	<0.2 U	<5.6 U1	29.9	7040	<2.5 UJ3	<4.9 UJ3	256000 J4	<2 UJ3	<3.9 UJ7	<6.1 U
9146X255	IR04MW36A	11/14/1991	0	A	<24.9 U1	<27.6 U	149	135	<0.35 U	<2.3 U	54,800	<3 U	<0.01 UJ5	<10.4 U	<1.6 U	353	<2 U	1410	178000	<0.2 U	<3.2 U1	25.4	7300	<2.5 U	<4.9 UJ3	259000	<2 U	<3.9 U	<6.1 U
9207X523	IR04MW36A	02/13/1992	0	A	<20.9 U1	14.54	158.71	96.98	<0.2 U	<1.8 U	41807.7	<2.1 U	<0.01 U	<3 U	<1.68 U1	269.55	6.96	1036.31	129821	<0.2 U	<3.4 U	<4.4 U	5708.87	<1.8 UJ3	<2 U	186342	<23 UR2	4.38	<1.6 U
9207X524	IR04MW36A	02/13/1992	0	A	<15.9 U	17.07	168.67	107.23	<0.2 U	<1.8 U	43397.3	<2.1 U	<0.01 U	<3 U	<1.5 U	221.95	4.74	1114.55	138869	0.34	<3.4 U	<4.4 U	5985.16	<1.8 UJ3	<2 U	199570	<23 UR2	<3.2 U	<1.6 U
9225X630	IR04MW36A	06/17/1992	0	A	<21.6 U	<31.1 U	4.6	75.7	<0.5 U	<2.7 U	111,000	<2.5 U	<0.01 U	9.6	<1.8 U	<11.3 U	<1.6 U	408	228000	<0.2 U	18	24.3	12000	<2.9 U	<1.5 U	608000	<1.6 UJ3	7.1	<16.5 U
0111D004	IR04MW36A	03/20/2001	0	A	NA	NA	156	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0229D009	IR04MW36A	07/17/2002	0	A	NA	NA	20.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237G005	IR04MW36A	09/10/2002	0	A	NA	NA	149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	44.9 J	<5 U	156	206	<.63 U1	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	588	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0438T014	IR04MW36A	09/16/2004	0	A	<100 U	4.5 J	143	129	<2 U	<5 U	NA	<5 U	NA	<5 U	2.4 J	NA	3.1 J	561	NA	<0.2 U	NA	<5 U	NA	<5 U1	<1 U	NA	<5 U	NA	<50 U
0449P037	IR04MW36A	12/02/2004	0	A	<45 U1	25	40.1	1320 J4	<2 U	<5 U	NA	<5 U	NA	3.2 J	<5 U	NA	<5 U	2120	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0509G004	IR04MW36A	03/02/2005	0	A	100	5	138	179 J4	2	<5 UJ3	NA	<5 UJ3	NA	<5 UJ3	1.6 J	NA	<5 UJ3	714	NA	0.2	NA	4.1 J3	NA	<7.6 U1 J3	1	NA	<5 UJ3	NA	<50 UJ3
0524T014	IR04MW36A	06/16/2005	0	A	<100 U	<16.8 U1	109	545	<2 U	<5 U	NA	3.2 J	NA	<5 U	<5 U	NA	<5 U	979	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0536T003	IR04MW36A	09/08/2005	0	A	<100 U	<2.8 U	131	120 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	485	NA	<0.1 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0601T023	IR04MW36A	01/05/2006	0	A	<100 U	<5 U	110 J	161	<2 U	<5 UJ	NA	2.1 J	NA	<5 U	<5 U	NA	<5 U	606	NA	<0.2 U	NA	<5 U	NA	<5 UJ	<1 U	NA	<5 UJ	NA	<50 UJ
0612H046	IR04MW36A	03/22/2006	0	A	<100 U	<5 U	88.2	110 J	<2 U	<5 U	NA	1.9 J	NA	<5 U	<2.5 U	NA	<5 U	409 J	NA	<0.041 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0622T012	IR04MW36A	05/31/2006	0	A	<100 U	<5 U	159	163	<2 U	<5 U	NA	1.6 J	NA	<5 U	<5 U	NA	<5 U	437	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0648G018	IR04MW36A	11/28/2006	0	A	<35.3 U	<5 U	194	115	<2 U	<5 U	NA	<5 U	NA	1.5 J	<5 U	NA	<5 U	398	NA	<0.16 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<2.3 U
0708G038	IR04MW36A	02/22/2007	0	A	<100 U	<5 U	227	92.3 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	310 J	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0718 J007	IR04MW36A	05/01/2007	0	A	246	<5 U	214	122	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	417	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0734H071	IR04MW36A	08/23/2007	0	A	<100 U	<5 U	244	140	<2 U	<5 U	NA	1.4 J	NA	<5 U	<5 U	NA	<5 U	424	NA	<0.15 U	NA	<5 U	NA	6	<1 U	NA	<5 U	NA	<50 U
0741N003	IR04MW36A	10/08/2007	0	A	<100 U	<5 U	240	136 J	<2 U	<5 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	347	NA	<0.2 U	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<5 U
0809D012	IR04MW36A	02/25/2008	0	A	23.3 J	<5 U	88.8	117 J	<2 U	<5 UJ	NA	<5 UJ	NA	<5 UJ	<5 U	NA	<5 UJ	277 J	NA	<0.2 U	NA	<5 UJ	NA	5.6	<1 U	NA	<5 UJ	NA	<50 UJ
0830H031	IR04MW36A	07/22/2008	0	A	<100 U	<5 U	163	146 J	<0.2 U	<0.07 U	NA	2.1 J	NA	0.84 J	<5 U	NA	<5 U	NA	262 J	<0.13 U	NA	<5 U	NA	10.6 J	<1 U	NA	<4.4 U	NA	<50 U
0912W027	IR04MW36A	03/16/2009	0	A	<100 U	<5 U	94	119	<0.2 U	<0.2 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	253 J	<0.2 U	NA	0.58 J	NA	3.4 J	<0.44 U	NA	<5 U	NA	5.6 J
9049 J097	IR04MW37A	12/05/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X282	IR04MW37A	11/21/1991	0	A	<20.4 U1	40.3 J3	<1.4 UJ3	80.9	<0.35 U	<2.3 U	25,700	<3 UJ9	<0.01 U	<10.4 U	<1.6 U	<13.9 U1	<2 UJ3	132	83400	<0.2 U	<9.8 U1	<17.8 U	9790	<2.5 U	<4.9 UJ9	318000	<2 UJ3	<3.9 UJ9	<6.1 U
9207X530	IR04MW37A	02/14/1992	0	A	<15.9 U	15.17	<2 U	74.38	<0.2 U	<1.8 U	22,239.9	<2.1 U	<0.01 U	<3 U	5.97	<3.7 U	4.35	66.07	65980.9	<0.27 U	3.74	<4.4 U	8395.35	<1.8 UJ3	<2 U	245110	<23 UR2	<3.2 U	<1.83 U1
9207X531	IR04MW37A	02/14/1992	0	A	<15.9 U	<14.5 U	<2 U	76.47	<0.2 U	<1.8 U	22,435.6	<2.1 U	<0.01 U	<3 U	<2.72 U1	<3.7 U	3.95	66.07	66414.1	<0.27 U	6.14	<4.4 U	8789.94	<1.8 UJ3	<2 U	242600	<23 UR2	<3.2 U	<3.39 U1
9225X621	IR04MW37A	06/15/1992	0	A	<21.6 U	<31.1 U	<2 U	75.9	<0.5 U	<2.7 U	23,300	<2.5 U	<0.01 U	<8.8 U	<1.8 U	<12.7 U1	<1.6 U	66.9	65300	<0.2 U	8.2	<17.3 U	8520	<2.9 U	<1.5 U	279000	<1.6 UJ3	1.5	<16.5 U
9225X622	IR04MW37A	06/15/1992	0	A	<21.6 U	<31.1 U	<2 U	75.9	<0.5 U	<2.7 U	23,300	<2.5 U	<0.01 U	<8.8 U	<1.8 U	<11.3 U	<1.6 U	65	64600	<0.2 U	5.7	<17.3 U	8180	<2.9 U	<1.5 U	274000	<1.6 UJ3	2	<16.5 U
0111P017	IR04MW37A	03/21/2001	0	A	NA	NA	NA	NA	NA	NA	16,600	NA	NA	NA	NA	447	NA	NA	49400	NA	NA	NA	7270 J4	NA	NA	144000	NA	NA	NA
0829G018	IR04MW37A	07/18/2008	0	A	20.3 J	<5 U	<5 U	110 J	<0.2 U	<0.2 U	NA	4.2 J	NA	<5 U	<5 U	NA	<5 UJ	NA	4.7 J	NA	NA	5.4 J	NA	<5 U	0.3 J	NA	<5 UJ	NA	<50 U
0911B027	IR04MW37A	03/13/2009	0	A	24.8 J	<5 U	<5 U	109	<0.2 U	0.13 J	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	NA	0.58 J	NA	<5 U	<0.48 U	NA	<5 U	NA	<50 U
9049 J095	IR04MW38A	12/05/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9049 J096	IR04MW38A	12/05/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X264	IR04MW38A	11/15/1991	0	A	<15.3 U	<27.6 U	<1.4 U	189	<0.35 U	<2.3 U	38,600	5.1	<0.01 U	<10.4 U	<3.8 U1	<13.5 U1	<2 U	532	105000	<0.2 U	<3.2 U1	<17.8 U	8710	<2.5 U	<4.9 UJ3	278000	<2 U	<3.9 U	10.8
9207X529	IR04MW38A	02/14/1992	0	A	<15.9 U	18.97	<2.25 U1	132.78	<0.2 U	<1.8 U	33,464.3	6.18	<0.01 U	<3 U	<8.59 U1	<7.51 U1 J4	5.24	313.87	83573.6	<0.27 U	<3.4 U	<4.4 U	8138.71	<1.8 UJ3	<2 U	234994	<23 UR2	6.58	<5.48 U1
9225X632	IR04MW38A	06/17/1992	0	A	<21.6 U	<31.1 U	2.4	102	<0.5 U	<2.7 U	23,100	5.4	<0.01 U	<8.8 U	<1.8 U	<11.3 U	<1.6 U	316	62300	<0.2 U	<5.4 U	<17.3 U	6950	<2.9 U	<1.5 U	202000	<1.6 UJ3	6.8	<16.5 U
0111D002	IR04MW38A	03/20/2001	0	A	NA	NA	NA	NA	NA	NA	19,400	NA	NA	NA	NA	476	NA	NA	57100	NA	NA	NA	6490 J4	NA	NA	137000	NA	NA	NA
0111D003	IR04MW38A	03/20/2001	0	A	NA	NA	NA	NA	NA	NA	19,600	NA	NA	NA	NA	496	NA	NA	58000	NA	NA	NA	6520 J4	NA	NA	139000	NA	NA	NA
0229A008	IR04MW38A	07/17/2002	0	A	NA	NA	NA	NA	NA	NA	25,800	NA	NA	NA	NA	<14.2 U2	NA	NA	72200	NA	NA	NA	6950	NA	NA	131000	NA	NA	NA
0237 J007	IR04MW38A	09/10/2002	0	A	NA	NA	NA	NA	NA	NA	33,200	NA	NA	NA	NA	23.1	NA	NA	94200	NA	NA	NA	8050	NA	NA	180000	NA	NA	NA
9049 J090	IR04MW39A	12/04/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X283	IR04MW39A	11/21/1991	0	A	<15.3 U	27.6 J3	<1.4 UJ3	58.4	<0.35 U	<2.3 U	5210	<3 UJ9	<0.01 U	<10.4 U	<1.9 U1	<9.7 U1	<2 UJ3	14.8	93300	<0.2 U	<3.1 U	<17.8 U	21900	<2.5 U	<4.9 UJ9	476000	<2 UJ3	<3.9 UJ9	<6.1 U
9207X527	IR04MW39A	02/13/1992	0	A	<15.9 U	<14.5 U	<2 U	54.4	<0.2 U	<1.8 U	4,965.68	<2.1 U	<0.01 U	<3 U	16.66	<3.7 U	6.36	14.32	79029.7	<0.27 U	<3.4 U	<4.4 U	20204	<1.8 UJ3	<2 U	401567	<23 UR2	<3.2 U	<11.73 U1
9225X625	IR04MW39A	06/15/1992	0	A	<21.6 U	<31.1 U	<2 U	54	<0.5 U	<2.7 U	4,930	<2.5 U	<0.01 U	<8.8 U	<1.8 U	14.7	<1.6 U	14.2	85500	<0.2 U	<5.4 U	<17.3 U	20500	<2.9 U	<1.5 U	455000	<1.6 UJ3	<1.4 U	<16.5 U
0111T011	IR04MW39A	03/21/2001	0	A	NA	NA	NA	NA	NA	NA	6,310	NA	NA	NA	NA	785	NA	NA	121000	NA	NA	NA	22400	NA	NA	400000	NA	NA	NA
9049 J092	IR04MW40A	12/04/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9049 J093	IR04MW40A	12/04/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X261	IR04MW40A	11/15/1991	0	A	<76.5 U	<138 U	<1.4 U	402	<1.8 U	<11.6 U	300,000	<14.8 U	<0.01 U	<52 U	<7.8 U	<31.5 U	<2 U	3270	950000	<0.2 U	23	250	175000	<25 U	<24.6 UJ3	6200000	<2 U	38.5	<30.5 U
9146X262	IR04MW40A	11/15/1991	0	A	<76.5 U	<138 U	<1.4 U	408	<1.8 U	13	304,000	<14.8 U	<0.01 U	62	<7.8 U	<31.5 U	<2 U	3300	959000	<0.2 U	<15.4 U	302	174000	<25 U	<24.6 UJ3	6270000	<2 U	40.5	<30.5 U
9207X525	IR04MW40A	02/13/1992	0	A	<15.9 U	15.17	<20 U	116.1	<0.2 U	<1.8 U	96,713.5	<2.1 U	<0.01 U	5.65	<14.15 U1	<3.7 U	15.39	938.57	286742	<0.27 U	<3.4 U	20.73	60628.1	<18 UJ3	5.8	1745117	<23 UR2	<3.2 U	<7.43 U1
9225X631	IR04MW40A	06/17/1992	0	A	<21.6 U	<31.1 U	3.5	117	<0.5 U	<2.7 U	109,000	<2.5 U	<0.01 U	12	2.7	<15.3 U1	<1.6 U	1180	293000	<0.2 U	17.2	34.8	79000	<2.9 U	<1.5 U	1920000	<1.6 UJ3	2.4	<16.5 U
0111P016	IR04MW40A	03/21/2001	0	A	NA	NA	NA	NA	NA	<0.36 U1	NA	NA	NA	NA	NA	NA	<1.3 UJ3	NA	NA	NA	NA	56.5	NA	NA	NA	NA	NA	NA	NA
0229D007	IR04MW40A	07/17/2002	0	A	NA	NA	NA	NA	NA	2.57	NA	NA	NA	NA	NA	NA	0.14 J	NA	NA	NA	NA	40.8	NA	NA	NA	NA	NA	NA	NA
0238 J003	IR04MW40A	09/16/2002	0	A	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<0.16 U2	NA	NA	NA	NA	24.5	NA	NA	NA	NA	NA	NA	NA
0830E048	IR04MW40A	07/25/2008	0	A	<100 U	<5 U	<5 U	132 J	<0.2 U	<0.2 U	NA	<5 UJ	NA	4.9 J	<5 U	NA	<5 UJ	NA	1980 J	NA	NA	33.5 J	NA	4.3 J	<1 U	NA	<5 UJ	NA	<50 UJ
0911B030	IR04MW40A	03/13/2009	0	A	<100 U	<5 U	4.6 J	192	<0.2 U	0.16 J	NA	<5 U	NA	11.1	<5 U	NA	<5 U	NA	2960 J	NA	NA	52.9	NA	<5 U	<0.57 U	NA	<5 U	NA	<50 U
9049 J106	IR05MW73A	12/07/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	<18.2 U1	<27.6 UJ3	1.4 J3	126	<0.35 U	<2.3 U	79,100	<3 UJ9	<0.01 U	<10.4 U	<7.3 U1	<29.6 U1	<2 UJ3	1020	255000	<0.2 U	<9.5 U1	22.8	52900	<12.5 U	<4.9 UJ9	1410000	<2 UJ3	9.7 J9	<6.1 U
9147X279	IR05MW73A	11/21/1991	0	A	<15.3 U	37.2 J3	1.6 J3	141	<0.35 U	<4 U1	83,700	<3 UJ9	<0.01 U	<10.4 U	<8.8 U1	<26.6 U1	<2 UJ3	1210	269000	<0.2 U	<7.4 U1	<17.8 U	57600	<12.5 U	<4.9 UJ9	1540000	<2 UJ3	8.6 J9	<6.1 U
9207A102	IR05MW73A	02/11/1992	0	A	30.79	<14.5 U	<2 U	111.97	<0.2 U	<1.8 U	75,944	3.72	<0.01 U	4.27	8.4	<3.7 U	<2.13 U1	468.23	240756	<0.2 U	<3.4 U	15.5	43511.6	<18 UJ3	<2 U	1086321	<23 UR2	4.99	<1.6 U
9225X644	IR05MW73A	06/19/1992	0	A	<21.6 U	<31.1 U	2.4	101	<0.5 U	<2.7 U	66,200	<2.5 U	<0.01 U	10.4	<2 U2	<11.3 U	<1.6 U	627	205000	<0.2 U	<5.4 U	<17.3 U	44900	<2.9 U	<1.5 U	1180000	<1.6 UJ3	4.2	<16.5 U
9049 J099	IR05MW74A	12/05/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	55.1	<27.6 U	4.4	425	0.67	3.1	239,000	<3 U	<0.01 U	16.7	<1.6 U	535	<2 U	6350	888000	<0.2 U	5.6	69.4	14400	<2.5 U	<4.9 U	1780000	<10 U	<3.9 U	<6.1 U
9147X269	IR05MW74A	11/18/1991	0	A	109	<27.6 U	3.9	429	0.98	3.3	244,000	<3 U	<0.01 U	24.6	<1.6 U	605	<2 U	6620	887000	<0.2 U	5.7	79.3	14500	<2.5 U	<4.9 U	1840000	<10 U	4.8	<6.1 U
9207A101	IR05MW74A	02/11/1992	0	A	<15.9 U	<14.5 U	<13.27 U	489.09	<0.27 U1	<1.8 U	237,755	<2.1 U	<0.01 U	<3 U	<1.5 U	638.91	<3.05 U1 J3	6523.43	925391	<0.2 U	<3.4 U	<4.4 U	14251.1	<1.82 UJ3	<2 U	1658487	<23 UR2	<3.2 U	<1.6 U
9225X640	IR05MW74A	06/18/1992	0	A	<21.6 U	<31.1 U	4.5	398	<0.5 U	<2.7 U	207,000	<2.5 U	<0.01 U	14.5	<1.8 U	555	5.4	5010	779000	<0.2 U	6.6	<17.3 U	10800	<2.9 U	<1.5 U	1480000	<8 UJ3	1.6	<16.5 U
9049 J103	IR05MW76A	12/06/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9049 J104	IR05MW76A	12/06/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	<17.6 U1	31.4 J3	1.7 J3	158	<0.35 U	<2.3 U	67,400	<3 UJ9	<0.01 U	10.6	<2 U1	<26.2 U1	<2 UJ3	978	213000	<0.2 U	<8.1 U1	47.4	19300	<2.5 U	<4.9 UJ9	568000	<2 UJ3	5.7 J9	<6.1 U
9207A099	IR05MW76A	02/11/1992	0	A	<15.9 U	<14.5 U	4.13	152.67	<0.2 U	<1.8 U	76,778.5	<2.1 U	<0.01 U	<3 U	<1.5 U	13.55	<1.5 U	1192.38	236325	<0.27 U	<3.4 U	16.65	22069.2	<1.8 UJ3	<2 U	609079	<23 UR2	<3.2 U	<1.6 U

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9207A100	IR05MW76A	02/11/1992	0	A	17.05	<14.5 U	2.45	141.33	<0.2 U	<1.8 U	69,903.8	<2.1 U	<0.01 U	3.7	<1.5 U	<3.7 U	<7.07 U1 J3	1052.39	210103	<0.2 U	<3.4 U	19.5	19497.2	<1.8 UJ3	<2 U	583242	<23 UR2	<3.2 U	<1.6 U
9225X642	IR05MW76A	06/19/1992	0	A	<21.6 U	<31.1 U	<2 U	152	<0.5 U	<2.7 U	60,900	<2.5 U	<0.01 U	10.4	<4.1 U2	<34.2 U1	<1.6 U	702	180000	<0.2 U	<5.4 U	<17.3 U	17700	<2.9 U	<1.5 U	501000	<1.6 UJ3	2	<16.5 U
9225X643	IR05MW76A	06/19/1992	0	A	<21.6 U	<31.1 U	<2 U	159	<0.5 U	<2.7 U	63,000	<2.5 U	<0.01 U	<8.8 U	<2 U2	<61.6 U1	<1.6 U	723	186000	<0.2 U	<5.4 U	<17.3 U	18300	<2.9 U	<1.5 U	534000	<1.6 UJ3	2.5	<16.5 U
9049 J102	IR05MW77A	12/06/1990	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	35.6	<27.6 U	1.9	133	<0.35 U	4.5	164,000	<3 U	<0.01 U	18	<1.6 U	<6.3 U	<2 U	2650	546000	<0.2 U	11.2	56.4	62700	<25 U	<4.9 U	3080000	<10 U	9.3	<6.1 U
9207A096	IR05MW77A	02/10/1992	0	A	26.76	<14.5 U	<16.15 U	101.49	<0.36 U1	<1.8 U	143,053	<2.1 U	<0.01 U	<3 U	2.55	<3.7 U	31.39 J3	2456.37	407510	<0.2 U	5.43	4.38	53788	<18 UJ3	<2 U	2212242	<23 UR2	<3.2 U	<4.59 U1
9207A097	IR05MW77A	02/10/1992	0	A	20.24	<14.5 U	<7.54 U	100.63	<0.2 U	<1.8 U	141,557	<2.1 U	<0.01 U	<3 U	11.16	<3.7 U	20.41 J3	2427.79	404625	<0.2 U	4.66	6.37	54254.6	<18 UJ3	<2 U	2117506	<23 UR2	<3.2 U	<1.89 U1
9225X635	IR05MW77A	06/18/1992	0	A	<24.7 U1	<31.1 U	<2 U	90.2	<0.5 U	<2.7 U	151,000	<2.5 U	<0.01 U	<8.8 U	<9.1 U1	<39.5 U1	<1.6 UJ3	2200	441000	<0.2 U	8.2	<17.3 U	57100	<14.5 UJ3	<1.5 U	2700000	<1.6 UJ3	<1.5 U1	<16.5 U
0111T004	IR05MW77A	03/19/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0227D010	IR05MW77A	07/02/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0236E004Z	IR05MW77A	09/05/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.07 U2 J2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	50	<27.6 U	3.6	78.7 J4	<0.35 U	<2.3 U	246,000 J4	<3 U	<0.0002 U	11.4	6.7	<6.3 U	<2 U	2610 J4	350000 J4	<0.2 U	61.2	27.8	13600	2.9	<4.9 U	980000 J4	<10 UJ3	12.2 J7	<6.1 U
9147X267A	IR05MW82A	11/18/1991	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	<22.43 U1	<14.5 U	4.43	46.37	<0.36 U1	<1.8 U	186,871	<2.1 U	<0.01 U	<3 U	<4.25 U1	<3.7 U	9.32 J3	1974.75	260682	<0.2 U	72.2	<4.4 U	11349.5	<18 UJ3	<2 U	1032686	<23 UR2	11.05	<1.6 U
9225X639	IR05MW82A	06/18/1992	0	A	<31.4 U1	<39.8 U1	4.2	36.2	<0.5 U	<2.7 U	197,000	<2.5 U	<0.01 U	<8.8 U	<7.7 U1	<15.2 U1	<8 UJ3	2080	275000	<0.2 U	55.2	<17.3 U	9120	<14.5 UJ3	<1.5 U	1100000	<1.6 UJ3	9	<16.5 U
9225X636	IR05MW85A	06/18/1992	0	A	<24.4 U1	<31.1 U	126	134	<0.5 U	<2.7 U	76,000	<2.5 U	<0.01 U	<8.8 U	53.5	<35.8 U1	<1.6 UJ3	1080	193000	11	8.2	30.4	13500	<2.9 UJ3	<1.5 U	537000	<1.6 UJ3	<5.9 U1	<16.5 U
9225X637	IR05MW85A	06/18/1992	0	A	<39.3 U1	<47.1 U1	148	139	<0.5 U	<2.7 U	76,400	<2.5 U	<0.01 U	<8.8 U	51.4	<47.9 U1	<1.6 UJ3	1070	200000	6.2	8.2	32.7	13700	<2.9 UJ3	<1.5 U	563000	<1.6 UJ3	<5 U1	<16.5 U
9230 J194	IR05MW85A	07/24/1992	0	A	<56.5 U1	<31.1 U	102	153	<0.5 U	<2.7 U	76,600	<2.5 U	NA	<8.8 U	36	<28.6 U1	2.4	1520	209000	9.4	7.5	34.6	13900	<2.9 U	<1.5 U	592000	<1.6 UJ3	<5.2 U1	<16.5 U
9230 J195	IR05MW85A	07/24/1992	0	A	<21.6 U	<31.1 U	83.6	162	<0.5 U	7.2	78,400	<2.5 U	NA	14.2	31.8	<11.3 U	<1.6 U	1460	225000	6.7	8.6	28.6	14300	<2.9 U	<1.5 U	645000	<1.6 UJ3	<4.8 U1	<16.5 U
9530X890	IR05MW85A	07/27/1995	0	A	<16.3 U	<3.36 U1	27.43	121.48	<0.1 U	<0.2 U	62,494.70	<1.8 U	NA	<2.26 U1	<2.9 U1	<47.4 U1	<1.5 U	495.17	169459	<0.1 U	<5.93 U1	17.26	11458.4 J4	<3.4 U	<0.6 U	501740	<2 U	10.89	<15.5 U1 J4
9530X891	IR05MW85A	07/27/1995	0	A	<16.3 U	<2.83 U1	25.07	117.85	<0.1 U	<0.2 U	61,094.80	<1.8 U	NA	<2.33 U1	<3.83 U1	<52.71 U1	<1.5 U	480.81	166660	<0.1 U	<5.27 U1	15.68	11446 J4	<3.4 U	<0.6 U	508352	<2 U	9.64	<19.82 U1 J4
9612W183	IR05MW85A	03/21/1996	0	A	<62.2 U1	<1.6 U	13.5	102	<0.1 U	<0.2 U	62,900	<0.4 U	<0.01 U	<1.7 U1	12.4	<20.6 U1	<0.8 U	313 J4	183000	0.17	5.1	10	11100	<2.3 UJ3	<0.5 U	483000	<1.9 U	9.8	<19.8 U1
0110T022	IR05MW85A	03/16/2001	0	A	NA	NA	<14.1 U1	NA	NA	<0.3 U	NA	NA	NA	NA	13.2 J	NA	NA	NA	NA	0.31	NA	NA	NA	NA	NA	NA	NA	NA	NA
0232E002	IR05MW85A	08/06/2002	0	A	NA	NA	6.1 J1	NA	NA	0.68	NA	NA	NA	NA	2.2 J	NA	NA	NA	NA	0.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237G015	IR05MW85A	09/13/2002	0	A	NA	NA	13.1 J3	NA	NA	0.6	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	1.63	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425H026	IR05MW85A	06/15/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C044	IR05MW85A	09/14/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C035	IR05MW85A	12/01/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.13 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R050	IR05MW85A	03/17/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.56 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525G030	IR05MW85A	06/22/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.09 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525G031	IR05MW85A	06/22/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538T033	IR05MW85A	09/23/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.087 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D046	IR05MW85A	01/13/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.22 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D047	IR05MW85A	01/13/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612 J048	IR05MW85A	03/23/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.91 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M032	IR05MW85A	06/07/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.16 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636E006	IR05MW85A	09/08/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.25	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B026	IR05MW85A	12/05/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709N003	IR05MW85A	02/28/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.85	NA	NA	NA	NA	NA	NA	NA	NA	NA
0718 J013	IR05MW85A	05/02/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.076 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734H075	IR05MW85A	08/23/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.77	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W015	IR05MW85A	10/03/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.53	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H026	IR05MW85A	02/27/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816E025	IR05MW85A	04/16/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916H011	IR05MW85A	04/15/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.7 J
9028H279	IR08MW37A	07/11/1990	0	A	38.6	<18 U	<2 U	208	<1.2 U	<2.9 U	212,000	<3.3 U1	<0.01 U	<8.6 U	49.2	416	<2.2 U	1220	732,000	<0.4 U	NA	<22.8 U1	156000	<19.5 U	<1.6 U	5930000	<23 U	<1.9 U	20.7
9028H280	IR08MW37A	07/11/1990	0	A	<34.5 U	19.8	<2 U	198	<1.2 U	<2.9 U	201,000	<2.8 U	<0.01 U	<8.6 U	18.9	347	<2.2 U	1160	706,000	<0.2 U	NA	<28.3 U1	148000	<19.5 U	<1.6 U	5810000	<23 U	<1.9 U	11.9
9101 J120	IR08MW37A	01/03/1991	0	A	<14.6 U	<23.8 U	<2.5 U	125	<1.6 U	<4.1 U	242,000 J4	<2.8 U	NA	<8.4 U	<2.3 U	205	<11 UR2	1000 J49	615000 J4	<0.2 U	NA	<33.7 U1	204000 J4	<21 U	<7.6 U1	4760000 J4	<11 U	<43.4 U1	2.1
9101 J121	IR08MW37A	01/03/1991	0	A	<14.6 U	<23.8 U	<2.5 U	128	<1.6 U	<4.1 U	249,000	<2.8 U	NA	<8.4 U	<2.3 U	271	<11 U	1040	625,000	0.8	NA	<22.9 U	210000	<21 U	<9 U1	5360000	<11 U	<45.5 U1	2.2
9128X091	IR08MW37A	07/10/1991	0	A	<20.7 U	<16.7 U	<1.6 U	76.4	0.54	<1.6 U	116,000	<1.7 U	<0.01 U	<6.3 U	6.7	<138 U2	<8 U	550	496,000	<0.2 U	<3 U1	20.4	<277 U	<34 U	<1.1 U	3890000	<17 U	1.6	<8.6 U2
9128X092	IR08MW37A	07/10/1991	0	A	<20.7 U	<16.7 U	2.3	74.6	0.54	<1.6 U	117,000	<1.7 U	<0.01 U	<6.3 U	<2.5 U	<149 U2	<8 U	549	490,000	<0.2 U	<5.2 U1	19.3	132000	<34 U	<1.1 U	3800000	<17 U	2.1	<10.3 U2
9151X352	IR08MW37A	12/19/1991	0	A	<15.3 U	<27.6 U	<1.4 UJ3	155 J34	<0.35 U	<2.3 U	195,000 J4	<3 U	NA	<10.4 U	<8.6 U1	313 J4	<20 U	967 J4	740000 J4	<0.2 U	<6.7 U1 J2	<27.1 U1	176000	<25 UJ37	<4.9 U	4980000	<40 UJ3	<3.9 U	<6.1 U
9344X052	IR08MW37A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9405N295	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9405N296	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X278	IR08MW37A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9434M578	IR08MW37A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H273	IR08MW38A	07/10/1990	0	A	52.9	<18 U	2.6	134	<1.2 U	<2.9 U	240,000	<3.7 U1	<0.01 U	<8.6 U	54.2	366	<11 U	1560	490,000	<0.4 U	NA	<25.8 U1	68500	<19.5 U	<1.6 U	3540000	<11.5 U	<4.2 U1	26.4
9101 J123	IR08MW38A	01/03/1991	0	A	<14.6 U	<23.8 U	2.5	167	<1.6 U	<4.1 U	326,000	<2.8 U	NA	<8.4 U	<2.3 U	1230	<11 U	2040	608,000	<0.2 U	NA	<22.9 U	152000	<21 U	<9.1 U1	5780000	<11 U	<42.4 U1	3
9128X094	IR08MW38A	07/10/1991	0	A	<20.7 U	<16.7 U	2.2	59.8	0.54	<1.6 U	110,000	<1.7 U	<0.01 U	<6.3 U	<2.5 U	<185 U2	<1.6 U	677	378,000	<0.2 U	<9.7 U1	31.2	53700	<34 U	<1.1 U	2490000	<17 U	3.6	<4.7 U2
9151X358	IR08MW38A	12/20/1991	0	A	<15.3 U	<27.6 U	1.5 J3	128 J3	<0.35 U	<2.3 U	258,000	<3 U	NA	<10.4 U	<5.7 U1	983	<20 U	2820	1,000,000	<0.2 U	<12.7 U1 J2	<50.2 U1	99700	<25 UJ37	<4.9 U	4200000	<2 UJ3	<3.9 U	10.5
9344X050	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9344X051	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9405N298	IR08MW38A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X277	IR08MW38A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9434M579	IR08MW38A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H274	IR08MW39A	07/10/1990	0	A	<34.5 U	34.2	<2 U	92.2	<1.2 U	<2.9 U	277,000	<2.8 U	<0.01 U	<8.6 U	24.4	<34.6 U1	<11 U	1500 J49	539,000	<0.2 U	NA	<25.3 U1	121000	<3.9 U	<1.6 U	4190000 J4	<2.3 U	<8.3 U1	10.5
9101 J126	IR08MW39A	01/03/1991	0	A	<14.6 U	<23.8 U	<2.5 U	71.2	<1.6 U	<4.1 U	289,000	<2.8 U	NA	<8.4 U	<6.9 U1	<15.3 U1	<11 U	1410	538000	<0.2 U	NA	<22.9 U	169000	<21 U	<8.9 U1	4260000	<11 U	<44.1 U1	2.8
9128X095	IR08MW39A	07/10/1991	0	A	<20.7 U	<16.7 U	<1.6 U	99.3	0.54	<1.6 U	324,000	<1.7 U	<0.01 U	6.6	9.1	<9.4 U	<8 U	1310	576000	<0.2 U	<2.7 U	<14.1 U	125000	<34 U	<1.1 U	4040000	<17 U	7.9	57.3
9151X359	IR08MW39A	12/20/1991	0	A	<15.3 U	<27.6 U	<1.4 UJ3	94.6 J3	<0.57 U1	<2.3 U	441,000	<3 U	NA	<10.4 U	<3.9 U1	<12.5 U1	<2 U	2020	813000	<0.2 U	<6.7 U1 J2	<17.8 U	181000	<25 UJ37	<4.9 U	5780000	<20 UJ3	<3.9 U	<6.1 U
9151X360	IR08MW39A	12/20/1991	0	A	<15.3 U	<27.6 U	<1.4 UJ3	85.2 J3	<0.35 U	<2.3 U	466,000	<3 U	NA	<10.4 U	<2.2 U1	<8.6 U1	<2 U	2260	875000	<0.2 U	<5.8 U1 J2	<17.8 U	196000	<25 UJ37	<4.9 U	6570000	<20 UJ3	<3.9 U	<6.1 U
9435E158	IR08MW39A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H276	IR08MW40A	07/10/1990	0	A	<34.5 U	39.5	4.1	237	<1.2 U	<2.9 U	171,000	<2.8 U	<0.01 U	<8.6 U	<15.3 U1	99.6	<2.2 U	1300	724000	<0.2 U	NA	<27.3 U1	106000	<19.5 U	<1.6 U	4120000	<2.3 U	<2.7 U1	25.5
9028H277	IR08MW40A	07/10/1990	0	A	<34.5 U	<18 U	<2 U	246	<1.2 U	<2.9 U	180,000	<2.8 U	<0.01 U	10.4	<14.7 U1	119	<2.2 U	1370	756000	<0.2 U	NA	<45.2 U1	110000	<19.5 U	<1.6 U	4290000	<2.3 U	<4.4 U1	21.1
9101 J128	IR08MW40A	01/04/1991	0	A	<14.6 U	<23.8 U	4.7	221	<1.6 U	<4.1 U	161,000	<2.8 U	NA	<8.4 U	<2.3 U	950	<1.4 U	1310	770000	<0.2 UJ3	NA	<39.6 U1	185000	<21 U	<8.9 U1	5390000	<12.5 U	<49.6 U1	<3.6 U1
9128X093	IR08MW40A	07/10/1991	0	A	<20.7 U	25.5	4.6	204	0.54	<1.6 U	160,000	<1.7 U	<0.01 U	<6.3 U	6	617	<8 U	1200	812000	<0.2 U	30.6	40.8	134000	<34 U	<1.1 U	4690000	<17 U	<1.6 U	<6.3 U2
9151X353	IR08MW40A	12/19/1991	0	A	<15.3 U	<27.6 U	3.9 J3	231 J3	<0.57 U1	<2.3 U	146,000	<3 U	NA	<10.4 U	<6 U1	273	<2 U	1180	804000	<0.2 U	<35 U1 J2	<17.8 U	138000	<25 UJ37	<4.9 U	4960000	<20 UJ3	<3.9 U	<6.1 U
9151X354	IR08MW40A	12/19/1991	0	A	<15.3 U	<27.6 U	3.9 J3	221 J3	<0.35 U	<2.3 U	144,000	<3 U	NA	11.1	<1.7 U1	162	<2 U	1150	787000	<0.2 U	<33.3 U1 J2	<30.5 U1	133000	<25 UJ37	<4.9 U	4760000	<2 UJ3	<3.9 U	<6.1 U
9345X055	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4 J6	NA	NA	NA	NA	NA	NA	NA	NA	NA
9345X056	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.54 J6	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X183	IR08MW40A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X287	IR08MW40A	05/11/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9435E160	IR08MW40A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H281	IR08MW41A	07/11/1990	0	A	<34.5 U	37.7	2.3	204	<1.2 U	<2.9 U	104,000	<3.2 U1	<0.01 U	<8.6 U	18.3	59.1	<2.2 U	810	252000	<0.2 U	NA	<21.6 U	77200	<3.9 U	<1.6 U	2510000	<2.3 U	<7.1 U1	11.3
9101 J130	IR08MW41A	01/04/1991	0	A	<14.6 U	<23.8 U	3.5	37.4	<1.6 U	<4.1 U	30,200	<2.8 U	NA	<8.4 U	<2.3 U	177	<2.3 U1	336	101000	<0.2 U	NA	<22.9 U	40800	<2.1 U	<3.8 U1	1020000	<2.5 U	<21.1 U1	<1.9 U
9128X098	IR08MW41A	07/11/1991	0	A	<20.7 U	<16.7 U	2.5 J3	408	0.54	<1.6 U	166,000	1.9	<0.01 U	<6.3 U	<2.5 U	1290	<8 U	3510	441000	<0.2 U	<2.7 U	41.4	113000	<34 U	<1.1 U	3160000	<17 UJ3	7.6	<1.3 U
9151X355	IR08MW41A	12/19/1991	0	A	<15.3 U	<27.6 U	1.8 J3	406 J3	<0.35 U	<2.3 U	216,000	<3 U	NA	<10.4 U	<3.1 U1	1090	<2 U	4210	564000	<0.2 U	<3.1 UJ2	<21.5 U1	126000	<25 UJ37	<4.9 U	3890000	<2 UJ3	<3.9 U	<6.1 U
9344X053	IR08MW41A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.36	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X181	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X182	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X286	IR08MW41A	05/11/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9435E159	IR08MW41A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	43.2	18.8	<2.5 U	176	<0.24 U	<3.4 U	221,000 J4	<2.1 U	NA	<4.9 U	1.4	292 J2	<6 U	1530 J4	760000	<0.2 U	<13.9 U1	<52.5 U1	143000	<29 U	<1.7 U	551	<15 UJ3	<1.6 U	<1.6 U
9141X204	IR08MW42A	10/07/1991	0	A	108	<14.3 U	<2.5 U	176	<0.24 U	<3.4 U	219,000	<2.1 U	NA	<4.9 U	<1.3 U	307 J2	<6 U	1520	760000	<0.2 U	<8.5 U1	<25.9 U1	144000	<14.5 U	<1.7 U	558	<15 UJ3	<1.6 U	<1.6 U
9151X362	IR08MW42A	12/20/1991	0	A	<15.3 U	<27.6 U	2.1 J3	170 J3	<0.35 U	<2.3 U	227,000	<3 U	NA	<10.4 U	<1.8 U1	1240	<2 U	1800	728000	<0.2 U	<13.6 U1 J2	<23.2 U1	116000	<25 UJ37	<4.9 U	5200000	<20 UJ3	<3.9 U	<6.1 U
9344X045	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9344X046	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X185	IR08MW42A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X275	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X276	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9434M577	IR08MW42A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9440X501	IR08MW43A	10/03/1994	0	A	<14.4 U	2.11	<1.7 U	52.57	<0.1 U	<0.2 U	259,087	<0.8 U	NA	1.78	<0.3 U	<10.1 U	<0.6 U	1047.21	509238	<0.1 U	<5.7 U1	<4.07 U1	478038	<2.3 U	<0.4 U	8832512	<2 U	<0.9 U	<13.29 U1
9440X502	IR08MW43A	10/03/1994	0	A	<14.4 U	1.98	<1.7 U	69.28	<0.1 U	<0.34 U1	300,343	<0.8 U	NA	1.13	<2.05 U1	<10.1 U	<0.6 U	657.17	449395	<0.1 U	<5.25 U1	<3.38 U1	354222	<2.3 U	<0.4 U	6292241	1.99 J2	<0.9 U	<16.23 U1
9606W066	IR08MW43A	02/05/1996	0	A	<19.1 U	<1.6 U	<1.4 U	39.9	<0.1 U	<0.2 U	87,600	<0.7 U1	NA	0.69	11	<18.7 U1	<0.8 U	86	134000	<0.1 U	<2.4 U1	<2.2 U1	36100	2.3	<0.5 U	1310000	<1.9 U	4.4	<20.8 U1
9610 J913	IR08MW43A	03/07/1996	0	A	46.5	<1.6 U	1.5	43.4	<0.1 U	<0.2 U	122,000	0.69	NA	0.67	3.5	<11 U	<0.8 U	70.4	268000	<0.1 U	3.6	2.3	86300	<2.3 U	<0.5 U	2380000	<1.9 U	2.4	17.7
9440X504	IR08MW44A	10/04/1994	0	A	<14.4 U	2.86	2.94 J9	238.4 J9	<0.1 U	<0.2 U	721,897	<0.8 UJ9	NA	3.19 J9	<0.3 UJ9	832.36	<0.6 U	11875.8	831293	<0.1 U	<3.84 U1 J9	<3.85 U1 J9	137946	<3.37 U1 J3	<0.4 U	2245635	9.5 J29	<0.9 U	<2.18 U1 J9
9440X505	IR08MW44A	10/04/1994	0	A	<72 U	<5.5 U	<8.5 U	305.35	<0.5 U	<1 U	652,014	<4 U	NA	7.34	<1.5 U	744.16	<3 U	13827.2	1047637	<0.1 U	<7.84 U1	<7 U	102962	<11.5 U	<2 U	2290164	14.12 J2	<4.5 U	<8.17 U1
9606W064	IR08MW44A	02/05/1996	0	A	<19.1 U	1.9	<1.4 U	59.7	<0.1 U	<0.2 U	167,000	<0.4 U	NA	0.53	<2.1 U1	396	<0.8 U	1610	341000	<0.1 U	13	<1.6 U1	54500	<2.3 U	<0.5 U	1510000	<1.9 U	<0.84 U1	<10.9 U1
9606W065	IR08MW44A	02/05/1996	0	A	<19.1 U	1.6	<1.4 U	61.3	<0.1 U	<0.2 U	170,000	<0.4 U	NA	0.49	<1.4 U1	441	<0.8 U	1640	346000	<0.1 U	13.2	<1.3 U1	51200	<2.3 U	<0.5 U	1450000	<1.9 U	<0.51 U1	<7.9 U1
9610 J914	IR08MW44A	03/07/1996	0	A	41.5	1.6	<1.4 U	88.3	<0.1 U	<0.2 U	388,000	<0.4 U	NA	1.1	0.52	1120	<0.8 U	5440	576000	<0.1 U	8.4	1.9	65800	<2.3 U	<0.5 U	1760000	<1.9 U	1.8	7.6
8914W25	IR11MW25A	03/10/1989	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<15 U	NA	NA	NA	NA	NA	NA	NA	NA
9034M001	IR11MW25A	08/28/1990	0	A	62.8	29.6	8.9	50.6	<1.2 U	<2.9 U	28,700	<2.8 U	NA	<8.6 U	20	207	<2.2 U	411	76000	<0.4 U	NA	<21.6 U	58900	<19.5 U	<1.6 U	1440000	<2.3 U	<11.1 U1	49.1
9148X298	IR11MW25A	11/25/1991	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9238X757	IR11MW25A	09/15/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P014	IR11MW25A	03/09/2001	0	A	NA	<3.7 U1	<15.3 U1	NA	NA	<0.3 U	155,000	NA	NA	NA	<4.1 U1	686	NA	NA	49700	NA	NA	3.9 J	29600	NA	NA	178000	NA	NA	NA
0109P015	IR11MW25A	03/09/2001	0	A	NA	<3.4 U1	<17.2 U1	NA	NA	<0.3 U	151,000	NA	NA	NA	<2.5 U1	707	NA	NA	49100	NA	NA	3.1 J	30200	NA	NA	180000	NA	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	<16.5 UR2	<3.4 U	<2.4 U1 J3	27.7	<2 U	<4 U	118,000	<5.8 U	<0.05 U	<9 U	<76.5 U1 J3	<153 U1 J3	4.4 J3	<13.2 U1	38700	<0.2 U	<15 U	<10.6 U	17800	<19 UR2	<11.8 U1	362000	<1.3 U	23.8	<9 UJ3
8914W26	IR11MW26A	03/10/1989	0	A	22.4 J3	<3.4 U	<8.8 U1 J3	15.4	<2 U	<4 U	125,000	<5.8 U	<0.05 U	<9 U	<15.8 U1 J3	<98.7 U1 J3	<1.4 UJ3	<12.6 U1	40500	<0.2 U	<15 U	<10.6 U	19200	<3.4 U1 J3	<11.8 U1	378000	<1.3 U	30.1	<9 UJ3
9034G301	IR11MW26A	08/21/1990	0	A	<34.5 U	<18 U	5.3	13.7	<1.2 U	<2.9 U	61,200	<2.8 U	<0.01 U	<8.6 U	<7.4 U	<19.8 U	<2.2 U	147 J3	47800	<0.4 U	NA	<21.6 U	15000	<3.9 U	<1.6 U	474000	<2.3 U	<1.9 U	<7.7 U2
9148X297	IR11MW26A	11/25/1991	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9148H931	IR11MW26A	11/26/1991	0	A	<15.3 UJ9	<27.6 U	5 J3	35	<0.35 U	<2.3 UJ9	156,000	<3 U	NA	<10.4 U	<2.6 U1	6.3	<2 U	38.8	110000	<0.2 U	<3.1 UJ9	<17.8 U	45300	<2.5 UR2	<4.9 U	1230000	<2 UJ3	<3.9 U	<6.1 U
9238X756	IR11MW26A	09/15/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9238X766	IR11MW26A	09/16/1992	0	A	<26.6 U	<26.3 U	<3.1 U	27.79	<0.5 U	<1.7 U	109,959	<2.7 U	NA	<3 U	<2.2 U	<6.1 U	<1.62 U1	144.99	79809.6	<0.1 U1 J5	<5.4 U	<4.8 U	40496	<1.3 UR2	<3.1 U	981857	<33 UR2	<6.26 U1	<1.4 U
0109P012	IR11MW26A	03/09/2001	0	A	NA	<2.4 U	<9.2 U1	NA	NA	<0.3 U	82,100	NA	NA	NA	<3.2 U1	23.8 J	NA	NA	26200	NA	NA	<1.3 U	15000	NA	NA	146000	NA	NA	NA

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
8914W27	IR11MW27A	03/10/1989	0	A	33.6 J3	<3.4 U	<2.2 U1 J3	60.2	<2 U	<4 U	185,000	<5.8 U	<0.05 U	<9 U	98 J3	<154 U1 J3	<1.4 UJ3	220	98000	<0.2 U	<15 U	<10.6 U	48000 J4	<38 UR2	<18.5 U1	648000	<1.3 UJ3	43.6	<9 UJ3
9034G300	IR11MW27A	08/21/1990	0	A	267	20.6	5	51.2	<1.2 U	<2.9 U	404,000	3.3	<0.01 U	<8.6 U	<37.8 U2	154	<2.2 UJ3	459 J3	223000	<0.2 U	NA	<21.6 U	95700	<3.9 UJ3	<1.6 U	1740000	<2.3 U	17.8	<23 U2
9148X296	IR11MW27A	11/25/1991	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9238X755	IR11MW27A	09/15/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P016	IR11MW27A	03/09/2001	0	A	NA	<4.9 U1	<3.9 U1	NA	NA	<0.3 U	381,000	NA	NA	NA	<6.9 U1	119	NA	NA	149000	NA	NA	8.1 J	59200	NA	NA	726000	NA	NA	NA
0229D013	IR11MW27A	07/19/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237G013	IR11MW27A	09/12/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X179	IR12MW11A	08/26/1991	0	A	<25.7 U	<14.3 U	2.9	55.9	<0.3 U1	<3.4 U	89,200	<2.1 U	<0.01 U	<4.9 U	<1.3 U	<11.9 U	<1.2 U	783	169000	<0.2 U	39.7	<15.2 U	6120	<2.9 U	<1.7 U	231000	<1.5 UJ3	<4.9 U1	<12.5 U1
9209X547	IR12MW11A	02/24/1992	0	A	<20 U	<26.3 U	<1.7 U	38.7	<0.9 U	<2.8 U	93,300	<2.7 U	<0.01 U	<7.9 U	<7.1 U1	<5.6 U	<0.8 U	334	146000	<0.2 U	35.3	<28.8 U	7140	<2.5 U	<1.7 U	193000	<18 UJ3	<2.3 U1	<1.9 U
9612W185	IR12MW11A	03/22/1996	0	A	<53.2 U1	<1.6 U	5.4	58.8	<0.1 U	<0.2 U	114,000	<0.4 U	<0.01 U	<1.5 U1	<0.59 U1	<47.6 U1	<0.8 U	557	192000	<0.1 U	40.2	10.4	5560	<2.3 U	<0.5 U	209000	<1.9 U	<2.5 U1	<7.4 U1
0110P013	IR12MW11A	03/13/2001	0	A	NA	NA	NA	NA	NA	NA	73,600	NA	NA	NA	NA	<23.4 U	NA	NA	122000	NA	NA	NA	5630	NA	NA	197000 J4	NA	NA	NA
0839G034	IR12MW11A	09/23/2008	0	A	<100 U	3.2	24.9	72.3 J	<0.2 U	<0.029 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	716 J	<0.2 U	NA	2.6	NA	<5 U	<1.5 U	NA	<5 U	NA	<50 U
0912W037	IR12MW11A	03/17/2009	0	A	<100 U	<5 U	16.3	47.2	<0.2 U	<0.12 U	NA	1.6 J	NA	5.8	2.9 J	NA	<5 U	NA	918 J	<0.081 U	NA	24.8	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0916P014	IR12MW11A	04/16/2009	0	A	<100 U	<5 U	14.7	49.4	<0.2 U	<0.079 U	NA	<5 U	NA	1.3 J	<5 U	NA	<5 U	NA	720	0.11 J	NA	14	NA	<5 U	<0.67 U	NA	<5 U	NA	<50 U
9134X185	IR12MW12A	08/27/1991	0	A	<25.7 U	<14.3 U	3	54.9	<0.24 U	<3.4 U	26,900 J6	<2.1 U	<0.01 U	<4.9 U	<1.3 U	<11.9 U	<1.2 U	70.4 J6	52200	<0.2 U	<13 U1	<15.2 U	7440	<2.9 U	<1.7 U	135000 J6	<1.5 UJ3	<5.4 U1	<2.9 U1
9209X544	IR12MW12A	02/24/1992	0	A	<30.1 U1	<26.3 U	<4.8 U1	58.3	<0.9 U	<2.8 U	20,800 J9	4	<0.01 U	<7.9 U	<8.9 U1	<32.2 U1	<0.8 U	39.1	45900	<0.2 U	<7.6 U1	<28.8 U	6750	<2.5 U	<1.7 U	107000	<1.8 UJ3	<2.7 U1	8.1
9239X782	IR12MW12A	09/21/1992	0	A	<26.6 U	<26.3 U	<3.1 U	105.51	<0.5 U	<1.7 U	30,282.60	<5.81 U1	<0.01 U	<3 U	<2.2 U	<18.36 U1	<1.3 U	134.18	67600	<0.1 U	14.31	12.34	7567.49	<13 UR2	<3.1 U	154168	<33 UR2	3.83	<1.4 U
9239X783	IR12MW12A	09/21/1992	0	A	<26.6 U	<26.3 U	<3.1 U	100.47	<0.5 U	<1.7 U	29,116.30	<2.7 U	<0.01 U	<3 U	<2.2 U	<6.1 U	<1.3 U	121.48	64887.7	<0.1 U	10.68	<4.8 U	7595.78	<13 UR2	<3.1 U	153986	<3.3 UR2	3.46	<1.4 U
9134X180	IR12MW13A	08/26/1991	0	A	<25.7 U	<14.3 U	3.3	202	<0.24 U	<3.4 U	124,000	<2.1 U	<0.01 U	<6.6 U1	<1.3 U	<59.6 U1	<1.2 U	2180	336000	<0.2 U	<8.4 U1	74.2	5590	<2.9 U	<1.7 U	403000	<1.5 UJ3	<5 U1	<6.6 U1
9209X545	IR12MW13A	02/24/1992	0	A	<20 U	<26.3 U	<4.9 U1	61.8	<0.9 U	<2.8 U	74,600	<2.7 U	<0.01 U	<7.9 U	<2.8 U1	<5.6 U	<0.8 U	1010	185000	<0.2 U	<5.9 U1	37.6	4020	<2.5 U	<1.7 U	212000	<18 UJ3	<3.3 U1	<1.9 U
9209X546	IR12MW13A	02/24/1992	0	A	<22.9 U1	<26.3 U	<3.2 U1	57	<0.9 U	<2.8 U	64,500	<2.7 U	<0.01 U	9.3	<8.5 U1	<5.6 U	<0.8 U	871	161000	<0.2 U	<6.7 U1	34.2	3940	<2.5 U	<1.7 U	178000	<1.8 UJ3	<4.2 U1	<1.9 U
9239X787	IR12MW13A	09/22/1992	0	A	<26.6 U	<26.3 U	<31 U	252.01	<0.5 U	<1.7 U	110,959	<2.7 U	<0.01 U	6.57	<2.2 U	<62.35 U1	<1.45 U1	2153.64	343154	<0.1 U	5.54	54.45	5055.77	<13 UR2	<3.1 U	453558	<33 UR2	3.31	<1.4 U
9239X788	IR12MW13A	09/22/1992	0	A	<26.6 U	<26.3 U	5.29	242.3	<0.5 U	<1.7 U	111,848	<2.7 U	<0.01 U	8.4	<2.2 U	<53.71 U1	<1.3 U	2146.63	344673	<0.1 U	<5.4 U	58.54	5251.78	1.75 J3	<3.1 U	453981	<33 UR2	<3.1 U	1.97
0111P018	IR12MW13A	03/21/2001	0	A	NA	NA	NA	NA	NA	NA	67,800	NA	NA	NA	NA	1120	NA	NA	158000	NA	NA	NA	3080 J4	NA	NA	127000	NA	NA	NA
0226E020	IR12MW13A	06/27/2002	0	A	NA	NA	NA	NA	NA	NA	82,600	NA	NA	NA	NA	698	NA	NA	230000	NA	NA	NA	3710	NA	NA	323000	NA	NA	NA
0236E003Z	IR12MW13A	09/05/2002	0	A	NA	NA	NA	NA	NA	NA	83,400	NA	NA	NA	NA	689	NA	NA	241000	NA	NA	NA	4470	NA	NA	341000	NA	NA	NA
0916H005	IR12MW13A	04/14/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1	NA	NA	NA	NA	NA	NA	NA
9134X181	IR12MW14A	08/26/1991	0	A	<25.7 U	<23.3 U1	<2.5 U	58	<0.24 U	<3.4 U	76,500	<2.1 U	<0.01 U	<4.9 U	2.4	<11.9 U	<1.2 U	653	129000	<0.2 U	<3.3 U	<15.2 U	<1600 U1	<2.9 U	<1.7 U	177000	<1.5 UJ3	<14.5 U1	<4.4 U1
9134X182	IR12MW14A	08/26/1991	0	A	<25.7 U	<14.3 U	<2.5 U	57.5	<0.24 U	<3.4 U	75,100	<2.1 U	<0.01 U	<4.9 U	2.4	<11.9 U	<1.2 U	636	127000	<0.2 U	3.8	<15.2 U	1620	<2.9 U	<1.7 U	175000	<1.5 U	<13.3 U2	<4.4 U2
9209X552	IR12MW14A	02/25/1992	0	A	341	<26.3 U	<1.9 U1	40	<0.9 U	<2.8 U	52,100	<2.7 U	<0.01 U	<7.9 U	<8.9 U2	438	<0.8 U	167	88200	<0.2 U	<4.4 U	<28.8 U	1020	<2.5 U	<2.2 U2	139000	<1.8 UJ3	<6.8 U1	<2.5 U2
9239X789	IR12MW14A	09/22/1992	0	A	<26.6 U	<26.3 U	<3.1 U	89.21	<0.5 U	<1.7 U	80,779.30	<2.7 U	<0.01 U	<3 U	<2.2 U	<6.1 U	<1.3 UJ3	534.69	140648	<0.1 U	<5.4 U	5.6	722.06 J4	<1.3 UR2	<3.1 U	186086	<33 UR2	7.5	<1.4 U
0110P012	IR12MW14A	03/13/2001	0	A	NA	NA	NA	NA	NA	NA	56,600	NA	NA	NA	NA	<23.4 U	NA	NA	94900	NA	NA	NA	<582 U1	NA	NA	136000 J4	NA	NA	NA
0830D020	IR12MW14A	07/21/2008	0	A	27.4 J	2 J	<5 U	125 J	<0.2 U	<0.082 U	NA	6.9	NA	4.4 J	<5 U	NA	<7.5 U	NA	1720 J	NA	12.8	1.5 J	NA	13 J	<1 U	NA	<5 U	6.5	<50 U
0911D026	IR12MW14A	03/13/2009	0	A	23.4 J	<2.2 U	<5 U	52	<0.2 U	0.19 J	NA	1.9 J	NA	<5 U	1.1 J	NA	<5 U	NA	275 J	NA	NA	0.72 J	NA	<5 U	<0.47 U	NA	<5 U	NA	6.4 J
9134X186	IR12MW15A	08/27/1991	0	A	<25.7 U	<14.3 U	<2.5 U	87	<0.24 U	<3.4 U	101,000 J6	<2.1 U	<0.01 U	<4.9 U	<1.3 U	<11.9 U	<1.2 U	356 J6	132000	<0.4 U	<6.9 U1	<15.2 U	20000	<2.9 U	<1.7 U	707000 J6	<1.5 UJ3	<5.3 U1	<1.6 U
9209X553	IR12MW15A	02/25/1992	0	A	<20 U	<26.3 U	<2.5 U1	85.7	<0.9 U	<2.8 U	83,700	<2.7 U	<0.01 U	<7.9 U	<1.6 U	<5.6 U	<0.8 U	297	143000	<0.2 U	<5.9 U1	<28.8 U	17900	<25 U	<1.7 U	655000	<1.8 UJ3	<2.3 U1	<1.9 U
9238X778	IR12MW15A	09/18/1992	0	A	<27.01 U1	<26.3 U	<3.1 U	124.21	<0.5 U	<1.7 U	85,650.50	<13.42 U1	<0.01 U	3.15	<2.2 U	<41.32 U1	<13 U	404.65	140448	<0.1 U	11.45	18.51	21560.7	<1.3 UR2	<3.1 U	683796	<33 UR2	<3.1 U	<1.4 U
0232E003	IR12MW15A	08/06/2002	0	A	NA	NA	<5 UJ1	125	NA	0.39	63,700	NA	NA	NA	NA	<34.6 U1	NA	NA	81900	NA	NA	NA	12700	NA	NA	396000	NA	NA	NA
0238A003	IR12MW15A	09/16/2002	0	A	NA	NA	1.2 J	411	NA	<0.25 U	154,000	NA	NA	NA	NA	<29.5 U1	NA	NA	271000	NA	NA	NA	22600	NA	NA	543000	NA	NA	NA
9134X188	IR12MW16A	08/27/1991	0	A	<25.7 U	<14.3 U	2.5	51.8	<0.24 U	<3.4 U	211,000	<2.1 U	<0.01 U	<4.9 U	<1.3 U	<11.9 U	<1.2 U	691	370000	<0.2 U	65.7	<15.2 U	11500	<2.9 U	<1.7 U	732000	<1.5 UJ3	<7.6 U1	<1.6 U
9134X189	IR12MW16A	08/27/1991	0	A	<25.7 U	15.5	3.1	52.3	0.3	<3.4 U	218,000	<2.1 U	<0.01 U	<4.9 U	1.6	<11.9 U	<1.2 U	708	377000	<0.2 U	66.5	<15.2 U	11800	<2.9 U	<1.7 U	739000	<1.5 U	<9.8 U2	<1.6 U
9209X555	IR12MW16A	02/25/1992	0	A	<20 U	30.5	<2.6 U1	105	<0.9 U	<2.8 U	182,000	<2.7 U	<0.01 U	<7.9 U	<8.5 U1	<5.6 U	0.8	849	333000	<0.2 U	61.4	<28.8 U	6680	<25 U	<1.7 U	615000	<1.8 UJ3	<4.6 U1	<1.9 U
9239X797	IR12MW16A	09/24/1992	0	A	<26.6 U	<26.3 U	<3.1 U	94.04	<0.5 U	<1.7 U	192,218	<2.7 U	<0.01 U	<3 U	<2.2 U	<6.1 U	<1.3 U	973.35	362709	<0.1 U	64.27	<4.8 U	7414.14	<1.3 U	<3.1 U	719453	<33 U	5.31	<1.4 U
9234X690	IR12MW17A	08/19/1992	0	A	<64.8 U1	<31.1 U	22	281	<0.5 U	<2.7 U	92,200	<2.5 U	<0.01 U	<8.8 U	3.3	439	<1.6 U	583	146000	<0.2 U	30	47	18800	<2.9 U	<1.5 U	236000	<16 U	2.6	<16.5 U
9234X691	IR12MW17A	08/19/1992	0	A	<48 U1	<31.1 U	24.1	255	<0.5 U	<2.7 U	93,800	<2.5 U	<0.01 U	<8.8 U	2.3	423	<1.6 U	587	148000	<0.2 U	31.9	47.8	19100	<2.9 U	<1.5 U	247000	<1.6 U	1.6	<16.5 U
9239X795	IR12MW17A	09/24/1992	0	A	<26.6 U	<26.3 U	:17.97 U1 J	480.77	<0.5 U	<1.7 U	86,250.30	<2.7 U	<0.01 U	<3 U	<2.2 U	4113.26	<1.3 U	1045.86	159941	<0.1 U	15.66	42.46	19951	<1.3 UJ3	<3.1 U	232858	<33 UR2	<3.1 U	<9.59 U1
9612W186	IR12MW17A	03/22/1996	0	A	<53.3 U1	<1.6 U	5.4	1040	<0.1 U	<0.2 U	123,000	3.7	<0.01 U	<2.1 U1	<0.5 U	14500	<0.8 U	830	153000	<0.1 U	<0.98 U1	29.5	20700	<2.3 U	<0.5 U	139000	<1.9 U	11	<9.1 U1
0110T002	IR12MW17A	03/12/2001	0	A	NA	NA	NA	489	NA	NA	111,000	NA	NA	NA	NA	21400	NA	NA	117000	NA	NA	NA	17700	NA	NA	109000 J4	NA	NA	NA
0229P018	IR12MW17A	07/19/2002	0	A	NA	NA	NA	834	NA	NA	75,100	NA	NA	NA	NA	5450	NA	NA	114000	NA	NA	NA	11100	NA	NA	144000	NA	NA	NA
0229P019	IR12MW17A	07/19/2002	0	A	NA	NA	NA	NA	NA	NA	76,900	NA	NA	NA	NA	5540	NA	NA	116000	NA	NA	NA	11500	NA	NA	147000	NA	NA	NA
0238A002	IR12MW17A	09/16/2002	0	A	NA	NA	NA	1240	NA	NA	84,500	NA	NA	NA	NA	6550	NA	NA	121000	NA	NA	NA	13900	NA	NA	148000	NA	NA	NA
9234X692	IR12MW18A	08/19/1992	0	A	<21.6 U	<31.1 U	62.8	85.7	<0.5 U	<2.7 U	123,000	<2.5 U	<0.01 U	<8.8 U	2	125	<1.6 U	306	181000	<0.2 U	8.8	213	10500	<2.9 U	<1.5 U	341000	<1.6 U	2.6	<16.5 U
9239X793	IR12MW18A	09/24/1992	0	A	<26.6 U	<26.3 U	:16.32 U1 J	103.52	<0.5 U	<1.7 U	120,963	<2.7 U	<0.01 U	<3 U	<2.2 U	<53.15 U1	10.76	337.05	189210	<0.1 U	<5.4 U	204.98	10870.5	<13 UJ3	<3.1 U	312793	<33 UR2	3.72	<5.14 U1
9239X794	IR12MW18A	09/24/1992	0	A	<26.6 U	<26.3 U	23.17 J3	108.5	<0.5 U	<1.7 U	124,735	<2.7 U	<0.01 U	<3 U	<2.2 U	<65.84 U1	<1.3 U	344.3	195935	<0.1 U	<5.4 U	213.56	11335.6	<1.3 UJ3	<3.1 U	327041	<33 UR2	3.99	<7.25 U1
9613W189	IR12MW18A	03/25/1996	0	A	<44.7 U1	<1.6 U	<1.4 U	95.1	<0.1 U	<0.2 U	97,000	<0.4 U	<0.01 U	<0.4 U	<0.5 U	123	<0.8 U	344	149000	<0.1 U	<0.84 U1	153	7800	<2.3 U	<0.5 U	279000	<1.9 U	<1.1 U1	<6.7 U1
9613W190	IR12MW18A	03/25/1996	0	A	<59.7 U1	<1.6 U	1.7	95.5	<0.15 U1	<0.2 U	97,400	<0.4 U	<0.01 U	<0.68 U1	<0.5 U	137	<0.8 U	344	149000	<0.1 U	<1.9 U1	154	7660	<2.3 U	<0.5 U	276000	<1.9 U	<1.4 U1	<8.8 U1
0109T022	IR12MW18A	03/09/2001	0	A	NA	<2.4 U	<2.8 U1	NA	NA	<0.3 U	84,900	NA	NA	NA	<1.5 U	206	NA	NA	132000	NA	NA	124	9350	NA	NA	284000	NA	NA	NA
0109T023	IR12MW18A	03/09/2001	0	A	NA	<2.4 U	<4.3 U1	NA	NA	<0.3 U	86,700	NA	NA	NA	<1.5 U	207	NA	NA	135000	NA	NA	122	9280	NA	NA	276000	NA	NA	NA
0229A012	IR12MW18A	07/18/2002	0	A	NA	NA	2.9	NA	NA	NA	77,200	NA	NA	NA	NA	116	NA	NA	124000	NA	NA	123	7730	NA	NA	267000	NA	NA	NA
0236E002Z	IR12MW18A	09/05/2002	0	A	NA	NA	<2.8 U2	NA	NA	NA	78,900	NA	NA	NA	NA	132	NA	NA	138000	NA	NA	127	8930	NA	NA	281000	NA	NA	NA
0830D027	IR12MW18A	07/23/2008	0	A	<100 UJ	7.2	<5 UJ	128 J	<0.2 U	<0.045 U	NA	3.1 J	NA	2.7 J	<5 U	NA	<5 U	NA	380 J	NA	NA	141	NA	5R	<1 U	NA	6.4	NA	<50 U
0841H015	IR12MW18A	10/08/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	136	NA	NA	NA	NA	NA	NA	NA

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
0911W025	IR12MW18A	03/13/2009	0	A	<100 U	<5 U	<5 U	171	<0.2 U	0.05 J	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	394 J	NA	NA	129	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
0916H003	IR12MW18A	04/14/2009	0	A	<100 U	<5 U	<5 U	165	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	388	NA	NA	123	NA	<5 U	0.67 J	NA	<5 U	NA	<50 U
0928W013	IR12MW18A	07/07/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	141	NA	NA	NA	NA	NA	NA	NA
0941H019	IR12MW18A	10/05/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	152	NA	NA	NA	NA	NA	NA	NA
9234X693	IR12MW19A	08/19/1992	0	A	<21.6 U	<31.1 U	4.8	66.1	<0.5 U	<2.7 U	119,000	<2.5 U	<0.01 U	12.9	3.6	<11.3 U	<1.6 U	1200	273000	<0.2 U	7.4	36.3	6850	<2.9 U	<1.5 U	445000	<1.6 U	3.8	<16.5 U
9239X800	IR12MW19A	09/25/1992	0	A	<26.6 U	<26.3 U	<3.1 UJ3	144.9	<0.5 U	<1.7 U	121,106	<2.7 U	<0.01 U	8.59	<2.2 U	<6.1 U	<1.3 U	1445.74	374773	<0.1 U1	7.8	34.05	5005.44	<1.3 UJ3	<3.1 U	476275	<33 UR2	<3.1 U	<1.4 U
9239X801	IR12MW19A	09/25/1992	0	A	<26.6 U	<26.3 U	<3.1 UJ3	123.78	<0.5 U	<1.7 U	112,078	<2.7 U	<0.01 U	8.99	<2.2 U	<6.1 U	<1.3 U	1368.84	340541	<0.1 U	7.56	32.57	4827.1	<13 UJ3	<3.1 U	458929	<3.3 UR2	<3.1 U	<1.4 U
9613W191	IR12MW19A	03/25/1996	0	A	<53.9 U1	<1.6 U	2.3	181	<0.15 U1	<0.2 U	97,200	<0.4 U	<0.01 U	9.2	<0.5 U	<85.1 U1	<0.8 U	1380	287000	<0.1 U	<6.9 U1	33.4	3820	<2.3 U	<0.5 U	390000	<1.9 U	<0.57 U1	<4.6 U1
0110P005	IR12MW19A	03/12/2001	0	A	NA	NA	NA	NA	NA	NA	88,300	NA	NA	NA	NA	184	NA	NA	254000	NA	NA	NA	4780 J	NA	NA	436000 J4	NA	NA	NA
9234X694	IR12MW20A	08/19/1992	0	A	<21.6 U	<31.1 U	28.9	63	<0.5 U	<2.7 U	96,800	<2.5 U	<0.01 U	<8.8 U	2.9	<15.5 U1	<1.6 U	276	159000	<0.2 U	9.7	72.2	6570	<2.9 U	<1.5 U	214000	<8 U	<1.4 U	<16.5 U
9239X799	IR12MW20A	09/25/1992	0	A	<26.6 U	<26.3 U	45.45 J3	70.86	<0.5 U	<1.7 U	92,010	<2.7 U	<0.01 U	<3 U	<2.2 U	<6.1 U	<1.3 U	294.97	159537	<0.1 U	7.06	81.66	6866.16	<1.3 UJ3	<3.1 U	192060	<33 UR2	<3.1 U	<1.4 U
9613 J971	IR12MW20A	03/25/1996	0	A	<45.6 U1	<1.6 U	25.4	60.1	<0.12 U1	<0.2 U	75,200	<0.4 U	<0.01 U	<2.6 U1	<0.5 U	<11 U	<0.8 U	280	131000	<0.1 U	<6.1 U1	52.3	4940	<2.3 U	<0.5 U	151000	<1.9 U	<0.4 U	<6.5 U1
0109T025	IR12MW20A	03/09/2001	0	A	NA	<2.4 U	26	NA	NA	<0.3 U	73,600	NA	NA	NA	<2.3 U1	122	NA	NA	120000	NA	NA	60.9	6260	NA	NA	160000	NA	NA	NA
0229A015	IR12MW20A	07/19/2002	0	A	NA	NA	20.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0238S003	IR12MW20A	09/17/2002	0	A	NA	NA	22.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9234X695	IR12MW21A	08/19/1992	0	A	<23.5 U1	<31.1 U	3.1	1090	<0.5 U	<2.7 U	239,000	<2.5 U	<0.01 U	<8.8 U	2.7 J9	311	<1.6 UJ3	1050	227000	<0.2 U	<5.4 U	<17.3 U	52100	<2.9 UJ3	<1.5 U	2450000	<1.6 UJ3	3.2 J9	<16.5 U
9239A459	IR12MW21A	09/23/1992	0	A	<27.27 U1	<26.3 U	37.44 J3	754.23	<0.5 U	<1.7 U	198,032	<2.7 U	<0.01 U	<3 U	<2.2 U	774.3	8.52	1407.51	216937	<0.1 U	<5.4 U	<4.8 U	50261.1	<13 UJ3	<3.1 U	2344233	<3.3 UR2	<3.1 U	<1.4 U
9614Z022	IR12MW21A	04/02/1996	0	A	<39.6 U1	<1.2 U	<1.3 U	528	<0.1 U	<0.3 U	97,200	<0.7 U	<0.01 U	<0.5 U	<0.8 U	206	<1 U	790	136000	<0.1 U	<0.7 U	<0.9 U	31000	<2.2 U	<0.7 U	1310000	<1.7 U	<0.7 U	7
9618 J076	IR12MW21A	05/02/1996	0	A	<20.9 U1	<1.2 U	<1.3 U	559	<0.1 U	6 J2	88,200	<0.7 U	<0.01 U	<0.5 U	<0.8 U	1370	<1 U	732	118000	<0.1 U	<0.7 U	<0.9 U	26500	<2.2 U	<0.7 U	1200000	<1.7 U	<0.7 U	<7.5 U1
9134X193	IR13MW10A	08/28/1991	0	A	<25.7 U	<18.6 U1	5.3	122	<1.2 U1	<3.4 U	390,000	<2.1 U	<0.01 U	<4.9 U	9.3	455	<6 U	4210	1200000	<0.2 U	<5.5 U1	<15.2 U	170000	<29 U	<1.7 U	5600000	<15 UJ3	<1.6 U	<1.6 U
9209X550	IR13MW10A	02/25/1992	0	A	<26.2 U1	35.9	<1.8 U1	99.9	<0.9 U	<2.8 U	375,000	<2.7 U	<0.01 U	<7.9 U	<3.2 U1	<310 U1 J6	10	3760	1240000	<0.2 U	<4.4 U	<28.8 U	148000	<25 U	<1.7 U	5390000	<18 UJ3	<1.4 U	<1.9 U
9209X551	IR13MW10A	02/25/1992	0	A	<39.2 U1	36.1	<3.3 U1	142	<0.9 U	<2.8 U	421,000	<2.7 U	<0.01 U	<7.9 U	<10.4 U1	699 J6	<8 U	6640	1400000	<0.2 U	<4.4 U	28.8	111000	<25 U	3.1	5620000	<18 UJ3	<1.8 U1	<1.9 U
9238X777	IR13MW10A	09/18/1992	0	A	<26.6 U	<26.3 U	<31 UJ3	106.02 J9	<0.5 U	<1.7 UJ9	354,442	<2.7 UJ9	<0.01 U	<3 U	<2.2 U	362.96	<13 U	3137.6	1078091	<0.1 U	<5.4 U	<4.8 UJ9	194989 J4	<13 UR2	<3.1 U	5651661	<33 UR2	4.77 J9	<8.87 U1
9134X190	IR13MW11A	08/28/1991	0	A	<25.7 U	<14.3 U	<2.5 U	189	<1.2 U1	<3.4 U	190,000	<2.1 U	<0.01 U	<4.9 U	<1.3 U	91.6	<1.2 U	2710	631000	<0.2 U	<3.3 U	<15.2 U	73000	<2.9 U	<1.7 U	2260000	<15 UJ3	<6.1 U1	<1.6 U
9209X558	IR13MW11A	02/26/1992	0	A	<20 U	<26.3 U	<1.7 U	43.8	<0.9 U	<2.8 U	52,200	<2.7 U	<0.01 U	<7.9 U	<2.5 U1	<48.2 U1	<0.8 U	828	182000	<0.2 U	<4.4 U	<28.8 U	26800	<25 U	<1.7 U	824000	<1.8 UJ3	<2 U1	<1.9 U
9238X768	IR13MW11A	09/17/1992	0	A	29.56	<26.3 U	<31 U	177.09	<0.5 U	<1.7 U	136,219	<2.7 U	<0.01 U	<3 U	<2.2 U	<111.85 U1	11.8 J2	2160.87	528418	<0.13 U1 J5	<5.4 U	<4.8 U	51004.3	<13 UR2	<3.1 U	1483648	<33 UR2	<3.1 U	<1.4 U
9238X769	IR13MW11A	09/17/1992	0	A	<26.6 U	<26.3 U	<31 U	182.24	<0.5 U	<1.7 U	137,322	<2.7 U	<0.01 U	<3 U	<2.2 U	122.61	14.32 J2	2173.47	536973	<0.26 U1 J5	<5.4 U	<4.8 U	51800.6	<13 UR2	<3.1 U	1453655	<33 UR2	<3.1 U	<1.4 U
9134X191	IR13MW12A	08/28/1991	0	A	<25.7 U	<17 U1	<2.5 U	62.7	<1.5 U1	<3.4 U	430,000	<2.1 U	<0.01 U	<4.9 U	4.4	<11.9 U	<6 U	4870	902000	<0.2 U	<6.9 U1	18	216000	<29 U	<1.7 U	6650000	<15 UJ3	<1.6 U	<5.1 U1
9134X192	IR13MW12A	08/28/1991	0	A	<25.7 U	<23.2 U1	<2.5 U	62.2	<1.2 U1	<3.4 U	409,000	<2.1 U	<0.01 U	<4.9 U	5.6	<11.9 U	<6 U	4600	849000	<0.2 U	<3.8 U1	<15.2 U	201000	<29 U	<1.7 U	6120000	<15 UJ3	<1.6 U	<6.2 U1
9209X557	IR13MW12A	02/26/1992	0	A	<20 U	<26.3 U	<2.4 U1	28.4	<0.9 U	<2.8 U	53,100	<2.7 U	<0.01 U	<7.9 U	<10.3 U1	<5.6 U	1.3	187	82200	<0.2 U	<9.2 U1	<28.8 U	29600	<25 U	<1.7 U	936000	<1.8 UJ3	<3.2 U1	<1.9 U
9238X775	IR13MW12A	09/18/1992	0	A	<26.6 U	<26.3 U	<31 U	112.7	<0.5 U	<1.7 U	412,548	<2.7 U	<0.01 U	<3 U	3.47	<6.1 U	<13 U	4408.17	836556	<0.1 U	<5.4 U	9.25	165813	<13 UR2	<3.1 U	5329895	<33 UR2	<3.1 U	<18.27 U1
9238X776	IR13MW12A	09/18/1992	0	A	<26.6 U	<26.3 U	<31 U	99.27	<0.52 U1	<1.7 U	424,344	25.66	<0.01 U	10.24	<2.2 U	<51.49 U1	<13 U	4769.84	903790	<0.1 U	25.19	38.08	204880	<13 UR2	<3.1 U	6073716	<33 UR2	<3.1 U	<13.09 U1
9529X851	IR13MW12A	07/20/1995	0	A	<16.3 U	<2.1 U	<2.8 U	56.48	<0.1 U	<0.2 U	317,713	<1.8 U	NA	<2.3 U1	<2.81 U2	<31.43 U2	<1.5 U	2700.01	670150	<0.1 U	<5.54 U1	<9.48 U1	216952	<3.78 U1	<0.6 U	5571318	7.22	0.84	<24.84 U2
9148X304	IR14MW09A	11/27/1991	0	A	<15.3 U	<27.6 U	2.4	77.9	<0.35 U	<2.3 U	442,000	<3 U	<0.01 U	<10.4 U	7.8	17.6	<2 U	872	670000	<0.2 U	3.7	125	135000	<25 U	<4.9 U	3790000	<20 U	<3.9 U	<6.1 U
9148X305	IR14MW09A	11/27/1991	0	A	<15.3 U	<27.6 U	2.1	77.9	<0.35 U	<2.3 U	440,000	<3 U	<0.01 U	12.7	6.5	6.4	<2 U	850	664000	<0.2 U	4.6	130	134000	<25 U	<4.9 U	3800000	<20 U	<3.9 U	<6.1 U
9209X559	IR14MW09A	02/26/1992	0	A	<20 U	41.2	<1.7 U	46.1	<0.9 U	<2.8 U	249,000 J9	<2.7 U	<0.01 U	<7.9 U	13.8	<5.6 U	2.2	364	371000	0.91	<6.7 U1	29.8	78500	<2.5 U	<1.7 U	2170000	<1.8 UJ3	<3.1 U1	<1.9 U
9209X560	IR14MW09A	02/26/1992	0	A	<20 U	<26.3 U	<2.2 U1	46.4	<0.9 U	<2.8 U	249,000	<2.7 U	<0.01 U	<7.9 U	<9.6 U1	<5.6 U	<1.8 U1	360	372000	0.46	<9.2 U1	<28.8 U	78500	<25 U	<1.7 U	2210000	<1.8 UJ3	<3.2 U1	<1.9 U
9238X754	IR14MW09A	09/15/1992	0	A	27.31	32.87	<31 U	64.45	<0.5 U	<1.7 U	331,676	<2.7 U	<0.01 U	<3 U	13.94	<6.1 U	<13 U	689.19	523885	<0.1 U	<5.4 U	56.97	125127	<13 U	<3.1 U	3139801	<33 U	5.43	<1.4 U
0109T013	IR14MW09A	03/07/2001	0	A	NA	NA	NA	NA	NA	NA	70,100	NA	NA	NA	NA	274	NA	NA	88000	<0.1 U	NA	87.5	37500 J4	NA	NA	895000 J4	NA	NA	NA
0230P003	IR14MW09A	07/22/2002	0	A	NA	NA	NA	NA	NA	NA	78,800	NA	NA	NA	NA	20	NA	NA	110000	<0.1 U	NA	29.8	41100	NA	NA	1220000	NA	NA	NA
0230P004	IR14MW09A	07/22/2002	0	A	NA	NA	NA	NA	NA	NA	76,100	NA	NA	NA	NA	<20 U	NA	NA	106000	NA	NA	NA	39700	NA	NA	1180000	NA	NA	NA
0238A006	IR14MW09A	09/17/2002	0	A	NA	NA	NA	NA	NA	NA	103,000	NA	NA	NA	NA	<36 U1	NA	NA	164000	<0.1 U	NA	19.4 J	51500	NA	NA	1520000	NA	NA	NA
9147X285	IR14MW10A	11/22/1991	0	A	<76.5 U	<138 U	<1.4 U	122	<1.8 U	<11.6 U	462,000	<14.8 U	<0.01 U	<52 U	<7.8 U	343	<20 U	4530	785000	<0.2 U	21.4	<89 U	163000	<50 U	<24.6 U	5230000	<20 U	29.6	<30.4 U
9147X286	IR14MW10A	11/22/1991	0	A	<76.5 U	<138 U	1.5	125	<1.8 U	12.6	467,000	<14.8 U	<0.01 U	<52 U	<7.8 U	329	<20 U	4520	796000	<0.2 U	20.6	<89 U	164000	<50 U	<24.6 U	5130000	<20 U	29.2	<30.4 U
9209X562	IR14MW10A	02/26/1992	0	A	<20 U	43.6	<2.1 U1	58.6	<0.9 U	<2.8 U	203,000	<2.7 U	<0.01 U	<7.9 U	<7.5 U1	76.2	<1.9 U1	1650	328000	0.26	<9.3 U1	<28.8 U	87900	<2.5 U	<1.7 U	2610000	<1.8 UJ3	<3.7 U1	<1.9 U
9238X752	IR14MW10A	09/15/1992	0	A	<26.6 U	29.17	<31 U	159.78	<0.5 U	<1.7 U	486,320	<2.7 U	<0.01 U	<3 U	<2.2 U	275.48	18.02	3815.19	742982	<0.1 U	<5.4 U	<4.8 U	193839	<13 U	<3.1 U	4964460	<33 U	<3.1 U	6.29
9238X753	IR14MW10A	09/15/1992	0	A	<26.6 U	<26.3 U	<31 U	180.57	<0.5 U	<1.7 U	500,583	<2.7 U	<0.01 U	<3 U	2.69	198.32	<13 U	3764.62	720669	<0.1 U	<5.4 U	<4.8 U	179946	<13 U	<3.1 U	4384097	<33 U	4.51	15.15
0109T018	IR14MW10A	03/08/2001	0	A	NA	<3.9 U1	<2.5 U	377	NA	<0.3 U	NA	NA	NA	NA	NA	NA	<1.6 U	NA	NA	NA	NA	3.2 J	NA	NA	NA	NA	NA	NA	NA
0229D002	IR14MW10A	07/15/2002	0	A	NA	2.74	<02 UJ3	66.7	NA	<0.7 U1	NA	NA	NA	NA	NA	NA	0.19	NA	NA	NA	NA	<0.9 U	NA	NA	NA	NA	NA	NA	NA
0238E013	IR14MW10A	09/18/2002	0	A	NA	0.26 J	<1 U	97.9	NA	<0.5 U	NA	NA	NA	NA	NA	NA	0.26	NA	NA	NA	NA	4.8 J	NA	NA	NA	NA	NA	NA	NA
0831E059	IR14MW10A	07/29/2008	0	A	56.8 J	<5 U	5.4	88.5	<0.2 U	<0.049 U	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	<5110 U	NA	NA	<5.3 U	NA	3.9 J	6.5	NA	<5 U	NA	<50 U
0912H040	IR14MW10A	03/20/2009	0	A	42.6 J	<5 U	<5 U	51.7	<0.2 U	<0.13 U	NA	<5 U	NA	<5 U	2.5 J	NA	<5 U	NA	492 J	NA	NA	<5 U	NA	<5 U	<1 U	NA	<5 U	NA	<50 U
9147X272	IR14MW12A	11/20/1991	0	A	65.8	<55.2 U	<1.4 U	119	<0.7 U	14.1	248,000	<5.9 U	<0.01 U	<20.8 U	<3.1 U	54.8	<2 U	563	339000	<0.2 U	<6.2 U	102	87200	<2.5 UJ3	<9.8 U	2500000	<2 U	15.4	<12.2 U
9209X561	IR14MW12A	02/26/1992	0	A	<20 U	<26.3 U	<2 U1	38	<0.9 U	<2.8 U	105,000	9.2	<0.01 U	<7.9 U	<6.4 U12	<5.6 U	3.2	331	189000	<0.2 U	<6.7 U1	<28.8 U	56100	<2.5 U	<1.7 U	1580000	<1.8 UJ3	<5.3 U1	<1.9 U
9238X763	IR14MW12A	09/16/1992	0	A	<26.6 U	<26.3 U	<31 U	159.46 J9	<0.5 U	<1.7 UJ9	361,693 J4	<2.7 UJ9	<0.01 U	<3 U	<2.2 U	<6.1 U	<1.3 U	878.18 J4	674513 J4	<0.1 U	<5.4 U	<4.8 UJ9	177686 J4	<13 UR2	<3.1 UJ9	4856190	<33 UR2	<3.07 U1	<1.4 U
0109P013	IR14MW12A	03/09/2001	0	A	NA	<2.4 U	<2.5 U	NA	NA	<0.3 U	NA	NA	NA	NA	<3.2 U1	48.5 J	NA	NA	NA	NA	NA	<1.3 U	93300	NA	NA	2090000	NA	NA	NA
0230D010	IR14MW12A	07/24/2002	0	A	NA	NA	NA	NA	NA	2.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0238S009	IR14MW12A	09/19/2002	0	A	NA	NA	NA	NA	NA	0.75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 J	NA	NA	NA	NA	NA	NA	NA
9234X696	IR14MW13A	08/19/1992	0	A	<21.6 U	<31.1 U	4	3010	<0.5 U	<2.7 U	144,000	<2.5 U	<0.01 U	<8.8 U	<1.8 U	<21.6 U1	<1.6 U	1100	159000	<0.2 U	7.8	<17.3 U	15300	<2.9 U	<1.5 U	447000	<1.6 U	2.4	<16.5 U
9239A457	IR14MW13A	09/23/1992	0	A	<26.6 U	<26.3 U	<3.1 UJ3	3918.4	<0.5 U	<1.7 U	159,847	9.66	<0.01 UJ3	5.42	<2.2 U	343.18	<1.3 U	1403.55	190533	<0.1 U	7.47	7.61	15930.3	<13 UJ3	<3.1 U	445809	<33 UR2	<3.1 U	<1.4 U
9239A458	IR14MW13A	09/23/1992	0	A	<26.6 U	<26.3 U	<3.1 UJ3	3814.47	<0.5 U	<1.7 U	157,820	<2.7 U	<0.01 U	3.5	<2.2 U	137.28	2.46	1374.22	186049	<0.1 U	<5.4 U	<4.8 U	15119.7	<13 UJ3	<3.1 U	438517	<33 UR2	<3.1 U	<1.4 U
9614Z021	IR14MW13A	04/02/1996	0	A	<65.1 U1	<1.2 U	<1.3 U	453	<0.1 U	<0.3 U	141,000	<0.7 U	<0.01 U	<0.5 U	1	96.9	<1 U	1510	151000	<0.1 U	<0.7 U	<0.9 U	13900	<2.2 U	<0.7 U	443000	<1.7 U	1	5.4

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9619 J102	IR14MW13A	05/09/1996	0	A	27.5	<1.2 U	<1.3 U	931	<0.1 U	<0.3 U	111,000	<0.7 U	<0.01 UJ3	<0.5 U	<1.2 U1	132	<1 U	1070	115000	<0.1 U	<0.7 U	<0.9 U	23600	<2.2 U	<0.7 U	444000	<1.7 U	1.7	35.8 J2
9147X276	IR15MW06A	11/20/1991	0	A	<28.1 U1	<27.6 UJ3	<1.4 UJ3	47.1	<0.35 U	<2.3 U	120,000	<3 UJ9	<0.01 U	<10.4 U	<7.9 U1	<20.6 U2	<2 UJ3	395	116000	<0.2 U	<8.8 U1	<17.8 U	41100	<2.5 U	<4.9 UJ9	1090000	<2 UJ3	18.1 J9	<6.1 U
9209X564	IR15MW06A	02/27/1992	0	A	<23.1 U1	<26.3 U	2.2 J3	36.7	<0.9 U	<2.8 U	127,000	<2.7 U	<0.01 U	<7.9 U	<16 U2	<5.6 U	<1.3 U2	380	116000	<0.2 UJ3	8.4	<28.8 U	36400	2.9	2.3	908000	18 J3	<5.4 U1	<1.9 U
9238X749	IR15MW06A	09/14/1992	0	A	31.93	<26.3 U	<31 U	80.19	<0.5 U	<1.7 U	297,595	<2.7 U	<0.01 U	3.15	4.98	<6.1 U	<13 U	1101.94	341360	<0.1 U	<5.4 U	8.66	104472	<13 U	<3.1 U	2905016	<16.5 U	5.8	4.67
9238X750	IR15MW06A	09/14/1992	0	A	<26.6 U	<26.3 U	<31 U	84.79	<0.5 U	<1.7 U	273,878	<2.7 U	<0.01 U	<3 U	<2.2 U	<6.1 U	127.03 J6	1147.02	347833	<0.1 U	<5.4 U	<4.8 U	111642	17.35	<3.1 U	2734898	<33 U	3.7	1.59
0109T011	IR15MW06A	03/07/2001	0	A	NA	NA	NA	NA	NA	NA	33,100	NA	NA	NA	NA	178	<1.6 U	NA	59700	NA	NA	NA	55500 J4	NA	NA	1260000 J4	<1.9 U	NA	NA
0109T012	IR15MW06A	03/07/2001	0	A	NA	NA	NA	NA	NA	NA	33,500	NA	NA	NA	NA	185	NA	NA	60200	NA	NA	NA	53800 J4	NA	NA	1200000 J4	NA	NA	NA
0233E007	IR15MW06A	08/13/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.04 U1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.008 UJ2	NA	NA
0238A008	IR15MW06A	09/17/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.07 U1	NA	NA
9147X273	IR15MW07A	11/20/1991	0	A	<30.6 U2	<27.6 UJ3	<1.4 UJ3	94.2	1.2	<2.3 U	204,000	<3 UJ9	<0.01 U	<10.4 U	<3.2 U1	<30.8 U1	<2 UJ3	815	213000	<0.2 U	<11.4 U1	<17.8 U	61600	<2.5 U	7.5 J9	1430000	<2 UJ3	15 J9	<6.1 U
9147X274	IR15MW07A	11/20/1991	0	A	<39.5 U2	<27.6 U	<1.4 U	102	0.6	<2.3 U	207,000	<3 U	<0.01 U	<10.4 U	<1.6 U	<28 U2	<2 U	855	212000	<0.2 U	11.4	<17.8 U	61900	<12.5 U	6.3	1430000	<2 U	11.9	<6.1 U
9209X565	IR15MW07A	02/27/1992	0	A	<20 U	30.6	2.2 J3	29.6	<0.9 U	<2.8 U	67,300	<2.7 U	<0.01 U	<7.9 U	<12.4 U1	<5.6 U	<1.5 U2	204	72300	<0.2 UJ3	5.9	<28.8 U	30600	<2.5 U	<1.7 U	685000	<1.8 UJ3	<4.7 U1	<1.9 U
9209X566	IR15MW07A	02/27/1992	0	A	<20 U	<26.3 U	<1.7 UJ3	27.7	<0.9 U	<2.8 U	65,300	<2.7 U	<0.01 U	<7.9 U	<9.2 U1	<5.6 U	<1.4 U2	156	67500	<0.2 UJ3	7.6	<28.8 U	27300	<2.5 U	<1.7 U	626000	<1.8 UJ3	<3.4 U1	<1.9 U
9238X762	IR15MW07A	09/16/1992	0	A	<26.6 U	<26.3 U	<31 U	140.55	<0.5 U	<1.7 U	257,203	<2.7 U	<0.01 U	<3 U	<2.2 U	121.59	35.51 J2	1189.01	282711	<0.1 U	<5.4 U	<4.8 U	87144.9	<13 UR2	<3.1 U	1744244	<33 UR2	<3.1 U	<1.49 U1
0110T021	IR15MW07A	03/16/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.6 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA	NA
0227E007	IR15MW07A	07/02/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.16 U2	NA	NA	NA	NA	NA	NA	NA	<0.01 U	NA	NA	NA	NA
0236 J003	IR15MW07A	09/06/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U2	NA	NA	NA	NA	NA	NA	NA	0.14	NA	NA	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	<21.6 U	<31.1 U	5.3	233	<0.5 U	<2.7 U	93,600	<2.5 U	<0.01 U	<8.8 U	3.5	<72.6 U1	<1.6 U	315	86600	<0.2 U	<20.3 U1	<17.3 U	40600	<2.9 U	<1.5 U	1110000	<8 UJ3	8.7	<16.5 U
9233X676	IR15MW08A	08/13/1992	0	A	<21.6 U	<31.1 U	3.9	237	<0.5 U	<2.7 U	92,800	<2.5 U	<0.01 U	<8.8 U	3.2	<19.9 U1	<1.6 U	299	87400	<0.2 U	<21.6 U1	<17.3 U	40100	<2.9 U	<1.5 U	1120000	<1.6 UJ3	8.4	<16.5 U
9239X792	IR15MW08A	09/24/1992	0	A	<26.6 U	<26.3 U	34.61 J3	278.86	<0.5 U	<1.7 U	97,951.70	<2.7 U	<0.01 U	<3 U	<2.2 U	449.64	2.47	508.43	91410	<0.1 U	6.74	<4.8 U	38835.7	<13 UJ3	<3.1 U	839179	<33 UR2	7.75	<1.4 U
9613W201	IR15MW08A	03/28/1996	0	A	<58.3 U1	<1.6 U	<1.4 U	96.6	<0.11 U1	<0.2 U	120,000	<0.4 U	<0.01 U	<0.48 U1	<1.8 U1	302	<0.8 U	241	73900	<0.1 U	<1.2 U1	2.6	25800	<2.3 U	<0.5 U	400000	<1.9 U	<2.1 U1	<10.8 U1
9613W202	IR15MW08A	03/28/1996	0	A	<69.1 U1	<1.6 U	<1.4 U	98.8	<0.11 U1	<0.2 U	120,000	<0.4 U	<0.01 U	<0.69 U1	<1.3 U1	271	<0.8 U	246	74300	<0.1 U	<1.4 U1	2.5	25800	2.6	<0.5 U	403000	<1.9 U	<2.1 U1	<5.6 U1
0109P005	IR15MW08A	03/08/2001	0	A	NA	NA	NA	NA	NA	NA	141,000	NA	NA	NA	NA	<116 U1	NA	NA	76100	NA	NA	NA	24200	NA	NA	302000 J4	NA	NA	NA
0231E012	IR15MW08A	08/01/2002	0	A	NA	NA	NA	81.7	NA	NA	124,000	NA	NA	NA	NA	54.1 J4	NA	NA	87500	NA	NA	NA	31700	NA	NA	563000	NA	NA	NA
0237 J019	IR15MW08A	09/12/2002	0	A	NA	NA	NA	176	NA	NA	111,000	NA	NA	NA	NA	45.5	NA	NA	80,400	NA	NA	NA	30200	NA	NA	569000	NA	NA	NA
0237 J020	IR15MW08A	09/12/2002	0	A	NA	NA	NA	NA	NA	NA	111,000	NA	NA	NA	NA	53	NA	NA	80,300	NA	NA	NA	30100	NA	NA	564000	NA	NA	NA
9233X679	IR15MW09F	08/14/1992	0	F	<21.6 U	<31.1 U	7.8	21.4	<0.5 U	<2.7 U	21,500	<2.5 U	<0.01 U	<8.8 U	8.3	<103 U1	<1.6 U	149	19,400	<0.2 U	<28.2 U1	26.4	21400	<2.9 U	<1.5 U	984000	<1.6 UJ3	12.1	<16.5 U
9239X785	IR15MW09F	09/22/1992	0	F	<26.6 U	<26.3 U	<18.25 U1 J	17.3	<0.5 U	<1.7 U	22,800.20	3	<0.01 U	<3 U	7.5	<6.1 U	<6.5 U	69.32	13775.7	<0.1 U	47.59	10.47	20748.1	<13 UJ3	<3.1 U	782296	<16.5 UR2	20.82	<3.5 U1
9613W195	IR15MW09F	03/27/1996	0	F	<79.8 U1	<1.6 U	12.9	11.5	<0.1 U	<0.2 U	6,390	<0.4 U	<0.01 U	<1.1 U1	11.2	<11 U	<0.8 U	27.7	7770	<0.1 U	52.4	8.9	15200	<2.3 U	<0.5 U	614000	<1.9 U	14.2	<17.8 U1
9233X678	IR15MW10F	08/14/1992	0	F	<21.6 U	<31.1 U	4.3	29.6	<0.5 U	<2.7 U	33,600	<2.5 U	<0.01 U	<8.8 U	4.1	<13.2 U1	<1.6 U	71.1	76700	<0.2 U	66.8	<17.3 U	76700	<2.9 U	<1.5 U	2380000	<1.6 UJ3	11.9	<16.5 U
9239X786	IR15MW10F	09/22/1992	0	F	<26.6 U	<26.3 U	67.6 J3	34.6	<0.5 U	<1.7 U	34,052.90	<2.7 U	<0.01 U	<3 U	2.59	<6.1 U	7.12	151.82	88317.6	<0.1 U	59.11	<4.8 U	84717	13.89 J3	<3.1 U	2496226	<33 UR2	8.01	<1.4 U
9613W198	IR15MW10F	03/27/1996	0	F	<32.1 U1	<1.6 U	3.7	28.6	<0.1 U	<0.2 U	25,800	<0.4 U	<0.01 U	<0.86 U1	<2.2 U1	<11 U	<0.8 U	59.8	80300	<0.1 U	48.9	3.5	72200	<2.3 U	<0.5 U	2150000	<1.9 U	8.6	<11 U1
0109D013Z	IR15MW10F	03/09/2001	0	F	NA	<3.6 U1	<6.5 U1	NA	NA	<0.3 U	NA	NA	NA	NA	<1.7 U1	543	NA	NA	NA	NA	NA	4.3 J	112000	NA	NA	<194 U	NA	NA	NA
0228P007	IR15MW10F	07/09/2002	0	F	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237E015	IR15MW10F	09/12/2002	0	F	NA	NA	3.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X199	IR17MW11A	08/29/1991	0	A	<25.7 U	<14.3 U	24.5	34	<0.24 U	<3.4 U	69,100	<2.1 U	<0.01 U	<5 U1	<3.2 U1	<69.1 U1	<1.2 U	628	102000	<0.2 U	<8.1 U1	<15.2 U	60900	<2.9 U	<1.7 U	965000	<15 U	<4.1 U1	<2.6 U1
9209X570	IR17MW11A	02/28/1992	0	A	<20 U	<26.3 U	30.8 J3	18	<0.9 U	<2.8 U	45,100	<2.7 U	<0.01 U	<7.9 U	<3.5 U1	<10.7 U1	<1.4 U2	359	63400	<0.2 UJ3	5.9	<28.8 U	44200	<2.5 U	<1.7 U	629000	<1.8 UJ3	<8.6 U1	<1.9 U
9238X760	IR17MW11A	09/16/1992	0	A	<26.6 U	<26.3 U	<31 U	45.27	<0.5 U	<1.7 U	90,199.20	<2.7 U	<0.01 U	<3 U	<2.2 U	447.94	<1.3 U	807.02	142617	<0.1 U	<5.4 U	<4.8 U	70997.2	<13 UR2	<3.1 U	1186170	<33 UR2	<3.1 U	<1.4 U
9238X761	IR17MW11A	09/16/1992	0	A	<26.6 U	<26.3 U	25.35 J3	27.22	<0.5 U	<1.7 U	58,212.20	<2.7 U	<0.01 U	<3 U	<2.2 U	<26.64 U1	<1.3 U	484.93	87850.8	<0.1 U	<5.4 U	<4.8 U	56334.9	<1.3 UR2	<3.1 U	766505	<33 UR2	<3.99 U1	<1.4 U
9603 J803	IR17MW11A	01/16/1996	0	A	<28.5 U2	<1.6 U	25.2	15.4	<0.1 U	<0.2 U	45,100	<0.4 U	NA	<0.54 U1	<5 U2	<77.6 U1	<0.8 U	242	51600	<0.1 U	3.6	<0.7 U	71800	<2.3 U	<0.5 U	588000	<1.9 U	<1.5 U2	<11.1 U2
9134X198	IR17MW12A	08/29/1991	0	A	<25.7 U	<14.3 U	6.8	25.9	<0.24 U	<3.4 U	121,000	<2.1 U	<0.01 U	<4.9 U	1.6	<11.9 U	<1.2 U	490	71700	<0.2 U	<4.6 U1	<15.2 U	47900	<2.9 U	<1.7 U	545000	<15 UJ3	<7.2 U1	<9.6 U1
9209X568	IR17MW12A	02/27/1992	0	A	<20 U	<26.3 U	7.8 J3	31.9	<0.9 U	<2.8 U	129,000	<2.7 U	<0.01 U	<7.9 U	<2.5 U1	<5.6 U	<0.8 U	558	75300	<0.2 UJ3	<4.4 U	<28.8 U	46200	<2.5 U	<1.7 U	546000	<1.8 UJ3	<2.8 U1	<1.9 U
9238X770	IR17MW12A	09/17/1992	0	A	<26.6 U	<26.3 U	5.83 J3	35.82	<0.5 U	<1.7 U	108,108	<2.7 U	<0.01 U	<3 U	<2.2 U	<6.1 U	<2.45 U1	563.89	75792.7	<0.12 U1 J9	<5.4 U	<4.8 U	48982.6	<1.3 UR2	<3.1 U	483650	<33 UR2	<3.1 U	<1.4 U
9134X196	IR17MW13A	08/29/1991	0	A	<25.7 U	<14.3 U	18.2	33.7	<0.24 U	<3.4 U	112,000	<2.1 U	<0.01 U	<4.9 U	<1.3 U	92.1 J6	<1.2 U	1020	183000	<0.2 U	<6.1 U1	<15.2 U	74700	<2.9 U	<1.7 U	1470000	<1.5 UJ3	<9.8 U1	<12.9 U1
9134X197	IR17MW13A	08/29/1991	0	A	<25.7 U	<14.3 U	22.4	29.5	<0.24 U	<3.4 U	104,000	<2.1 U	<0.01 U	<4.9 U	<1.3 U	<37.8 U1 J6	<1.2 U	901	167000	<0.2 U	<6.9 U1	<15.2 U	71600	<2.9 U	<1.7 U	1370000	<15 UJ3	<8.2 U1	13.6
9209X571	IR17MW13A	02/28/1992	0	A	<20 U	<26.3 U	32.5 J3	53.5	<0.9 U	<2.8 U	142,000	<2.7 U	<0.01 U	<7.9 U	<1.8 U1	310	<0.8 U	1520	257000	<0.2 UJ3	8.4	<28.8 U	83000	<2.5 U	<1.7 U	1970000	<1.8 UJ3	<5.7 U1	<1.9 U
9209X572	IR17MW13A	02/28/1992	0	A	<20 U	28	25.1 J3	42.8	<0.9 U	<2.8 U	119,000	<2.7 U	<0.01 U	<7.9 U	<3.2 U1	172	<0.8 U	1230	209000	<0.2 UJ3	6.8	<28.8 U	71500	<2.5 U	2.3	1590000	<1.8 UJ3	<9 U1	<1.9 U
9238X771	IR17MW13A	09/17/1992	0	A	<43.68 U1	<26.3 U	<31 U	45.85	<0.5 U	<1.7 U	105,911	<2.7 U	<0.01 U	<3 U	<2.2 U	435.81	<7.1 U1	1096.1	198201	<0.13 U1 J9	<5.4 U	<4.8 U	78950.7	<13 UR2	<3.1 U	1341405	<33 UR2	<5.75 U1	<1.4 U
9428E065	IR36MW09A	07/13/1994	0	A	<35.3 U	<1.2 U	2.27	70.98 J3	<0.19 U1	<0.27 U1	64516.8	<0.7 U	NA	0.9	<1.7 U	<18.8 U	<1 U	498.76	162497	<0.1 U	8.26	9.72	62109.1	<2.3 U	<0.6 U	1217068	<2 U	<1.1 U	<3.1 U
9604W039	IR36MW09A	01/25/1996	0	A	22.9 J	<1.6 U	3.3 J	72.8 J	<0.1 U	<0.2 U	57,400	<0.4 U	NA	<1.6 U1	<1.8 U1	<50.4 U1	<0.8 U	427	151000	<0.1 U	7.8	<6.2 U1	36400	<2.7 U1	<0.5 U	1200000	4 J2	2.1 J	<13.2 U1
9611 J932	IR36MW09A	03/15/1996	0	A	<40.5 U1	<1.6 U	4.4	81.1	<0.1 U	<0.2 U	57,200	<0.4 U	NA	<1.2 U1	<0.91 U1	14.1	<0.8 U	442	150000	<0.1 U	8.5	8.7	24100	3.3	<0.5 U	881000	<1.9 U	<1.5 U1	<13 U2
9437X471	IR36MW11A	09/12/1994	0	A	<35.3 U	<6.75 U1	1.46	<48.17 U1	<0.1 U	<0.2 U	76,165.70	<0.7 U	NA	2.18	<2.38 U1	<18.8 U	<1 U	129.91	324637	<0.1 U	<8.47 U1	<22.08 U1	29498.6	2.63	<0.6 U	645142	<2 U	1.09	<9.95 U1
9437X472	IR36MW11A	09/12/1994	0	A	<35.3 U	<2.4 U1	<1.5 U	<49.3 U1	<0.1 U	<0.2 U	73,875.30	<0.7 U	NA	2	<1.7 U	<18.8 U	<1 U	122.81	315055	<0.1 U	<8.47 U1	<21.33 U1	26628.5	<2.3 U	<0.74 U1	635907	<2 U	1.21	<7.44 U1
9603W012	IR36MW11A	01/18/1996	0	A	<22.6 U2	<1.6 U	<1.4 U	121	<0.1 U	<0.2 U	93,600	<0.4 U	NA	<1.8 U1	<2.5 U2	<11 U	<0.8 U	151	348000	<0.1 U	7	21.5	7,860	2.3	<0.5 U	509000	<1.9 U	<1 U2	<8.6 U2
9608 J883	IR36MW11A	02/21/1996	0	A	<32.2 U1	<1.6 U	<1.4 U	119	<0.1 U	<0.2 U	92,500	<0.4 U	NA	1.5	<1.2 U1	<11 U	<0.8 U	108	333000	<0.15 U1	7	15.8	7,330	<2.3 U	<0.5 U	493000	<1.9 U	<1.9 U1	<17.7 U1
9611 J923	IR36MW120B	03/13/1996	0	B	<53.9 U1	<1.6 U	<1.4 U	43.2	<0.1 U	<0.2 U	42,100	<0.4 U	NA	<1.7 U1	<0.52 U1	17.5	<0.8 U	918	124000	<0.1 U	<0.6 U	<3.4 U1	5,090	<2.3 U	<0.5 U	183000	<1.9 U	3.5	<6.6 U1
9617 J043	IR36MW120B	04/23/1996	0	B	<37.7 U1	<1.2 U	<1.3 U	45.2	<0.1 U	<0.3 U	40,800	<0.7 U	NA	1.8	<0.8 U	<31 U1	<1 U	945	129000	<0.1 U	<0.7 U	4.4	4,650	<2.2 U	<0.7 U	193000 J4	<2.1 U1	4	25.9
9623 J174	IR36MW120B	06/04/1996	0	B	<44.5 U1	<2 U1	<1.3 U	51.5 J4	<0.1 U	<0.3 U	42,600	<0.7 U	NA	0.91	<0.8 U	<12.4 U	<1 UJ3	956 J4	130000	<0.1 U	<0.7 U	<2.2 U1	4,690	<2.3 U1	<0.7 U	200000	<1.7 UJ3	3.4	<8.2 U1
9611 J924	IR36MW121A	03/13/1996	0	A	<23.6 U1	<1.6 U	<1.4 U	103	<0.1 U	<0.2 U	336,000	<0.4 U	NA	<0.8 U1	<0.5 U	194	<0.8 U	734	462000	<0.1 U	<2.4 U1	<1.7 U1	139,000	<2.3 U	<0.5 U	3450000	<1.9 U	<0.68 U1	<9.4 U1
9617 J044	IR36MW121A	04/24/1996	0	A	<20.4 U	<1.2 U	<1.3 U	88.9	<0.1 U	<0.3 U	312,000	<0.7 U	NA	0.76 J9	<0.8 UJ9	177	<1 UJ9	715	527000	<0.1 U	1.7 J9	2.5 J9	155,000	<2.2 UJ9	<0.7 U	4000000 J4	<1.7 UJ9	0.84 J9	23 J9
9623 J175	IR36MW121A	06/04/1996	0	A	<27 U1	<1.2 U	<1.8 U1	86.4 J4	<0.1 U	<0.3 U	272,000	<0.7 U	NA	<0.5 U	<4 U1	<133 U1	<1 UJ3	624 J4	457000	<0.1 U	<2.8 U1	<1.5 U1	136,000	<3.8 U1	<0.7 U	3450000	<1.7 UJ3	0.74	<4.9 U1
9623 J176	IR36MW121A	06/04/1996	0	A	<22.8 U1	<1.2 U	<1.3 U	87 J4	<0.1 U	<0.3 U	278,000	<0.7 U	NA	<0.5 U	<0.8 U	<98.2 U1	<1 UJ3	633 J4	466000	<0.1 U	<2.8 U1	<0.9 U	138,000	<3.7 U1	<0.7 U	3450000	<1.7 UJ3	<0.7 U	<8.9 U1

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9611W157	IR36MW122A	03/13/1996	0	A	<19.1 U	<1.6 U	5.7	64.2	<0.1 U	<0.2 U	396,000	<0.4 U	NA	<2.7 U1	<0.5 U	96.3	<0.8 U	1790	661000	<0.1 U	4.7	4.6	126,000	<2.3 U	0.98	4290000	<1.9 U	<1.5 U1	<10.2 U1
9617 J055	IR36MW122A	04/25/1996	0	A	<20.4 U	<1.2 U	4.6	56.9	<0.1 U	<0.3 U	374,000	<0.7 U	NA	2.7	<0.8 U	143	<1 U	1930	752000	<0.1 U	4.1	4.9	152000	2.5	<0.7 U	5120000 J4	<1.7 U	<0.7 U	29.4
9623 J172	IR36MW122A	06/03/1996	0	A	<20.4 U	<1.2 U	<2.2 U1	54 J4	<0.1 U	<0.3 U	363,000	<0.7 U	NA	1.4	<3.5 U1	<99.8 U1	<1 UJ3	1790 J4	728000	<0.1 U	<3.5 U1	<2.7 U1	139000	<2.2 U	<0.7 U	4920000	<1.7 UJ3	<0.7 U	<4.8 U1
9611W156	IR36MW123B	03/13/1996	0	B	<48 U1	<1.6 U	<1.4 U	98.9	<0.1 U	<0.2 U	89,700	13.1	NA	<0.79 U1	<0.5 U	30.1	<0.8 U	215	166000	<0.1 U	<0.6 U	<1.5 U1	6380	<2.3 U	0.68	111000	<1.9 U	3	<8.2 U1
9618 J065	IR36MW123B	04/30/1996	0	B	<46.5 U1	<1.5 U1	1.4	92.1	<0.1 U	<0.3 U	86,600	18.2	NA	<0.5 U	<0.8 U	39.9	<1 U	97.6	180000	<0.1 U	<0.7 U	1.6	4880	2.7	<0.7 U	117000	<1.7 U	<2.4 U1	20.4
9623 J171	IR36MW123B	06/03/1996	0	B	<44.2 U1	<1.2 U	<1.3 U	95.3 J4	<0.1 U	<0.3 U	90,900	17	NA	<0.5 U	8.2	<19.4 U1	<1 UJ3	170 J4	173000	<0.1 U	<0.9 U1	<1.3 U1	5230	<4.9 U1	<0.7 U	109000	<1.7 UJ3	2.2	<5 U1
9604W034	IR36MW125A	01/25/1996	0	A	35.4 J5	2 J5	6.4 J5	12.2 J5	<0.1 UJ5	<0.2 UJ5	12,900 J5	6 J5	NA	<0.83 U1 J5	<2.5 U1 J5	<26 U1 J5	<0.8 UJ5	<1.3 U1 J5	13100 J5	<0.1 UJ5	6.3 J5	<1.1 U1 J5	11500 J5	<2.6 U1 J5	<0.5 UJ5	318000 J5	<1.9 UJ5	15.8 J5	<12.4 U1 J5
9611W165	IR36MW125A	03/15/1996	0	A	<60 U1	<1.6 U	7.8	14.3	<0.1 U	<0.2 U	13,200	11	NA	<0.4 U	<2.8 U1	11.1	<0.8 U	1.5	14000	<0.1 U	9.5	<1.5 U1	12100	6.1	<0.5 U	323000	<1.9 U	16.1	<14.3 U2
9617 J057	IR36MW125A	04/26/1996	0	A	209	<3.2 U1	7.2	17	<0.1 U	<0.3 U	13,600	7.6	NA	0.66	<1.4 U1	291	<1 U	14.8	14500	<0.1 U	9.5	3.6	13100	5.5	<0.7 U	356000 J4	<1.7 U	16.9	23.3
9604W033	IR36MW126A	01/25/1996	0	A	63	<1.6 U	3.4	10.7	<0.1 U	<0.2 U	10,300	4.4	NA	<0.88 U1	4.6	<60.5 U1	<0.8 U	5	8830	<0.1 U	4.1	<2.1 U1	3530	<2.9 U1	<0.5 U	77200	<1.9 U	2.7	<12.9 U1
9611 J931	IR36MW126A	03/15/1996	0	A	<139 U1	1.6	9.7	22.2	<0.1 U	<0.2 U	10,600	<2.8 U1	NA	<0.5 U1	<3.1 U1	90.6	<0.8 U	5.7	14000	<0.1 U	11	4.4	5940	2.4	<0.5 U	116000	<1.9 U	4.8	<8 U2
9619 J096	IR36MW126A	05/08/1996	0	A	35.1	2.7	<9.8 U1	51.4	<0.1 U	<0.3 U	15,200	1.1	NA	0.51	<2.8 U1	<24.8 U1	<1 U	<11.6 U1	19800	<0.1 U	25.6	7.8	16200	<2.2 U	<0.7 U	259000	<1.7 U	4.7	25.9 J2
9604W037	IR36MW127A	01/25/1996	0	A	<94 U	<8 U	<7 U	317	<0.5 U	<1 U	99,800	<2 U	NA	<6.7 U1	<5.2 U1	<55 U	<4 U	1230	364000	<0.1 U	<15.5 U1	49	64100	<11.5 U	<2.5 U	2420000	11.8 J2	2.5	<36.3 U1
9611 J930	IR36MW127A	03/15/1996	0	A	<39.7 U1	<1.6 U	3.5	229	<0.1 U	<0.2 U	119,000	<0.4 U	NA	<2.5 U1	<0.56 U1	<11 U	<0.8 U	813	338000	<0.1 U	14	37.3	40500	<2.3 U	<0.5 U	1670000	<1.9 U	2.8	<11 U2
9618 J062	IR36MW127A	04/29/1996	0	A	<37.9 U1	<1.6 U1 J9	1.8 J9	317	<0.1 U	<0.3 UJ9	112,000	<0.7 U	NA	3 J9	<0.8 UJ9	47.3	<1 UJ9	1110	350000	<0.1 U	15	31.9 J9	50000	<2.2 UJ9	<0.7 U	2120000	<1.7 U	<3.6 U1	14.4 J9
9604W029	IR36MW128A	01/24/1996	0	A	<27.8 U1	<1.6 U	5.7	25.7	<0.1 U	<0.2 U	89,400	<1.3 U1	NA	<1.4 U1	<7.3 U2	<16.8 U1	<0.8 U	157	192000	<0.1 U	14.8	<5.2 U1	17100	5.9	<0.5 U	613000	<1.9 U	8.1	<10.8 U2
9611 J929	IR36MW128A	03/14/1996	0	A	<45.5 U1	<1.6 U	7.4	27.4	<0.1 U	<0.2 U	70,200	<3 U1	NA	<1.6 U1	5.9	13.3	<0.8 U	312	185000	<0.1 U	15.4	7.1	14800	7	<0.5 U	519000	<1.9 U	9.6	<11.9 U2
9617 J037	IR36MW128A	04/22/1996	0	A	<43.1 U1	<1.2 U	7.7	20.8	<0.1 U	<0.3 U	48,400	3.7	NA	1.1	<3.8 U1	<71.8 U1	<1 U	177	124000	<0.1 U	18.2	5.2	12400	6.8	<0.7 U	478000 J4	<3.8 U1	10.5	58.9
9611 J927	IR36MW129B	03/14/1996	0	B	<48 U1	<1.6 U	2.8	109	<0.1 U	<0.2 U	53,100	<0.4 U	NA	<3.1 U1	<0.5 U	82.9	<0.8 U	2010	99000	<0.1 U	1.1	4.7	19200	<2.3 U	<0.5 U	193000	3	4.5	<21 U2
9611 J928	IR36MW129B	03/14/1996	0	B	<47.4 U1	<1.6 U	2.6	107	<0.1 U	<0.2 U	52,700	<0.4 U	NA	<2.5 U1	<0.5 U	51.2	<0.8 U	1990	98100	<0.1 U	1.1	4	20500	<2.3 U	<0.5 U	200000	4	4.3	<18.5 U2
9617 J041	IR36MW129B	04/23/1996	0	B	<38.1 U1	<1.2 U	1.6	109	<0.1 U	<0.3 U	51,600	<0.7 U	NA	2.5	<0.8 U	166	<1 U	2040	98700	<0.1 U	1.4	4.5	20400	<2.2 U	<0.7 U	223000 J4	<1.7 U	4.3	24.3
9617 J042	IR36MW129B	04/23/1996	0	B	<57.3 U1	<1.2 U	1.9	108	<0.1 U	<0.3 U	51,300	<0.7 U	NA	2.5	<0.8 U	171	<1 U	2030	96800	<0.1 U	0.94	4.7	20400	<2.2 U	<0.7 U	217000 J4	<2 U1	4	32.5
9622 J168	IR36MW129B	05/31/1996	0	B	<41.9 U1	<1.2 U	<1.5 U1	119	<0.1 U	<0.3 U	56,400	<0.7 U	NA	2.7	0.89	154	<1 U	2160	106000	<0.1 U	<0.95 U1	<4.3 U1	39900 J4	<2.2 U	<0.7 U	252000	<1.7 U	3.8	<10 U1
9437X473	IR36MW12A	09/12/1994	0	A	<35.3 U	<8.23 U1	<1.5 U	79.51	<0.1 U	<0.2 U	26,005.6 U	<0.7 U	NA	4.61	<1.7 U	<18.8 U	<1 U	225.45	302821	<0.1 U	17.05	<13.28 U1	27973.7	<2.3 U	<0.77 U1	570824	<2 U	<1.1 U	<3.1 U
9603W013	IR36MW12A	01/19/1996	0	A	<30.6 U2	<1.6 U	<1.4 U	90.5	<0.1 U	0.22	11,900	<0.4 U	NA	<0.92 U1	<3.1 U2	<19.8 U1	<0.8 U	134	342000	<0.1 U	1.8	<2.4 U1	8080	<2.3 U	<0.5 U	575000	<1.9 U	<0.4 U	<15.5 U2
9608 J889	IR36MW12A	02/23/1996	0	A	<30.9 U1	<1.6 U	<1.4 U	95.3	<0.1 U	<0.2 U	12,600	<0.4 U	NA	0.77	<0.5 U	<11 U	<0.8 U	156	345000	<0.1 U	<0.94 U1	<1.7 U1	8070	<2.3 U	<0.5 U	518000	<1.9 U	<0.57 U1	17.3
0109T010	IR36MW12A	03/07/2001	0	A	NA	NA	NA	NA	NA	NA	13,200	NA	NA	NA	NA	<96.4 U1	NA	NA	314000	NA	NA	NA	10700 J4	NA	NA	680000 J4	NA	NA	NA
0829G019	IR36MW12A	07/18/2008	0	A	<500 U	<25 U	<25 U	91.9 J	<0.2 U	<0.2 U	NA	9 J	NA	<25 U	<25 U	NA	<25 UJ	NA	135 J	NA	NA	<2.1 UJ	NA	<25 U	<5 U	NA	<25 UJ	NA	27.1 J
0911B031	IR36MW12A	03/13/2009	0	A	29.1 J	<5 U	<5 U	62.8	<0.2 U	0.04 J	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	NA	73.6 J	NA	NA	<5 U	NA	<5 U	<0.56 U	NA	<5 U	NA	<50 U
9602 J783	IR36MW135A	01/09/1996	0	A	<42.4 U2	<1.6 U	1.4	31.8	<0.1 U1	10.5	20,900	<0.4 U	NA	<0.4 U	<1.8 U1	<11 U	<0.8 UJ3	6.6	101000	<0.1 U	<0.98 U1	<6.4 U1	3120	2.3	<0.5 U	178000	<1.9 U	0.93	<24.1 U2
9607 J865	IR36MW135A	02/12/1996	0	A	<23.9 U2	<1.6 U	<1.4 U	83.8	<0.1 U	<0.2 U	28,600	<0.99 U2	NA	<0.61 U1	<1.7 U2	<11 U	<0.8 U	<7.5 U2	129000	<0.1 U	<1.2 U1	6.3	2330	<2.3 U	<0.5 U	307000	<1.9 U	<1.7 U2	<11.8 U2
9611W164	IR36MW135A	03/15/1996	0	A	<45 U1	<1.6 U	<1.4 U	67.9	<0.1 U	<0.2 U	24,700	<0.56 U1	NA	<0.72 U1	<1.9 U1	<11 U	<0.8 U	6	121000	<0.1 U	1.5	5.3	2350	<2.3 U	<0.5 U	239000	<1.9 U	<1.7 U1	<8.3 U2
0109T019	IR36MW135A	03/08/2001	0	A	NA	NA	NA	NA	NA	<0.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0230A002	IR36MW135A	07/22/2002	0	A	NA	NA	NA	NA	NA	0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0238 J006	IR36MW135A	09/17/2002	0	A	NA	NA	NA	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9604Z011	IR36MW139A	01/22/1996	0	A	<33.3 U1	<1.6 U	<1.4 U	41.2	<0.1 U	<0.2 U	19,600	<0.4 U	NA	<1.5 U1	<2.4 U2	<19.7 U1	<0.8 U	80.9	349000	<0.1 U	4.4	11.1	9540	<2.3 U	<0.5 U	572000	<1.9 U	1	<13 U2
9608 J888	IR36MW139A	02/23/1996	0	A	30.2	<1.6 U	<1.4 U	44.9	<0.1 U	<0.2 U	22,700	<0.4 U	NA	1.2	<1.2 U1	<11 U	<0.8 U	95.2	328000	<0.1 U	<4.1 U1	<9.2 U1	7480	<2.3 U	<0.5 U	494000	<1.9 U	<0.86 U1	16.7
9613W199	IR36MW139A	03/28/1996	0	A	<52.3 U1	<1.6 U	<1.4 U	44.4	<0.11 U1	<0.2 U	24,800	<0.4 U	NA	<1.2 U1	<0.5 U	<11 U	<0.8 U	106	308000	<0.1 U	<3.8 U1	7.8	6220	<2.3 U	<0.5 U	447000	<1.9 U	<0.43 U1	<6.3 U1
9444X560	IR36MW13A	11/03/1994	0	A	<14.4 U	<3.23 U2	<4.64 U2	223.5	<0.1 U	<0.2 U	69,265.8	<0.8 U	NA	1.72	<0.3 U	<50.25 U2	<0.6 U	647.31	170236	<0.1 U	16.49	7.27	179955 J4	<2.3 U	<0.4 U	2053873	2.83	1.66	<30.45 U2 J4
9444X561	IR36MW13A	11/03/1994	0	A	<14.4 U	<1.1 U	<3.23 U2	222.45	<0.1 U	<0.2 U	68,648.5	<0.8 U	NA	1.56	<0.3 U	<48.72 U2	<0.6 U	650.25	167145	<0.1 U	17.13	7.36	174950 J4	<2.3 U	<0.4 U	1950081	2.42	1.95	<39.34 U2 J4
9603W011	IR36MW13A	01/18/1996	0	A	<18.8 U	<1.6 U	<1.4 U	107	<0.1 U	<0.2 U	50,400	<0.4 U	NA	<0.86 U1	<0.92 U2	<78.7 U1	<0.8 U	261	94500	<0.1 U	0.65	<1.7 U1	59600	<2.3 U	<0.5 U	2450000	<1.9 U	<0.63 U2	<15.4 U2
9608 J886	IR36MW13A	02/22/1996	0	A	<38.7 U1	<1.6 U	<1.4 U	97.6	<0.1 U	<0.2 U	45,500	<0.4 U	NA	1.7	<2.1 U1	<84.3 U1	<0.8 U	482	120000	<0.1 U	<0.6 U	<3.3 U1	50900	<2.3 U	<0.5 U	1500000	<1.9 U	<1.6 U1	<20.6 U1
9443X538	IR36MW14A	10/25/1994	0	A	<96.94 U1	<5.97 U1	<1.7 U	93.47	<0.1 U	<0.2 U	64,255	<1.21 U1	NA	4.69	<3.4 U1	158.27	<0.6 U	468.3 J3	146641	<0.1 U	<4.9 U1	26.31	102665	<2.3 U	<0.4 U	1373449	2.05 J3	5.61	<42.92 U1 J4
9443X539	IR36MW14A	10/25/1994	0	A	<140.13 U1	6.83	<1.7 U	99.28	<0.1 U	<0.2 U	67,158.2	<1.98 U1	NA	5.4	<3.83 U1	250.82	<0.6 U	494.33 J3	153157	<0.1 U	<5.49 U1	29.66	107409	<2.3 U	<0.4 U	1459145	<2 UJ3	6.35	<25.9 U1 J4
9603W010	IR36MW14A	01/18/1996	0	A	<33.2 U2	<1.6 U	1.5	118	<0.1 U	<0.2 U	43,800	<1 U1	NA	4.7	<8.6 U2	<13.4 U1	<0.8 U	451	133000	<0.1 U	1.4	19.7	47500	<2.3 U	<0.5 U	1290000	<1.9 U	3.4	<15.3 U2
9608W116	IR36MW14A	02/22/1996	0	A	<37.5 U1	<1.6 U	<1.4 U	97	<0.1 U	<0.2 U	35,800	<0.4 U	NA	4.1	<1.1 U1	<11 U	<0.8 U	380	121000	<0.1 U	<0.6 U	14.9	39200	<2.3 U	<0.5 U	1140000	<1.9 U	<2.5 U1	<19.3 U1
0109P006	IR36MW14A	03/08/2001	0	A	NA	NA	NA	NA	NA	NA	37,200	NA	NA	NA	NA	<39.7 U1	NA	NA	109000	NA	NA	NA	44800	NA	NA	918000 J4	NA	NA	NA
0109P007	IR36MW14A	03/08/2001	0	A	NA	NA	NA	NA	NA	NA	38,400	NA	NA	NA	NA	<27 U1	NA	NA	110000	NA	NA	NA	45100	NA	NA	921000 J4	NA	NA	NA
9438X484	IR36MW15A	09/20/1994	0	A	<35.3 U	<3.24 U2	<2.87 U1	78.2	<0.1 U	<0.2 U	132,404	<0.7 U	NA	0.95	<1.7 U	<18.8 U	<1 U	512.38	283418	<0.1 U	<8.66 U1	<2.85 U1	234450	<2.3 U	<0.6 U	2587762	2.35	1.39	<7.86 U2
9438X485	IR36MW15A	09/20/1994	0	A	<35.3 U	<5.88 U2	<4.05 U1	69.31	<0.1 U	<0.2 U	195,853	<0.7 U	NA	0.78	<1.7 U	<30.39 U2	<1 U	743.17	408411	<0.1 U	<7.86 U1	<2.7 U1	367505	<2.3 U	<0.6 U	4144581	3.14	<1.1 U	<4.12 U2
9605W060	IR36MW15A	02/01/1996	0	A	<48.4 U1	2.5	3.7	48.9	<0.1 U	<0.2 U	16,400	<0.52 U1	NA	<0.4 U	6.8	18.6 J3	<0.8 U	33.3	38600	<0.1 U	<5 U1	2.1 J3	10900	3	<0.63 U1	286000	<1.9 U	5	<9.2 U1
9610 J903	IR36MW15A	03/04/1996	0	A	46.2	<1.6 U	5.8	130	<0.1 U	<0.2 U	41,800	<0.4 U	NA	0.83	1.7	12.4	<0.8 U	156	108000	<0.1 U	5.8	3	14600	<2.3 U	<0.5 U	456000	<1.9 U	2.7	9.7
9439X498	IR36MW16A	09/27/1994	0	A	<35.3 U	7.61	2.02	45.45	<0.11 U1	0.33	1,584,161	<0.7 U	NA	4.7	<1.7 U	<18.8 U	<1 U	12244.5	2100253	<0.1 U1	<1.46 U1	55.78	70466.7	<5.93 U1	<0.6 U	2768494	11.43	<1.1 U	<3.1 U
9439X499	IR36MW16A	09/27/1994	0	A	<35.3 U	<1.2 U	3.21	44.14	<0.1 U	0.44	1,364,678	<0.7 U	NA	4.02	<1.7 U	<18.8 U	<1 U	12468	1843920	<0.1 U1	<2.24 U1	55.13	70627.8	<6.03 U1	<0.6 U	2778119	11.91	<1.1 U	<3.1 U
9605W054	IR36MW16A	01/31/1996	0	A	<18 U	<1.6 U	<1.4 U	44	<0.1 U	<0.54 U1	523,000	<0.4 U	NA	2.6	<2.2 U2	<11 U	<0.8 U	13000	1620000	0.1 J3	<1.8 U1	56.3	18000	<2.3 U	<0.5 U	2290000	<1.9 U	<1.9 U1	<13.8 U2
9610 J906	IR36MW16A	03/05/1996	0	A	1160	<8 U	<7 U	71	<0.5 U	<1 U	1,410,000	<2 U	NA	5.7	<2.5 U	1420	<4 U	16800	1650000	<0.1 U	4.9	86.4	18200	<11.5 U	<2.5 U	2140000	<9.5 U	6.6	24.5
9610 J907	IR36MW16A	03/05/1996	0	A	<19.1 U	<1.6 U	<1.4 U	48.8	<0.1 U	0.56	524,000	<0.4 U	NA	3.9	1.4	<11 U	<0.8 U	14100	1710000	<0.1 U	1.4	59.8	18100	<2.3 U	<0.5 U	2220000	<1.9 U	3.1	14.4
9442X532	IR36MW17A	10/18/1994	0	A	<69.19 U1	<8.5 U1	15.44	26.82	<0.1 U	<0.2 U	141,281	<0.8 U	NA	1.56	<5.52 U1	<10.1 U	<1.55 U1	234.22	156073	<0.1 U	36.45 J4	3.71	18339.6	<2.3 U	<0.4 U	774893	<2 U	7.81	<18.14 U1
9442X533	IR36MW17A	10/18/1994	0	A	<63.8 U1	<4.75 U1	15.37	25.35	<0.1 U	<0.2 U	138,606	<0.8 U	NA	1.19	<0.77 U1	<10.1 U	<0.6 U	232.54	156085	<0.1 U	38.01 J4	1.98	18285.3	<2.3 U	<0.4 U	793531	<2 U	7.61	<12.59 U1
9603W016	IR36MW17A	01/19/1996	0	A	37.1	<1.6 U	3.5	24.3	<0.1 U	<0.2 U	166,000	<0.4 U	NA	<1.2 U1	<1.7 U1	<11 U	<0.8 U	326	238000	<0.1 U	37.4	<3 U1	4000	3.3	<0.5 U	514000	<1.9 U	8.6	<9.1 U1
9603W017	IR36MW17A	01/19/1996	0	A	38.1	<1.6 U	3.5	24.4	<0.1 U	<0.2 U	168,000	<0.4 U	NA	<0.79 U1	<2.5 U1	<11 U	<0.8 U	328	241000	<0.1 U	41.1	<2.3 U1	3820	3.2	<0.5 U	515000	<1.9 U	8.6	<8.8 U1
9608 J887	IR36MW17A	02/23/1996	0	A	29.8	<1.6 U	1.8	24.8	<0.1 U	<0.2 U	185,000	<0.4 U	NA	1.3	<0.69 U1	<11 U	<0.8 U	348	240000	<0.1 U	45.1	<1.3 U1	4300	<2.3 U	<0.5 U	515000	<1.9 U	10.5	<5.6 U1

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium V (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9441X521	IR38MW01A	10/12/1994	0	A	<24.39 U1	<2.72 U1	<1.7 U	48.75	<0.1 U	<0.2 UJ3	476,382	<0.8 U	NA	5.34	<0.3 U	<21.98 U1	<0.6 U	7249.37 J4	543414 J4	<0.1 U	<3.24 U1	12.36 J3	128667	2.47	<0.4 U	4248507	7.9 J3	<0.9 U	<13.96 U1
9441X522	IR38MW01A	10/12/1994	0	A	<14.4 U	<7.23 U1	<1.7 U	49.29	<0.1 U	<0.2 UJ3	484,352	<0.8 U	NA	5.38	<5.19 U1	<10.1 U	<0.6 U	7383.13	548632	<0.1 U	<2.95 U1	13.38 J3	129101	3.4	<0.4 U	4217882	5.14 J3	<0.9 U	<11.14 U1
9604Z012	IR38MW01A	01/22/1996	0	A	<18.8 U	<1.6 U	1.4	50.8	<0.1 U	<0.2 U	422,000	<0.4 U	NA	7.3	<3 U2	<11 U	<0.8 U	11700	901000	<0.1 U	1.1	<8.1 U1	42200	<2.3 U	<0.5 U	4400000	10.5	2.9	<11.2 U2
9608 J885	IR38MW01A	02/22/1996	0	A	<18 U	<1.6 U	<1.4 U	50.4	<0.1 U	<0.2 U	504,000	<0.4 U	NA	7.1	<1.2 U1	<11 U	<0.8 U	11800	875000	<0.1 U	<0.76 U1	<6.7 U1	38900	<2.3 U	<0.5 U	4250000	<1.9 U	3.1	<7.4 U1
9443X535	IR38MW02A	10/24/1994	0	A	<14.4 U	<1.91 U1	12.65	79.54	<0.1 U	<0.2 U	385,951	<0.8 U	NA	2.14	<0.3 U	<38.78 U1	<0.6 U	1387 J3	730967	<0.1 U	<5.97 U1	16.73	340721	<2.3 U	<0.4 U	5927219	2.34 J3	<0.9 U	99.96 J4
9443X536	IR38MW02A	10/24/1994	0	A	<14.4 U	<1.19 U1	11	92.94	<0.1 U	<0.2 U	377,614	<0.8 U	NA	3.16	<0.3 U	<27.58 U1	<0.6 U	1362.68 J3	716901	<0.1 U	<6.56 U1	22.42	338509	<2.3 U	<0.4 U	5751261	4.61 J3	<0.9 U	95.85 J4
9604W021	IR38MW02A	01/23/1996	0	A	<18.8 U	<1.6 U	12.5	149	<0.1 U	<0.2 U	387,000	<0.4 U	NA	<1.9 U1	<0.78 U2	<33.3 U1	<0.8 U	1280	1120000	<0.1 U	5.3	15.7	183000	<2.3 U	<0.5 U	5890000	<1.9 U	2.4	<10.8 U2
9604W022	IR38MW02A	01/23/1996	0	A	<18.8 U	<1.6 U	13.5	152	<0.1 U	<0.2 U	387,000	<0.4 U	NA	<2.4 U1	<1.3 U2	<33.7 U1	<0.8 U	1280	1100000	<0.1 U	<5.1 U1	16.6	179000	2.6	<0.5 U	5750000	<1.9 U	3.2	<17 U2
9608W121	IR38MW02A	02/23/1996	0	A	<18 U	<1.6 U	14.5 J9	142	<0.1 U	<0.2 U	451,000	<0.4 UJ9	NA	2 J9	<1.4 U1 J9	<11 U	<0.8 UJ9	1440	1060000	<0.1 U	4.7 J9	17.2 J9	159000	<2.3 UJ9	<0.5 U	5270000	<1.9 U	<2.4 U1	<12.6 U1 J9
9425E029	IR39MW21A	06/22/1994	0	A	<44.8 U2	<30.2 U2	9.8	121 J4	<0.1 U	<0.2 U	30,300 U2 J	<4.8 U2	NA	0.55	<3.4 U2	<52.8 U2	<0.9 U	42.5 J4	111000	<0.04 U	57.7	16.5	28500 J4	<2.7 U	<0.5 U	404000 J4	<0.89 U	12.3	<2.6 U2
9529X846	IR39MW21A	07/20/1995	0	A	<37.53 U1	<2.65 U1	<2.8 U	122.46	<0.1 U	<0.2 U	38,528.2	<6.32 U1	NA	<0.74 U1	<4.52 U2	<189.18 U2	<1.5 U	88.83	64242.9	<0.1 U	29.63	<8.73 U1	11838.9	<3.4 U	<0.6 U	209365	<2 U	6.34	<11.03 U2
9529X847	IR39MW21A	07/20/1995	0	A	<38.59 U1	<2.1 U	<2.8 U	120.09	<0.1 U	<0.2 U	38,150.3	<7.13 U1	NA	<1.41 U1	<4.31 U2	<191 U2	<1.5 U	88.55	64190.7	<0.1 U	30.15	<9.18 U1	12061.3	<5.81 U1	<0.6 U	210304	<2 U	6.76	<16.59 U2
9604W025	IR39MW21A	01/23/1996	0	A	<43.6 U1	5.7	5.9	77.4	<0.1 U	<0.2 U	19,800	7	NA	<1.5 U1	<5.3 U2	185	<0.8 U	54.3	44600	<0.3 U1	24.4	<6.4 U1	10500	<2.3 U	<0.5 U	132000	<1.9 U	6.1	<12.1 U2
9609 J886	IR39MW21A	02/26/1996	0	A	34.5	7.4	<4.2 U1	72.5	<0.1 U	<0.2 U	19,100	7.7	NA	1.1	4.5	75.3	<0.95 U1	32.3	46700	<0.1 U	24	7.8	11600	<2.3 U	<0.5 U	149000	<1.9 U	12.8	<4.1 U1
0109T024	IR39MW21A	03/09/2001	0	A	NA	<2.4 U	<4.8 U1	NA	NA	<0.3 U	254,000	NA	NA	NA	<1.5 U	2660	NA	NA	202000	NA	NA	4 J	38200	NA	NA	264000	NA	NA	NA
9437X480	IR39MW22A	09/14/1994	0	A	<35.3 U	<8.25 U2	<1.5 U	40.59 J9	<0.18 U1 J9	<0.24 U2 J9	17,589.2 U	<0.7 UJ9	NA	1.91 J9	<1.7 UJ9	<18.8 U	<1 U	93.35	394953	<0.1 U	<9.01 U1 J9	22.89 U1 J	33405.7	<2.38 U1 J9	<1.08 U1 J9	775047	<2 UJ9	<1.1 U	<3.1 U
9437X481	IR39MW22A	09/14/1994	0	A	<35.3 U	<2.86 U2	<1.5 U	41.34	<0.12 U1	<0.2 U	17,108.7 U	<0.7 U	NA	2.21	<1.7 U	<73.1 U1	<1 U	93.31	386837	<0.1 U	<7.75 U1	<22.86 U1	30971.9	<2.3 U	<1.08 U1	789337	<2 U	<1.1 U	<3.1 U
9605W045	IR39MW22A	01/29/1996	0	A	27.5	<1.6 U	<1.4 U	50.3	<0.1 U	<0.2 U	10,400	<0.7 U1	NA	0.94	<1.7 U1	26.6	<0.8 U	9.3	302000	<0.1 U	5.6	6.7	10400	2.8	<0.5 U	589000	<1.9 U	<0.95 U1	<12.5 U1
9609 J897	IR39MW22A	02/29/1996	0	A	<19.1 U	<1.6 U	<1.4 U	45.5	<0.1 U	<0.22 U1	11,200	<2 U1	NA	0.85	1.6	<11 U	<0.8 U	7.3	329000	<0.25 U1	6.9	7.3	9180	<2.3 U	0.55	576000	<1.9 U	0.87	<6.3 U1
9437K156	IR39MW23A	09/15/1994	0	A	<35.3 U	<3.75 U2	2.32	148.54	<0.1 U	<0.46 U2	158,946	<0.7 U	NA	5.41	<3.65 U2	<46.3 U1	<1 U	1039.75	281349	<0.1 U	14.57	<17.1 U1	194507	<2.3 U	<0.62 U1	2245781	3.32	2.67	<3.1 U
9437K157	IR39MW23A	09/15/1994	0	A	4161.9	<2.25 U2	2.58	214.76	<0.1 U	<0.48 U2	186,134	<22.45 U1	NA	10.12	<18.55 U2	4903.8	<3.23 U2	1288.19	327417	<0.1 U	14.33	71.36	213387	<2.69 U1	<0.65 U1	2409894	2.04	12.35	<39.14 U2
9604W040	IR39MW23A	01/26/1996	0	A	<108 U1	<8 U	<7 U	206	<0.5 U	<1 U	235,000	<2 U	NA	2.4	<2.5 U	<55 U	<4 U	1150	462000	<0.12 U1	14.5	12.4	91800	<11.5 U	<2.5 U	2850000	<9.5 U	<2 U	<20.4 U1
9604W041	IR39MW23A	01/26/1996	0	A	<18 U	<1.6 U	<1.4 U	185	<0.1 U	<0.2 U	246,000	<0.4 U	NA	2.4	<3.9 U1 J2	27.3	<0.8 U	989	421000	<0.1 U	11.6	7.1	88400	2.3	<0.5 U	2740000	<1.9 U	<0.4 U	<19.1 U1
9609 J884	IR39MW23A	02/26/1996	0	A	<19.1 U	<1.6 U	<2.7 U1	191	<0.1 U	<0.2 U	253,000	<0.4 U	NA	1.8	1.2	65.2	<0.8 U	1050	454000	<0.13 U1	10.1	6.7	83800	<2.3 U	<0.5 U	2700000	<1.9 U	0.46	<12.2 U1
0116P003	IR39MW23A	04/23/2001	0	A	<41.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0227P009	IR39MW23A	07/02/2002	0	A	35.5 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0236S004	IR39MW23A	09/06/2002	0	A	<46.5 U1 J2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9438X490	IR39MW24A	09/21/1994	0	A	<50.93 U1	<8.39 U1	<1.5 U	84.8	<0.19 U1	<0.2 U	37,840.5	<0.7 U	NA	2.6	<1.7 U	<18.8 U	<1 U	624.33	103486	<0.1 U	<1.54 U1	<15.66 U1	132172 J4	<2.3 U	<0.6 U	1380311	<2 U	<1.1 U	<5.78 U1
9438X491	IR39MW24A	09/21/1994	0	A	<44.2 U1	<1.2 U	<1.5 U	88.59	<0.18 U1	<0.2 U	39,801	<0.7 U	NA	3.07	<1.7 U	<18.8 U	<1 U	665.8	108471	<0.1 U	<1.7 U1	<15.92 U1	137695 J4	<2.3 U	<0.6 U	1450216	<2 U	1.3	<3.1 U
9604W042	IR39MW24A	01/26/1996	0	A	<26.5 U1	<1.6 U	<1.4 U	90.3	<0.1 U	<0.2 U	38,100	<0.4 U	NA	2	<2 U1 J2	<11 U	<0.8 U	484	109000	<0.1 U	1	11.3	46100	<2.3 U	<0.5 U	1050000	<1.9 U	<2.6 U1	<10.6 U1
9609 J885	IR39MW24A	02/26/1996	0	A	<19.1 U	<1.6 U	<1.4 U	76.6	<0.1 U	<0.2 U	33,800	<0.6 U1	NA	2	1.3	23.1	<0.8 U	427	99900	<0.13 U1	<1.7 U1	11.6	44300	<2.3 U	<0.5 U	984000	<1.9 U	2.7	<18.5 U1
9604W024	IR39MW33A	01/23/1996	0	A	<18.8 U	<1.6 U	<1.4 U	3880	<0.1 U	<0.2 U	270,000	<0.4 U	NA	<2.3 U1	<0.5 U	5810	<0.8 U	4160	696000	<0.1 U	<0.6 U	<0.7 U	32300	<2.3 U	<0.5 U	2580000	<1.9 U	1.5	<8.4 U2
9609W123	IR39MW33A	02/26/1996	0	A	<19.1 U	<1.6 U	<1.4 U	3430	<0.1 U	<0.2 U	223,000	<0.4 U	NA	1.8	0.95	4780	<0.8 U	3760	566,000	<0.2 U1	<0.6 U	<0.7 U	27100	<2.3 U	<0.5 U	2380000	<1.9 U	1.1	<11.2 U1
9613W204	IR39MW33A	03/29/1996	0	A	<59.4 U1	<1.6 U	<1.4 U	3750	<0.1 U	<0.2 UJ9	227,000	<0.4 U	NA	<1.8 U1 J9	<0.88 U1 J9	6290	<0.8 U	4240	555,000	<0.1 U	<1 U1 J9	<0.7 UJ9	24800	<2.3 U	<0.5 U	2160000 J9	<1.9 U	<1.4 U1 J9	<12.4 U1 J9
0115D004	IR39MW33A	04/17/2001	0	A	NA	NA	NA	4240	NA	NA	233,000	NA	NA	NA	NA	9840	NA	NA	684,000	NA	NA	NA	64300 J4	NA	NA	2950000 J4	NA	NA	NA
0226D023	IR39MW33A	06/28/2002	0	A	NA	NA	NA	3120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0236E005Z	IR39MW33A	09/05/2002	0	A	NA	NA	NA	4070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425G044	IR39MW33A	06/18/2004	0	A	NA	NA	NA	3780	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447R008	IR39MW33A	11/19/2004	0	A	NA	NA	NA	4580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447R009	IR39MW33A	11/19/2004	0	A	NA	NA	NA	4770	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720H062	IR39MW33A	05/18/2007	0	A	NA	NA	NA	2250 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0735 J073	IR39MW33A	08/28/2007	0	A	NA	NA	NA	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740G020	IR39MW33A	10/05/2007	0	A	NA	NA	NA	2300 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H037	IR39MW33A	02/28/2008	0	A	NA	NA	NA	1970	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816H027	IR39MW33A	04/17/2008	0	A	NA	NA	NA	2370 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9602 J790	IR39MW35A	01/10/1996	0	A	<45.6 U2	2.6	3.2	93.2	<0.1 U	<0.2 U	86,400	<0.4 U	NA	<0.73 U1	<3 U1	<11 U	<0.8 UJ3	508	138,000	<0.1 U	<13.5 U1	<5.9 U1	15700	3.1	<0.5 U	445000	<1.9 U	2.9	<11.9 U2
9607W096	IR39MW35A	02/14/1996	0	A	<24.8 U2	3.4	<2 U1	50	<0.1 U	<0.2 U	38,700	<1.6 U2	NA	<0.51 U1	<7 U2	<11 U	<1.5 U1	118	44,900	<0.1 U	12.5	5.3	5570	<2.3 U	<0.5 U	133000	<1.9 U	3.3	<9.3 U2
9607W097	IR39MW35A	02/14/1996	0	A	<28.3 U2	4.2	<1.4 U	49.7	<0.1 U	<0.2 U	38,100	<1.3 U2	NA	<0.4 U	<7.1 U2	<11 U	<0.8 U	116	43,700	<0.1 U	12.3	4.3	5220	<2.3 U	<0.5 U	129000	<1.9 U	2.6	<10 U2
9612 J934	IR39MW35A	03/18/1996	0	A	<57.2 U1	2.3	1.6	70.5	<0.1 U	<0.2 U	51,000	<2.6 U1	NA	<1.1 U1	5.4	<17.7 U1	<0.8 U	243	73,700	<0.1 U	10.4	<5.5 U1	7880	<2.3 U	<0.84 U1	217000	<1.9 U	<3.1 U1	<6.4 U1
9602 J787	IR39MW36A	01/10/1996	0	A	<42.3 U2	<1.6 U	1.8	262	<0.1 U	<0.2 U	123,000	<0.4 U	NA	<0.71 U1	<0.88 U1	<11 U	<0.8 UJ3	1510	225,000	<0.1 U	<2.5 U1	<5.9 U1	33100	2.9	<0.5 U	1440000	<2.4 U2	1.5	<24.6 U2
9602 J789	IR39MW36A	01/10/1996	0	A	<44.2 U2	<1.6 U	1.6	261	<0.1 U	<0.2 U	124,000	<0.4 U	NA	<1.2 U1	<2.5 U1	<11 U	<0.8 UJ3	1510	226,000	<0.1 U	<1.8 U1	<6.3 U1	33800	<2.3 U	<0.5 U	1430000	<1.9 U	2	<35.6 U2
9607W098	IR39MW36A	02/14/1996	0	A	<34.1 U2	<1.6 U	<1.4 U	128	<0.1 U	<0.2 U	66,000	<0.4 U	NA	<0.89 U1	<1.3 U2	<22 U2	<0.8 U	801	108,000	<0.1 U	5.2	<3.7 U2	23800	<2.3 U	<0.5 U	1060000	<1.9 U	<0.4 U	<5 U2
9612 J935	IR39MW36A	03/18/1996	0	A	<43.4 U1	<1.6 U	2	242	<0.1 U	<0.2 U	165,000	<0.4 U	NA	<1.1 U1	<0.5 U	<11 U	<0.8 U	1860	257,000	<0.1 U	5.5	<6.6 U1	37500	<2.3 U	<0.5 U	1610000	<1.9 U	<1 U1	<7.4 U1
9444X557	IR56MW39A	11/02/1994	0	A	315.27	<2.89 U2	<1.7 U	177.96	<0.1 U	<0.2 U	66,263.90	<5.02 U2	NA	3.43	<1.93 U2	904.33	<0.6 U	2850.79	100,124	<0.1 U	<1.14 U2	28.78	9333.33 J4	<2.3 U	<0.4 U	364900	4.65	4.2	<36.56 U2 J4
9444X558	IR56MW39A	11/02/1994	0	A	<161.75 U2	<1.6 U2	<1.7 U	171.8	<0.1 U	<0.2 U	69,412.50	<1.89 U2	NA	3.09	<3.16 U2	<508 U2	<0.6 U	2819.98	105,204	<0.1 U	<1.89 U2	25.71	11530.7 J4	3.31	<0.4 U	433486	5.77	3.99	<39.72 U2 J4
9610W136	IR56MW39A	03/04/1996	0	A	<45.8 U1	<1.6 U	<1.4 U	179	<0.1 U1	<0.2 U	39,800 J4	<0.4 U	NA	<0.6 U1	<1 U1	426	<0.8 UJ3	1000	58,400	<0.1 U	<1 U1	<4.1 U1	2530	<2.3 U	<0.5 U	117000	<1.9 U	<0.72 U1	<12.1 U1
9620 J120	IR56MW39A	05/15/1996	0	A	<20.9 U1	<1.2 U	<1.3 U	259	<0.1 U	<0.3 U	41,900	<0.7 U	NA	<0.5 U	3.9	86	<1 U	1350	59,000	<0.1 U	0.92	<4.6 U1	3110	<3 U1	<0.7 U	130000	<1.7 U	<1.6 U1	<5.2 U1
0110P029	IR56MW39A	03/16/2001	0	A	NA	NA	NA	NA	NA	NA	46,000	NA	NA	NA	NA	448	NA	NA	67,000	NA	NA	NA	2640 J4	NA	NA	105000	NA	NA	NA
0234E003	IR56MW39A	08/20/2002	0	A	NA	NA	NA	NA	NA	NA	48,800	NA	NA	NA	NA	606	NA	NA	74,800	NA	NA	NA	2830	NA	NA	128000	NA	NA	NA
0237S008	IR56MW39A	09/10/2002	0	A	NA	NA	NA	NA	NA	NA	47,400	NA	NA	NA	NA	788	NA	NA	71,500	NA	NA	NA	2810	NA	NA	129000	NA	NA	NA
9547W195	IR72MW32A	11/21/1995	0	A	<39.6 U2	<3 U	<2.8 U	70.9	<0.1 U	0.47	23,400	10.3	NA	<0.5 U	<0.8 U	<13.8 U	<1.2 U	73.2	83,400	<0.1 U	<2.2 U1	6.6	9570	<3.9 U	<0.7 U	154000	<1.9 U	4.6	<23.8 U2
9610 J905	IR72MW32A	03/05/1996	0	A	<42.2 U1	<1.6 U	1.6	62.4	<0.12 U1	<0.2 U	16,000 J4	14.2	NA	<0.4 U	<0.5 U	<21.2 U1	<0.8 UJ3	4.9	52,900	<0.1 U	<2.1 U1	<4.8 U1	6410	2.8	<0.5 U	102000	<1.9 U	<4.6 U1	<12.5 U1

Table A2-6. Summary of Analytical Results for Metals *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Chromium VI (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Manganese (µg/L)	Magnesium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
9620 J119	IR72MW32A	05/15/1996	0	A	<36.4 U1	<1.2 U	<1.3 U	67.5	<0.1 U	<0.3 U	19300	15	NA	<0.5 U	1.3	<57.2 U1	<1 U	5.9	64,500	<0.1 U	0.85	6	7560	<2.2 U1	<0.7 U	114000	<1.7 U	5.3	<16.1 U1
0110P027	IR72MW32A	03/16/2001	0	A	NA	NA	NA	NA	NA	NA	18,000	NA	NA	NA	NA	<25.2 U1	NA	NA	60,600	NA	NA	NA	8010 J4	NA	NA	132000	NA	NA	NA
0229P003	IR72MW32A	07/15/2002	0	A	NA	NA	NA	NA	NA	NA	19,600	NA	NA	NA	NA	16.3 J	NA	NA	67,400	NA	NA	NA	7810	NA	NA	118000	NA	NA	NA
0238G004	IR72MW32A	09/18/2002	0	A	NA	NA	NA	NA	NA	NA	25,500	NA	NA	NA	NA	<16.9 U2	NA	NA	81,300	NA	NA	NA	8870	NA	NA	147000 J4	NA	NA	NA
9547W197	IR72MW33A	11/22/1995	0	A	<32 U2	<3 U	<2.8 U	35.7	<0.1 U	<0.2 U	18,100	2.1	NA	<0.5 U	1.4	19.6	<1.2 U	7.2	66,000	<0.1 U	<1.5 U1	5	7290	<3.9 U	<0.7 U	114000	<1.9 U	1.8	<17.9 U2
9547W198	IR72MW33A	11/22/1995	0	A	<40.1 U2	<3 U	<2.8 U	35.8	<0.1 U	0.78	18,200	2.4	NA	<0.5 U	1.4	27	<1.2 U	7	66,400	<0.1 U	<4 U1	5	6940	<3.9 U	0.76	120000	<1.9 U	2	<20.7 U2
9610W138	IR72MW33A	03/05/1996	0	A	<98.2 U1	<1.6 U	1.6	49.9	<0.1 U1	<0.2 U	50400 J4	5.8	NA	<0.78 U1	<3 U1	<11.4 U1	<0.8 UJ3	39	67,900	<0.1 U	4.6	<6 U1	7380	<2.3 U	<0.6 U1	79200	<1.9 U	<4.3 U1	<8 U1
9620 J118	IR72MW33A	05/15/1996	0	A	<21.9 U1	<1.2 U	<1.3 U	72.2	<0.1 U	<0.3 U	21,000	4.4	NA	<0.5 U	3	<41.3 U1	<1 U	29.7	64,800	<0.1 U	<0.7 U	5.6	6770	<4.6 U1	<0.7 U	97600	<1.7 U	<1.1 U1	29.9
9305 J230	PA36MW01A	02/04/1993	0	A	28.1	<31 UJ39	<2 U	188	<1 U	<9.7 U1	118,000	<3 U	<0.01 U	<2 UJ9	<2 U	<10.2 U1	<1 U	139 J4	298,000	<0.2 U	<8.8 U1 J9	9.6 J9	27700	<10 UR2	<2 UJ9	970000	<20 UR2	7.3 J9	<15.7 U1 J2
9606W074	PA36MW01A	02/07/1996	0	A	<19.1 U	<1.6 U	<1.4 U	240	<0.1 U	<0.2 U	109,000	<0.4 U	NA	1.9	<2.5 U2	<48.2 U2	<0.8 U	305	335,000	<0.12 U1	<3.5 U1	<12.6 U1	27400	<2.3 U	<0.5 U	987000 J24	<1.9 U	3.5	<10.4 U2
9611W148	PA36MW01A	03/11/1996	0	A	<48.9 U1	<1.6 U	2.7	229	<0.1 U	<0.2 U	102,000	<0.4 U	NA	<2.3 U1	<0.58 U1	21.4	<0.8 U	288	305,000	<0.1 U	5.1	13.6	28300	<2.5 U1	<0.5 U	997000	<1.9 U	4.7	<10.9 U1
9305 J232	PA36MW02A	02/04/1993	0	A	<14 U	<31 UJ3	<2 U1	187	<1 U	<4 U	57,300	<3 U	<0.01 U	<2 U	<2 U	<5 U	<2.4 U1	323 J4	264,000	<0.2 U	<6.6 U1	15.5	15000	<10 UR2	<2 U	650000	<20 UR2	7.3	<1.6 U1 J2
9606W075	PA36MW02A	02/07/1996	0	A	<19.1 U	<1.6 U	<1.4 U	130	<0.1 U	<0.2 U	34,400	<0.4 U	NA	2.9	<2 U2	<57 U2	<0.8 U	333	182,000	<0.1 U	<2.9 U1	19	12000	<2.3 U	<0.57 U2	493000 J24	<1.9 U	3.6	<7.4 U2
9611W149	PA36MW02A	03/11/1996	0	A	<48.9 U1	<1.6 U	2.3	142	<0.1 U	<0.2 U	37,100	<0.4 U	NA	3.3	<0.5 U	56.3	<0.8 U	373	183,000	<0.1 U	<2.6 U1	19.6	16800	<2.3 U	<0.5 U	627000	<1.9 U	3.3	<8.1 U1
0721 J064	PA36MW02A	05/21/2007	0	A	<100 U	<5 U	<3.3 U	171	<2 U	<5 U	NA	<5 U	0.0000005	<5 U	<5 U	NA	<5 U	290	NA	<0.084 U	NA	18.5	NA	8.3	<1 U	NA	<5 U	NA	<50 U
0735H081	PA36MW02A	08/27/2007	0	A	NA	NA	NA	NA	NA	NA	NA	<5 U	0.0000005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741D038	PA36MW02A	10/09/2007	0	A	NA	NA	NA	NA	NA	NA	NA	<5 U	0.0000005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810H063	PA36MW02A	03/05/2008	0	A	NA	NA	NA	NA	NA	NA	NA	<5 U	2.1E-07 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817D042	PA36MW02A	04/23/2008	0	A	NA	NA	NA	NA	NA	NA	NA	<5 U	<0.0005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9306 J248	PA36MW03A	02/11/1993	0	A	78.3	<31 UJ3	3.7 J3	57.5	<1 U	<4 U	54,000	<3 U	<0.01 U	<2 U	2.1	<11.4 U1	<1 UJ3	578	150,000	<0.2 U	<3 U	<7 U	12700	<3 UJ3	<2 U	437000	<3 UJ3	2.3	1.3
9306 J249	PA36MW03A	02/11/1993	0	A	<14 U	<31 UJ3	6.3	58.6	<1 U	<4 U	54,500	<3 U	<0.01 U	<2 U	<2 U	<17.4 U1	<1 UJ3	579	153,000	<0.2 U	<3 U	12.2	12800	<3 UJ3	<2 U	452000	<3 UJ3	<2 U	<1 U
9606W076	PA36MW03A	02/07/1996	0	A	<19.1 U	2.3	<1.4 U	73.1	<0.1 U	0.9	46,000	<0.4 U	NA	1.5	127	<26.2 U2	<0.8 U	530	125,000	<0.1 U	<4.2 U1	<11 U1	9030	<2.3 U	<0.5 U	331000 J24	<1.9 U	4.2	365
9611 J920	PA36MW03A	03/11/1996	0	A	<53.2 U1	4.9	<1.4 U	83.2	<0.1 U	2.8	51,700	<0.4 U	NA	<1.8 U1	366	39.9	0.83	351	70,600	<0.1 U	5.2	18.4	5680	<4.2 U1	<0.5 U	186000	<1.9 U	<2.2 U1	1340
0231D010	PA36MW03A	07/31/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	264	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	621
0237G016	PA36MW03A	09/13/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	186	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	556
0830D029	PA36MW03A	07/23/2008	0	A	28.8 J	2.4 J	<5 UJ	85.1 J	<0.2 U	2.6	NA	1.8 J	NA	2.4 J	219	NA	<7 U	NA	387 J	NA	NA	10.9	NA	5R	<1 U	NA	4.7 J	NA	425
0912W048	PA36MW03A	03/20/2009	0	A	26.1 J	<5 U	<5 U	96.7	<0.2 U	<0.52 U	NA	<5 U	NA	<1.6 U	94.4	NA	<5 U	NA	752 J	NA	NA	4.7 J	NA	<5 U	<1 U	NA	<5 U	NA	164 J
0916H008	PA36MW03A	04/15/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	412	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1050
9305 J234	PA36MW04A	02/05/1993	0	A	<14 U	<31 UJ3	<3.1 U1	93.6	<1 U	<4 U	164,000	<3 U	<0.01 U	<2 U	<2 U	<5 U	<1 U	261 J4	113,000	<0.2 U	<8 U1	8	25700	<10 UR2	<2 U	712000	<20 UR2	2.9	<24.5 U1 J2
9606W077	PA36MW04A	02/07/1996	0	A	<19.1 U	<1.6 U	<1.4 U	80.2	<0.1 U	0.31	70700	<0.49 U2	NA	22	38.5	<94.8 U2	<1 U1	433	68,000	<0.1 U	<3.8 U1	33.6	21100	<2.3 U	<0.84 U2	529000 J24	<1.9 U	3.4	<26.2 U2
9611 J919	PA36MW04A	03/11/1996	0	A	<59.3 U1	<1.6 U	<1.4 U	103	<0.1 U	<0.41 U1	89,000	<0.4 U	NA	24.1	26.1	86.7	1.8	731	99,100	<0.1 U	3.7	46.1	33100	<2.3 U	<0.5 U	836000	<1.9 U	3.4	19.4
0111T009	PA36MW04A	03/20/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0227E005	PA36MW04A	07/01/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0237 J012	PA36MW04A	09/11/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9306 J244	PA36MW05A	02/10/1993	0	A	102	<27 U	5.4	25.6 J4	<0.5 U	<3 U	15,700 J4	4.2	<0.01 U	<7.6 U	<14.9 U1	248	<1 U	106 J4	16,100	<0.2 U	<8.3 U1	<17.4 U	4020	<2.6 UJ7	<1.7 U	103000	<2.1 UJ3	<6.6 U1	<14 U1
9306 J245	PA36MW05A	02/10/1993	0	A	<55.4 U	<27 U	4.9	23.6 J4	<0.5 U	<3 U	14,200 J4	2.4	<0.01 U	<7.6 U	<19.4 U1	<53.6 U1	<1 U	89.7 J4	14,200	<0.2 U	<6.9 U1	<17.4 U	3580	<2.6 UJ7	<1.7 U	91400	<2.1 U	<5.3 U1	<9.9 U1
9606W082	PA36MW05A	02/08/1996	0	A	<18 U	<1.6 U	<1.4 U	224	<0.1 U	<0.2 U	327,000	<0.4 U	NA	4.2	<1.2 U1	<11 U	<0.8 U	4810	563,000	<0.1 U	<2.9 U1	10.1	128000 J4	<2.3 U	<0.5 UJ3	3230000	<1.9 U	<1.1 U1	76.3
9611 J918	PA36MW05A	03/11/1996	0	A	<31.5 U1	<1.6 U	<1.4 U	242	<0.1 U	<0.2 U	386,000	<0.4 U	NA	5.3	<2.5 U1	70.1	<0.8 U	5450	543,000	<0.1 U	<2.6 U1	11.2	58500	<2.3 U	<0.5 U	3360000	2	<1.8 U1	78.1
9306 J252	PA36MW06A	02/11/1993	0	A	26	<31 UJ3	9.1	32	<1 U	<4 U	70,700	<3 U	<0.01 U	<2 U	<2 U	<6.1 U1	<1 UJ3	17.2	137,000	<0.2 U	4.5	<7 U	3370	<3 UJ3	<2 U	196000	<3 UJ3	4.7	2
9607W099	PA36MW06A	02/16/1996	0	A	<19.1 U	<1.6 U	<1.4 U	40.4	<0.1 U	<0.2 U	59,700	2.5	NA	<0.4 U	<0.7 U1	<11 U	<0.8 U	4.2	133,000	<0.1 U	11.3	1.5	2,520	<2.3 U	<0.5 U	174000	<1.9 U	5.7	<8.2 U1
9612W172	PA36MW06A	03/19/1996	0	A	<47.2 U1	<1.6 U	<1.4 U	39.9	<0.1 U	<0.2 U	64,300	<2 U1	NA	<0.4 U	<0.5 U	<23.3 U1	<0.8 U	5	124,000	<0.1 U	11	<2.3 U1	2,880	2.3	<0.5 U	139000	<1.9 U	6.2	<8.2 U1
9308 J309	PA36MW07A	02/23/1993	0	A	<55.4 U	<27 U	<2.3 U	89.2 J4	<0.5 U	3.6	182,000 J4	<1.9 U	<0.01 U	<7.6 U	<9.1 U1	<25.3 U	<5 U	656 J4	621,000	<0.2 U	<3.4 U1	92.2	70,600	<2.6 UJ7	<1.7 U	2070000	<21 U	<1.8 U	<16.4 U1
9606W079	PA36MW07A	02/08/1996	0	A	<20.3 U1	<1.6 U	6.1	34.7	<0.1 U	<0.2 U	138,000	<0.4 U	NA	4	<0.5 U	<11 U	<0.8 U	826	424,000	<0.1 U	13.5	76.2	99100 J4	<2.3 U	<0.5 UJ3	1620000	<1.9 U	10.1	<6.3 U1
9611 J922	PA36MW07A	03/12/1996	0	A	<43.3 U1	<1.6 U	3.1	36.6	<0.1 U	<0.24 U1	133,000	<0.4 U	NA	3.4	<0.76 U1	18.7	<0.8 U	812	373,000	<0.1 U	11.5	57.9	43700	<2.7 U1	<0.5 U	1430000	<1.9 U	5.5	<5.7 U1
9307A590	PA36MW08A	02/16/1993	0	A	<21.65 U1	<14.8 U	<1.4 UJ3	120.95	<0.6 U	<2.1 U	52,965.3	<1.8 U	<0.01 U	<3 U	<0.2 U	<17 U	<1.1 UJ3	710.25	146,351	<0.1 U	<7.8 U1	<10.5 U1	2210.38	<1.8 UJ3	<1.9 U	141680	<17 U	<3.1 U	<1.3 U
9307A591	PA36MW08A	02/16/1993	0	A	<23.31 U1	<14.8 U	<1.4 U	114.05	<0.6 U	<2.1 U	51,863	<1.8 U	<0.01 U	<3 U	<0.2 U	<17 U	<1.1 U	689.09	142,012	<0.1 U	<4.25 U1	<9.28 U1	2392.28	<18 U	<1.9 U	135604	<17 U	<3.1 U	<1.3 U
9606W080	PA36MW08A	02/08/1996	0	A	<25.9 U1	<1.6 U	<1.4 U	104	<0.1 U	<0.2 U	38600	<0.4 U	NA	1.9	<1.5 U1	<116 U1	<0.8 U	414	94,400	<0.1 U	5.2	11.9	2780 J4	<2.3 U	<0.5 UJ3	96500	<1.9 U	<1.7 U1	<14.5 U1
9606W081	PA36MW08A	02/08/1996	0	A	<29 U1	<1.6 U	<1.4 U	108	<0.1 U	<0.2 U	38,400	<0.4 U	NA	2.3	<2.8 U1	<94 U1	<0.8 U	413	94,300	<0.1 U	5.5	11.8	2780 J4	<2.3 U	<0.5 UJ3	97600	<1.9 U	<1.7 U1	<13.2 U1
9611W151	PA36MW08A	03/12/1996	0	A	<51.6 U1	<1.6 U	<1.4 U	109 J	<0.1 U1	<0.2 U	38,800	<0.4 U	NA	<1.8 U1	<0.5 U	117	1.6 J	439	83,500	<0.1 U	5	11.3	1480 J	<2.3 U	<0.5 U	80400	<1.9 U	<0.4 U	<6.2 U1
9611W152	PA36MW08A	03/12/1996	0	A	<54.5 U1	<1.6 U	<1.4 U	105	<0.1 U	<0.94 U1	38,600	<0.4 U	NA	<2.6 U1	<0.5 U	129	<0.8 U	426	81,800	<0.1 U	4.4	12	1370	<2.3 U	<0.5 U	78500	<1.9 U	<1.1 U1	<8.1 U1
0109P008	PA36MW08A	03/08/2001	0	A	NA	NA	NA	NA	NA	NA	43,300	NA	NA	NA	NA	<98.4 U1	NA	NA	95,600	NA	NA	NA	<1980 U1	NA	NA	99700 J4	NA	NA	NA
9307A611	PA39MW01A	02/18/1993	0	A	<18.75 U1	<14.8 U	<14 U	46.85	<0.6 U	<2.1 U	99,694	<1.8 U	<0.01 U	<3 U	<0.2 U	<17 U	<1.1 U	375.79	144,472	<0.1 U	<5.32 U1	<4.5 U	56742.1	<18 U	<1.9 U	1662509	<17 U	3.32	<1.3 U
9307A612	PA39MW01A	02/18/1993	0	A	<21.34 U1	<14.8 U	<1.4 U	46.73	<0.6 U	<2.1 U	101,238	<1.8 U	<0.01 U	<3 U	<0.2 U	<17 U	4.21	390.79	148,637	<0.1 U	<4.78 U1	<5.06 U1	57,819	<1.8 U	<1.9 U	1692539	<17 U	3.1	<1.3 U
9606W084	PA39MW01A	02/09/1996	0	A	<18 U	1.7	<1.4 U	40.1	<0.1 U	<0.2 U	44,200	<0.4 U	NA	<0.4 U	<2.1 U1	<168 U1	<0.8 U	310	80,900	<0.1 U	5.6	<1.4 U1	66000 J4	<2.3 U	<0.5 UJ3	1180000	<1.9 U	<3.1 U1	<6.7 U1
9611W159	PA39MW01A	03/14/1996	0	A	<51.5 U1	<1.6 U	1.9	37.7	<0.1 U	<0.2 U	37,600	<0.4 U	NA	<0.75 U1	<1.1 U1	14.2	<0.8 U	294	69,500	<0.1 U	6.2	<1.9 U1	33,900	<2.3 U	<0.5 U	894000	1.9	<2.2 U1	<11.4 U2
9307D024	PA39MW02A	02/19/1993	0	A	<19.82 U1	<14.8 U	<4.21 U1	22.6	<0.6 U	<2.1 U	29,482.9	<1.8 U	<0.01 U	<3 U	<4.19 U1	<17 U	<1.1 UJ3	<12.05 U1	29,522	<0.1 U	<3.87 U1	<4.5 U	14,561	2.8 J3	<1.9 U	372308	<17 UR2	<7.01 U1	<1.3 U
9307D025	PA39MW02A	02/19/1993	0	A	<16 U	<14.8 U	<4.33 U1	23.54	<0.6 U	<2.1 U	30,361	<2.34 U1	<0.01 U	<3 U	<3.02 U1	<17 U	<1.1 UJ3	<13.99 U1	29,911	<0.1 U	<4.22 U1	<4.5 U	15,162	2.85 J3	<1.9 U	373830	<17 UR2	<7.13 U1	<4.29 U1
9606 J860	PA39MW02A	02/09/1996	0	A	<18 U	<1.6 U	1.7	46.1	<0.1 U	<0.2 U	73,500	<0.5 U1	NA	0.45	<3.1 U1	<11 U	<0.8 U	470	169,000	<0.1 U	4.2	<1.8 U1	129,000 J4	<2.4 U1	<0.5 UJ3	1,780,000	<1.9 U	6.7	<10.3 U1
9611W158	PA39MW02A	03/14/1996	0	A	<51.2 U1	<1.6 U	<1.4 U	33	<0.1 U	<0.2 U	22,400	<0.4 U	NA	<0.4 U	4.6	<11 U	<0.8 U	56.3	34,500	<0.1 U	3.6	<1 U1	15,800	2.8	<0.5 U	392000	<1.9 U	10.8	<10.4 U2

Notes:

µg/L micrograms per liter

bgs below ground surface

Table A2-7. Summary of Analytical Results for VOCs*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0111P015	IR01MW367A	03/21/2001	0	A	NA	<1 U	<1 U	NA	<1 U	0.3 J	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229P002	IR01MW367A	07/15/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.52	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238S008	IR01MW367A	09/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.48 J	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	0.18 J7	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9202A009	IR02MW101A1	01/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A010	IR02MW101A1	01/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J155	IR02MW101A1	07/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J219	IR02MW101A1	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A007	IR02MW101A2	01/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J154	IR02MW101A2	07/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J218	IR02MW101A2	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203A085	IR02MW114A1	01/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228X646	IR02MW114A1	07/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J222	IR02MW114A1	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J166	IR02MW114A2	07/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9235 J223	IR02MW114A2	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J147	IR02MW114A3	07/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J227	IR02MW114A3	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J157	IR02MW126A	07/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	1 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J158	IR02MW126A	07/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	1 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X717	IR02MW126A	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	1 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0233D013	IR02MW126A	08/15/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	1.2	<0.5 U	NA	0.69	NA	2.2	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0239 J006	IR02MW126A	09/24/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	0.23 J	NA	<2 U	1.2	<0.5 U	NA	0.75	NA	1.4	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0424M014	IR02MW126A	06/10/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.64	<0.5 U	NA	0.35 J	NA	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0437P033	IR02MW126A	09/10/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.93 J3	<0.5 U	NA	0.52 J3	NA	1.5 J3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447C010	IR02MW126A	11/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.82	<0.5 U	NA	0.54	NA	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G050	IR02MW126A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.44 J	<0.5 U	NA	0.3 J	NA	0.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G049	IR02MW126A	06/29/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.98	<0.5 U	NA	0.64	NA	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538A043	IR02MW126A	09/23/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.81	<0.5 U	NA	0.53	NA	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602T033	IR02MW126A	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.27 J	<0.5 U	NA	0.22 J	NA	0.43 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611 J035	IR02MW126A	03/17/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623D040	IR02MW126A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.24 J	<0.5 U	NA	0.17 J	NA	0.46 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G043	IR02MW126A	12/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.26 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709W026	IR02MW126A	02/28/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.22 J	<0.5 U	NA	0.16 J	NA	0.41 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720 J051	IR02MW126A	05/14/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.83	<0.5 U	NA	0.52	NA	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0732 J005	IR02MW126A	08/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.78	<0.5 U	NA	0.56	NA	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W013	IR02MW126A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	1.1	<0.5 U	NA	0.78	NA	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0808E010	IR02MW126A	02/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.61	<0.5 U	NA	0.3 J	NA	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817H036	IR02MW126A	04/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.69	<0.5 U	NA	0.43 J	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X468	IR02MW127B	01/28/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J169	IR02MW127B	07/20/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J229	IR02MW127B	08/25/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0112P005	IR02MW127B	03/26/2001	0	B	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0230P006	IR02MW127B	07/23/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0230P007	IR02MW127B	07/23/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237E025	IR02MW127B	09/13/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0237E026	IR02MW127B	09/13/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425G031	IR02MW127B	06/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0437P021	IR02MW127B	09/07/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447R010	IR02MW127B	11/19/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G048	IR02MW127B	03/15/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9218Z059	IR02MW141A	05/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9218Z060	IR02MW141A	05/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J177	IR02MW141A	07/21/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J178	IR02MW141A	07/21/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X715	IR02MW141A	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X716	IR02MW141A	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0425S041	IR02MW141A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.46 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0436P012	IR02MW141A	09/02/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.35 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448C018	IR02MW141A	11/22/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ2	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.38 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G041	IR02MW141A	03/14/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.33 J3	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X478	IR02MW146A	01/30/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9205X479	IR02MW146A	01/30/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9613W194	IR02MW146A	03/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9622 J162	IR02MW146A	05/29/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.4 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9622 J163	IR02MW146A	05/29/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9203X415	IR02MW147A	01/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J167	IR02MW147A	07/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9235X719	IR02MW147A	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0425S036	IR02MW147A	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0437P022	IR02MW147A	09/07/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449P022	IR02MW147A	11/29/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G044	IR02MW147A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G045	IR02MW147A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526M052	IR02MW147A	06/29/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538T028	IR02MW147A	09/22/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602T037	IR02MW147A	01/12/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612 J041	IR02MW147A	03/21/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623D037	IR02MW147A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636D042	IR02MW147A	09/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B030	IR02MW147A	12/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709L015	IR02MW147A	02/28/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720B001	IR02MW147A	05/17/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0732 J006	IR02MW147A	08/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740G019	IR02MW147A	10/05/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810E051	IR02MW147A	03/04/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817G029	IR02MW147A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9112X067	IR02MW149A	03/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202N019	IR02MW149A	01/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9622 J166	IR02MW173A	05/30/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9203A089	IR02MW175A	01/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	1 J	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J230	IR02MW175A	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110P002	IR02MW175A	03/12/2001	0	A	NA	<1 U	<1 UJ7	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 UJ7	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 UJ7	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0229P014	IR02MW175A	07/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0229P015	IR02MW175A	07/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0239G002	IR02MW175A	09/23/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425H032	IR02MW175A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J028	IR02MW175A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J029	IR02MW175A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447R006	IR02MW175A	11/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511Z023	IR02MW175A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511Z024	IR02MW175A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0721 J065	IR02MW175A	05/21/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0732W010	IR02MW175A	08/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W007	IR02MW175A	10/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0808D008	IR02MW175A	02/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817D033	IR02MW175A	04/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.2 J	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A086	IR02MW179A	01/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J231	IR02MW179A	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110P004	IR02MW179A	03/12/2001	0	A	NA	<1 U	<1 UJ7	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 UJ7	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 UJ7	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0229D010	IR02MW179A	07/17/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0229D011	IR02MW179A	07/17/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238 J020	IR02MW179A	09/20/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J234	IR02MW183A	08/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9112X063	IR02MW196A	03/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110P008	IR02MW206A1	03/13/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0110P009	IR02MW206A1	03/13/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0230D012	IR02MW206A1	07/25/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0230D013	IR02MW206A1	07/25/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0239A007	IR02MW206A1	09/24/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110P010	IR02MW206A2	03/13/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229D014	IR02MW206A2	07/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238 J018	IR02MW206A2	09/20/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ37	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0238 J019	IR02MW206A2	09/20/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0425G037	IR02MW209A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C046	IR02MW209A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C047	IR02MW209A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C023	IR02MW209A	11/29/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G049	IR02MW209A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525G036	IR02MW209A	06/24/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525G037	IR02MW209A	06/24/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539T036	IR02MW209A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H051	IR02MW209A	01/12/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611H036	IR02MW209A	03/17/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623P048	IR02MW209A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636B016	IR02MW209A	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636B017	IR02MW209A	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G049	IR02MW209A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G050	IR02MW209A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708L006	IR02MW209A	02/22/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720 J057	IR02MW209A	05/16/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0732W009	IR02MW209A	08/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W008	IR02MW209A	10/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0808H012	IR02MW209A	02/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E036	IR02MW209A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X480	IR02MW210B	01/30/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J179	IR02MW210B	07/21/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J235	IR02MW210B	08/26/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J236	IR02MW210B	08/26/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0112P007	IR02MW210B	03/27/2001	0	B	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226E019	IR02MW210B	06/27/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J018	IR02MW210B	09/12/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9228 J145	IR02MW298A	07/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X724	IR02MW298A	08/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9612W184	IR02MW298A	03/21/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J238	IR02MW299A	08/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	1 J	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9612 J946	IR02MW299A	03/21/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9917Z020	IR02MW299A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0112P002	IR02MW299A	03/26/2001	0	A	NA	<1 U	<1 U	NA	<1 U	0.4 J	<1 U	NA	NA	NA	<1 U	NA	<1 U	0.8	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0233A013	IR02MW299A	08/15/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.62	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.96 U2	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J002	IR02MW299A	09/09/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.55	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	0.32 J	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9228X660	IR02MW300A	07/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X726	IR02MW300A	08/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9612 J943	IR02MW300A	03/20/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0112T012	IR02MW300A	03/28/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0112T013	IR02MW300A	03/28/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229D006	IR02MW300A	07/16/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238G007	IR02MW300A	09/20/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ37	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0732D009	IR02MW301A	08/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740D007	IR02MW301A	10/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0808D007	IR02MW301A	02/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817G023	IR02MW301A	04/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.14 J	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9547 J609	IR02MW372A	11/22/1995	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	2	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610W140	IR02MW372A	03/07/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9619 J106	IR02MW372A	05/10/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	1	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0112P003	IR02MW372A	03/26/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229P009	IR02MW372A	07/17/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237E008	IR02MW372A	09/10/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0237E009	IR02MW372A	09/10/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9547 J608	IR02MW373A	11/21/1995	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J904	IR02MW373A	03/04/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9619 J107	IR02MW373A	05/10/1996	0	A	NA	0.1 J	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0830G033	IR02MW373A	07/23/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9113X078	IR02MW87A	03/26/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A001	IR02MW87A	01/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J176	IR02MW89A	07/21/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9112X071	IR02MW93A	03/22/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A004	IR02MW93A	01/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J220	IR02MW97A	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J221	IR02MW97A	08/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0230P016	IR02MW97A	07/26/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238E003	IR02MW97A	09/16/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9203A028	IR02MWB-1	01/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J148	IR02MWB-1	07/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J149	IR02MWB-1	07/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J239	IR02MWB-1	08/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228 J151	IR02MWB-2	07/07/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J240	IR02MWB-2	08/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0112T011	IR02MWB-2	03/28/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0230P011	IR02MWB-2	07/24/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0239 J005	IR02MWB-2	09/24/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9204X432	IR02MWB-3	01/20/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J241	IR02MWB-3	08/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J242	IR02MWB-3	08/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0425S045	IR02MWB-3	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C055	IR02MWB-3	09/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448C019	IR02MWB-3	11/23/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.67	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G047	IR02MWB-3	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.54 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J245	IR02MWB-5	08/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<.02 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<.02 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	1 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228X664	IR03MW218A2	07/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X730	IR03MW218A2	08/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110T012	IR03MW218A2	03/14/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	0.6	NA	<1 U	2	<1 U	NA	<1 U	NA	<2 U2	NA	NA	<5 U4	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0231D006	IR03MW218A2	07/30/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	1.1	<0.5 U	NA	<0.5 U	NA	1.2	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0239A002	IR03MW218A2	09/23/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	0.63	NA	<2 U	1.3	<0.5 U	NA	0.23 J	NA	1.6	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425H025	IR03MW218A2	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	1.3	<0.5 U	NA	<0.5 U	NA	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J022	IR03MW218A2	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.83 J3	<0.5 U	NA	<0.5 U	NA	0.9 J3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448C020	IR03MW218A2	11/23/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.69	<0.5 U	NA	<0.5 U	NA	0.75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510G025	IR03MW218A2	03/10/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	1	<0.5 U	NA	<0.5 U	NA	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G039	IR03MW218A2	06/27/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.16 J	NA	<2 U	1.2	<0.5 U	NA	0.16 J	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538A027	IR03MW218A2	09/21/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.86	<0.5 U	NA	0.11 J	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H042	IR03MW218A2	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	1.2	<0.5 U	NA	0.17 J	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623T023	IR03MW218A2	06/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.19 J	NA	<2 U	1.2	<0.5 U	NA	0.15 J	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636D036	IR03MW218A2	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	1.6	<0.5 U	NA	0.2 J	NA	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0650B043	IR03MW218A2	12/12/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	0.19 J	NA	<2 UJ	1	<0.5 U	NA	0.12 J	NA	0.87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709L012	IR03MW218A2	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.29 J	NA	<2 U	1.2 J	<0.5 U	NA	<0.5 U	NA	1.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719G001	IR03MW218A2	05/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.2 J	NA	<2 U	1.1	<0.5 U	NA	<0.5 U	NA	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D035	IR03MW218A2	08/21/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.31 J	NA	<2 U	1.3 J	<0.5 U	NA	<0.5 U	NA	1.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741D035	IR03MW218A2	10/08/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	1.3	<0.5 U	NA	<0.5 U	NA	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810D051	IR03MW218A2	03/04/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.98 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0823H060	IR03MW218A2	06/04/2008	0	A	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	0.69	<0.5 U	NA	<0.5 U	NA	0.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A091	IR03MW218A3	01/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	2 J	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X729	IR03MW218A3	08/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110T014	IR03MW218A3	03/14/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U2	NA	NA	<5 U4	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0231E013	IR03MW218A3	08/01/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.25 J	<0.5 U	NA	0.13 J	NA	0.67	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0239E007	IR03MW218A3	09/25/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.37 J	<0.5 U	NA	0.18 J	NA	0.85	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9204X451	IR03MW224A	01/23/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J196	IR03MW224A	07/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X734	IR03MW224A	08/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0109P003	IR03MW224A	03/06/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U2	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0230A007	IR03MW224A	07/23/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.48 J	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237S010	IR03MW224A	09/11/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.34 J	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425C032	IR03MW224A	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J023	IR03MW224A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C025	IR03MW224A	11/29/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C026	IR03MW224A	11/29/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511Z018	IR03MW224A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	1	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G044	IR03MW224A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G045	IR03MW224A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.45 J3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538T029	IR03MW224A	09/22/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602V032	IR03MW224A	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611S013	IR03MW224A	03/14/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623P049	IR03MW224A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0634G007	IR03MW224A	08/25/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B038	IR03MW224A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709G047	IR03MW224A	02/28/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.38 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720W046	IR03MW224A	05/18/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734H057	IR03MW224A	08/20/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740D024	IR03MW224A	10/04/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E022	IR03MW224A	02/27/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E029	IR03MW224A	04/21/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X470	IR03MW225A	01/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	3 J	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	4 J	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9614Z024	IR03MW225A	04/03/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9625Z049	IR03MW225A	06/19/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9205X461	IR03MW226A	01/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	1 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J197	IR03MW226A	07/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	3 J	3 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J198	IR03MW226A	07/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	3 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	3 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235 J244	IR03MW228B	08/28/1992	0	B	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0231E018	IR03MW228B	08/02/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237S014	IR03MW228B	09/12/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425X002	IR03MW228B	06/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425X003	IR03MW228B	06/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C042	IR03MW228B	09/14/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447C011	IR03MW228B	11/19/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	0.34 J	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511T036	IR03MW228B	03/15/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526M047	IR03MW228B	06/27/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538T034	IR03MW228B	09/23/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H039	IR03MW228B	01/09/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H040	IR03MW228B	01/09/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611S027	IR03MW228B	03/17/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611S028	IR03MW228B	03/17/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622V021	IR03MW228B	06/01/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0634G005	IR03MW228B	08/25/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0648D018	IR03MW228B	11/29/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0707W004	IR03MW228B	02/16/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719G003	IR03MW228B	05/10/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719G004	IR03MW228B	05/10/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D034	IR03MW228B	08/21/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741W036	IR03MW228B	10/08/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810D050	IR03MW228B	03/04/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E030	IR03MW228B	04/21/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228X647	IR03MW342A	07/06/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9235X736	IR03MW342A	08/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9612 J944	IR03MW342A	03/21/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9612 J945	IR03MW342A	03/21/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0110T017	IR03MW342A	03/15/2001	0	A	NA	<1 U	<1 U	NA	<1 UJ7	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 UJ7	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 UJ7	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0110T018	IR03MW342A	03/15/2001	0	A	NA	<1 U	<1 U	NA	<1 UJ7	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 UJ7	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 UJ7	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0230A013	IR03MW342A	07/25/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	1.8	<0.5 U	NA	<0.5 U	NA	0.55	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238 J004	IR03MW342A	09/16/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.19 J	<0.5 U	NA	<0.5 U	NA	0.16 J	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425S039	IR03MW342A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G042	IR03MW342A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448C016	IR03MW342A	11/22/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510G026	IR03MW342A	03/10/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G043	IR03MW342A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538A028	IR03MW342A	09/21/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H043	IR03MW342A	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H044	IR03MW342A	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611S012	IR03MW342A	03/14/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622S011	IR03MW342A	06/01/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636D037	IR03MW342A	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.25 J	<0.5 U	NA	<0.5 U	NA	0.34 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636D038	IR03MW342A	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.23 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0650W041	IR03MW342A	12/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708L005	IR03MW342A	02/22/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720G016	IR03MW342A	05/15/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0735W059	IR03MW342A	08/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741G024	IR03MW342A	10/08/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809D031	IR03MW342A	02/28/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E034	IR03MW342A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9548 J613	IR03MW369A	11/29/1995	0	A	NA	<0.5 UJ05	<0.5 UR0	NA	<0.5 UJ05	<0.5 UJ5	NA	NA	NA	NA	NA	NA	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ05	NA	NA	NA	NA	NA	NA	<4 UJ5	NA	<4 UR0	NA	NA	NA	NA	NA	NA	NA
9610 J911	IR03MW369A	03/06/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9621 J126	IR03MW369A	05/20/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9548 J615	IR03MW370A	11/30/1995	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J908	IR03MW370A	03/06/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9620 J125	IR03MW370A	05/16/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.1 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9548 J617	IR03MW371A	11/30/1995	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9548 J618	IR03MW371A	11/30/1995	0	A	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<4 UJ3	NA	<4 UJ3	NA	NA	NA	NA	NA	NA	NA
9610 J912	IR03MW371A	03/06/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9620 J123	IR03MW371A	05/16/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9620 J124	IR03MW371A	05/16/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0229H002	IR03MW372A	07/17/2002	0	A	<1 U	<1 U	<1 U	<5 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	NA	NA	<10 UJ7	<1 U	<10 U	NA	NA	NA	<1 U	NA	<1 U	<1 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0229H003	IR03MW372A	07/18/2002	0	A	<1 U	<1 U	<1 U	<5 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<10 UJ7	<1 U	<10 U	NA	NA	NA	<1 U	NA	<1 U	<1 U
0229H004	IR03MW372A	07/18/2002	0	A	<1 U	<1 U	<1 U	<5 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<10 UJ7	<1 U	<10 U	NA	NA	NA	<1 U	NA	<1 U	<1 U
0425S037	IR03MW373B	06/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J024	IR03MW373B	09/14/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447C013	IR03MW373B	11/19/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510R032	IR03MW373B	03/10/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G046	IR03MW373B	06/28/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538A040	IR03MW373B	09/23/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H041	IR03MW373B	01/09/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611S026	IR03MW373B	03/17/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623P056	IR03MW373B	06/08/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0634G006	IR03MW373B	08/25/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G031	IR03MW373B	12/04/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709G048	IR03MW373B	02/28/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720A055	IR03MW373B	05/17/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0735W060	IR03MW373B	08/27/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740D023	IR03MW373B	10/04/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E020	IR03MW373B	02/27/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E021	IR03MW373B	02/27/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E028	IR03MW373B	04/21/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<.02 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<.02 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X620	IR04MW09A	06/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9146X259	IR04MW13A	11/14/1991	0	A	NA	88	<5 U	NA	<5 U	34	20	NA	NA	NA	NA	NA	NA	<5 U	8	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X518	IR04MW13A	02/12/1992	0	A	NA	159.16	<5 U	NA	<5 U	44.67	32	NA	NA	NA	NA	NA	NA	<5 U	6	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X519	IR04MW13A	02/12/1992	0	A	NA	133.97	<5 U	NA	<5 U	55.32	37.65	NA	NA	NA	NA	NA	NA	<5 U	7.1	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X627	IR04MW13A	06/17/1992	0	A	NA	66	<5 U	NA	<5 U	40	32	NA	NA	NA	NA	NA	NA	<5 U	8	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X628	IR04MW13A	06/17/1992	0	A	NA	98	2 J	NA	<5 U	46	34	NA	NA	NA	NA	NA	NA	1 J	10	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110P006	IR04MW13A	03/12/2001	0	A	NA	34	<1 U	NA	<1 U	39	36	NA	NA	NA	<1 U	NA	<1 U	0.8	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229P012	IR04MW13A	07/18/2002	0	A	NA	39	<0.5 U	<0.5 U	<0.5 U	50	44	NA	<2 U	NA	<2 U	NA	<2 U	1.6	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238 J002	IR04MW13A	09/16/2002	0	A	NA	34	<0.5 U	<0.5 U	<0.5 U	39	37	NA	<2 U	NA	<2 U	NA	<2 U	1.5	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0427S052	IR04MW13A	06/28/2004	0	A	<0.5 U	27	<0.5 U	<0.5 U	<0.5 U	34	26	NA	NA	<1 U	<0.5 U	NA	NA	1.1	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G051	IR04MW13A	09/16/2004	0	A	<0.5 U	25	<0.5 U	<0.5 U	<0.5 U	36	33	NA	NA	<1 U	<0.5 U	NA	NA	0.74	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0450G051	IR04MW13A	12/06/2004	0	A	<0.5 U	27	<0.5 U	<0.5 U	<0.5 U	39	35	NA	NA	<1 U	<0.5 U	NA	NA	1.2	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0509G009	IR04MW13A	03/03/2005	0	A	<0.5 U	21	<0.5 U	<0.5 U	<0.5 U	31	30	NA	NA	<1 U	<0.5 U	NA	NA	<0.6 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526T039	IR04MW13A	06/27/2005	0	A	<0.5 U	18	<0.5 U	<0.5 U	<0.5 U	25 J7	24	NA	NA	<1 U	<0.5 U	NA	NA	<0.6 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0537T010	IR04MW13A	09/15/2005	0	A	<0.5 U	32	<0.5 U	<0.5 U	<0.5 U	40	41	NA	NA	<1 U	<0.5 U	NA	NA	1.6	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0537T011	IR04MW13A	09/15/2005	0	A	<0.5 U	34	<0.5 U	<0.5 U	<0.5 U	45	46	NA	NA	<1 U	<0.5 U	NA	NA	1.3	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D039	IR04MW13A	01/11/2006	0	A	<0.5 U	20	<0.5 U	<0.5 U	<0.5 U	31	29	NA	NA	<1 U	<0.5 U	NA	NA	0.65	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611 J032	IR04MW13A	03/16/2006	0	A	<0.5 U	17	<0.5 UJ	<0.5 U	<0.5 U	29	22	NA	NA	<1 UJ	<0.5 UJ	NA	NA	0.51	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611 J033	IR04MW13A	03/16/2006	0	A	<0.5 U	18	<0.5 UJ	<0.5 U	<0.5 U	30	22	NA	NA	<1 UJ	<0.5 UJ	NA	NA	0.49 J	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622T013	IR04MW13A	05/31/2006	0	A	<0.5 U	20	<0.5 U	<0.5 U	<0.5 U	40	64	NA	NA	<1 U	<0.5 U	NA	NA	0.59	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649D036	IR04MW13A	12/07/2006	0	A	<0.5 U	31	<0.5 U	<0.5 U	<0.5 U	45	42	NA	NA	<1 U	<0.5 U	NA	NA	1.6	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G030	IR04MW13A	02/21/2007	0	A	<0.5 U	20	<0.5 U	<0.5 U	<0.5 U	36	35	NA	NA	<1 U	<0.5 U	NA	NA	0.7	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0719W020	IR04MW13A	05/10/2007	0	A	<0.5 U	21	<0.5 U	<0.5 U	<0.5 U	32	26	NA	NA	<1 U	<0.5 U	NA	NA	0.9	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D031	IR04MW13A	08/20/2007	0	A	<0.5 U	32	<0.5 UJ	0.6	<0.5 U	42	42	NA	NA	<1 UJ	<0.5 U	NA	NA	1.9	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741D034	IR04MW13A	10/08/2007	0	A	<0.5 U	30	<0.5 U	<0.5 U	<0.5 U	48	61	NA	NA	<1 U	<0.5 U	NA	NA	1.8	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H025	IR04MW13A	02/27/2008	0	A	<0.5 U	13	<0.5 U	<0.5 U	<0.5 U	28	21	NA	NA	<1 U	<0.5 UJ	NA	NA	0.34 J	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0830H028	IR04MW13A	07/22/2008	0	A	<0.5 U	26	<0.5 U	<0.5 U	<0.5 U	39	33	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0912N016	IR04MW13A	03/16/2009	0	A	<0.5 U	13	<0.5 U	<0.5 U	<0.5 U	30	22	NA	NA	<1 U	<0.5 U	NA	NA	0.42	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P013	IR04MW13A	04/16/2009	0	A	<0.5 U	14	<0.5 U	<0.5 U	<0.5 U	28	23	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X256	IR04MW31A	11/14/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X517	IR04MW31A	02/12/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X629	IR04MW31A	06/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0110P026	IR04MW31A	03/16/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0230A008	IR04MW31A	07/23/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J011	IR04MW31A	09/11/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0836G019	IR04MW31A	09/04/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841H014	IR04MW31A	10/08/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0913W055	IR04MW31A	03/24/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916H004	IR04MW31A	04/14/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928W014	IR04MW31A	07/07/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0941H020	IR04MW31A	10/05/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	4 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X623	IR04MW35A	06/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	2 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	4 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0111P003	IR04MW35A	03/19/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229E020	IR04MW35A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.76	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.18 J	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237G008	IR04MW35A	09/10/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.64	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9146X254	IR04MW36A	11/14/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9146X255	IR04MW36A	11/14/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X523	IR04MW36A	02/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X524	IR04MW36A	02/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X630	IR04MW36A	06/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 UJ7	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438T014	IR04MW36A	09/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449P037	IR04MW36A	12/02/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0509G004	IR04MW36A	03/02/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524T014	IR04MW36A	06/16/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0536T003	IR04MW36A	09/08/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0601T023	IR04MW36A	01/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612H046	IR04MW36A	03/22/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622T012	IR04MW36A	05/31/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0648G018	IR04MW36A	11/28/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G038	IR04MW36A	02/22/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0718 J007	IR04MW36A	05/01/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734H071	IR04MW36A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741N003	IR04MW36A	10/08/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809D012	IR04MW36A	02/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0830H031	IR04MW36A	07/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0912W027	IR04MW36A	03/16/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X282	IR04MW37A	11/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9207X530	IR04MW37A	02/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X531	IR04MW37A	02/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X621	IR04MW37A	06/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X622	IR04MW37A	06/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0111P017	IR04MW37A	03/21/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229P013	IR04MW37A	07/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237G007	IR04MW37A	09/10/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425G033	IR04MW37A	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G043	IR04MW37A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G044	IR04MW37A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C037	IR04MW37A	12/01/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R053	IR04MW37A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526M049	IR04MW37A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539T040	IR04MW37A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0601T025	IR04MW37A	01/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611T032	IR04MW37A	03/17/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M026	IR04MW37A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649W034	IR04MW37A	12/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708L002	IR04MW37A	02/20/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0718A004	IR04MW37A	05/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J056	IR04MW37A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W017	IR04MW37A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809P007	IR04MW37A	02/26/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0823G046	IR04MW37A	06/03/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0829G018	IR04MW37A	07/18/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841H016	IR04MW37A	10/08/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0911B027	IR04MW37A	03/13/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P002	IR04MW37A	04/14/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928W012	IR04MW37A	07/07/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0941H021	IR04MW37A	10/05/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X264	IR04MW38A	11/15/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X632	IR04MW38A	06/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0111D002	IR04MW38A	03/20/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0111D003	IR04MW38A	03/20/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229A008	IR04MW38A	07/17/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J007	IR04MW38A	09/10/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9147X283	IR04MW39A	11/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	2 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X625	IR04MW39A	06/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	2 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
0111T011	IR04MW39A	03/21/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0111T012	IR04MW39A	03/21/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229E015	IR04MW39A	07/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0236S002	IR04MW39A	09/06/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0236S003	IR04MW39A	09/06/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9146X261	IR04MW40A	11/15/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9225X631	IR04MW40A	06/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X644	IR05MW73A	06/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 UJ7	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X269	IR05MW74A	11/18/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X640	IR05MW74A	06/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207A100	IR05MW76A	02/11/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X642	IR05MW76A	06/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	4 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	9	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X643	IR05MW76A	06/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	4 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	10	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207A096	IR05MW77A	02/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207A097	IR05MW77A	02/10/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X635	IR05MW77A	06/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X639	IR05MW82A	06/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X636	IR05MW85A	06/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	6	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9225X637	IR05MW85A	06/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	5	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J194	IR05MW85A	07/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	7	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9230 J195	IR05MW85A	07/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	7	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9612W183	IR05MW85A	03/21/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.6	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0425H026	IR05MW85A	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C044	IR05MW85A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C035	IR05MW85A	12/01/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R050	IR05MW85A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525G030	IR05MW85A	06/22/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525G031	IR05MW85A	06/22/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538T033	IR05MW85A	09/23/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D046	IR05MW85A	01/13/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D047	IR05MW85A	01/13/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612 J048	IR05MW85A	03/23/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M032	IR05MW85A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636E006	IR05MW85A	09/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B026	IR05MW85A	12/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709N003	IR05MW85A	02/28/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0718 J013	IR05MW85A	05/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734H075	IR05MW85A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W015	IR05MW85A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H026	IR05MW85A	02/27/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816E025	IR05MW85A	04/16/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H279	IR08MW37A	07/11/1990	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9028H280	IR08MW37A	07/11/1990	0	A	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	NA	<5 UJ3	<5 UJ3	NA	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	<0.01 UJ3	NA	<10 UJ3	NA	NA	NA	NA	NA	NA	NA
9101 J120	IR08MW37A	01/03/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9101 J121	IR08MW37A	01/03/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9128X091	IR08MW37A	07/10/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9128X092	IR08MW37A	07/10/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9151X352	IR08MW37A	12/19/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9344X052	IR08MW37A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9405N295	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9405N296	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	<1 UJ3	NA	<1 UJ3	NA	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X278	IR08MW37A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9434M578	IR08MW37A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H273	IR08MW38A	07/10/1990	0	A	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	NA	<5 UJ3	<5 UJ3	NA	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	<0.01 UJ3	NA	<10 UJ3	NA	NA	NA	NA	NA	NA	NA
9101 J123	IR08MW38A	01/03/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9128X094	IR08MW38A	07/10/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9151X358	IR08MW38A	12/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9344X050	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9344X051	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9405N298	IR08MW38A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	<1 UJ3	NA	<1 UJ3	NA	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X277	IR08MW38A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9434M579	IR08MW38A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H274	IR08MW39A	07/10/1990	0	A	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	NA	<5 UJ3	<5 UJ3	NA	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	<0.01 UJ3	NA	<10 UJ37	NA	NA	NA	NA	NA	NA	NA
9101 J126	IR08MW39A	01/03/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9128X095	IR08MW39A	07/10/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9151X359	IR08MW39A	12/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9151X360	IR08MW39A	12/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9435E158	IR08MW39A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H276	IR08MW40A	07/10/1990	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9028H277	IR08MW40A	07/10/1990	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9101 J128	IR08MW40A	01/04/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9128X093	IR08MW40A	07/10/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9151X353	IR08MW40A	12/19/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9151X354	IR08MW40A	12/19/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9345X055	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	<1 UJ5	NA	<1 UJ5	NA	NA	<5 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	NA
9345X056	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	<1 UJ5	NA	<1 UJ5	NA	NA	<5 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X183	IR08MW40A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X287	IR08MW40A	05/11/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9435E160	IR08MW40A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9028H281	IR08MW41A	07/11/1990	0	A	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	NA	<5 UJ3	<5 UJ3	NA	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	<0.01 UJ3	NA	<10 UJ3	NA	NA	NA	NA	NA	NA	NA
9101 J130	IR08MW41A	01/04/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9128X098	IR08MW41A	07/11/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9151X355	IR08MW41A	12/19/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9344X053	IR08MW41A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X181	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X182	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X286	IR08MW41A	05/11/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9435E159	IR08MW41A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
0830D039	IR08MW41A	07/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0911D015	IR08MW41A	03/11/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9141X204	IR08MW42A	10/07/1991	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9151X362	IR08MW42A	12/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9344X045	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9344X046	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9406X185	IR08MW42A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X275	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9419X276	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9434M577	IR08MW42A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
9440X501	IR08MW43A	10/03/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9440X502	IR08MW43A	10/03/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9606W066	IR08MW43A	02/05/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J913	IR08MW43A	03/07/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9440X504	IR08MW44A	10/04/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9440X505	IR08MW44A	10/04/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9606W064	IR08MW44A	02/05/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.4 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9606W065	IR08MW44A	02/05/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.4 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J914	IR08MW44A	03/07/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
8914W25	IR11MW25A	03/10/1989	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<7 U1	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9034G313	IR11MW25A	08/22/1990	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1000 U	NA	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	NA
9034G314	IR11MW25A	08/22/1990	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1000 U	NA	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	NA
9147X289	IR11MW25A	11/22/1991	0	A	NA	<5 U	<5 U	NA	<5 U	3 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X748	IR11MW25A	09/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9917B004	IR11MW25A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P014	IR11MW25A	03/09/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9034G301	IR11MW26A	08/21/1990	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1000 U	NA	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	NA
9147X288	IR11MW26A	11/22/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X747	IR11MW26A	09/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9917B001	IR11MW26A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P012	IR11MW26A	03/09/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0231E005	IR11MW26A	07/30/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J022	IR11MW26A	09/13/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
8914W27	IR11MW27A	03/10/1989	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<12 U1	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9034G300	IR11MW27A	08/21/1990	0	A	NA	<0.5 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<2 U	<1 U	<0.5 U	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1000 U	NA	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	NA
9147X287	IR11MW27A	11/22/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X746	IR11MW27A	09/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9917Z019	IR11MW27A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P016	IR11MW27A	03/09/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229D013	IR11MW27A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0229D019	IR11MW27A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237G013	IR11MW27A	09/12/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.17 J	NA	NA	20 R7	NA	<20 UJ3	NA	NA	NA	NA	NA	NA	NA
0427S049	IR11MW27A	06/28/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J031	IR11MW27A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511T037	IR11MW27A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526D038	IR11MW27A	06/29/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602 J042	IR11MW27A	01/09/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611H033	IR11MW27A	03/17/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S022	IR11MW27A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0635M020	IR11MW27A	08/28/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709Z030	IR11MW27A	03/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720A058	IR11MW27A	05/18/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X179	IR12MW11A	08/26/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X547	IR12MW11A	02/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9612W185	IR12MW11A	03/22/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0110P013	IR12MW11A	03/13/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226P016	IR12MW11A	06/28/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0236E008Z	IR12MW11A	09/06/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0839G034	IR12MW11A	09/23/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0912W037	IR12MW11A	03/17/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P014	IR12MW11A	04/16/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X185	IR12MW12A	08/27/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X544	IR12MW12A	02/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X782	IR12MW12A	09/21/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9239X783	IR12MW12A	09/21/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9134X180	IR12MW13A	08/26/1991	0	A	NA	<5 U	<5 U	NA	<5 U	4 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X545	IR12MW13A	02/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X546	IR12MW13A	02/24/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X787	IR12MW13A	09/22/1992	0	A	NA	<5 U	<5 U	NA	<5 U	6.26	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9239X788	IR12MW13A	09/22/1992	0	A	NA	<5 U	<5 U	NA	<5 U	6.1	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
0111P018	IR12MW13A	03/21/2001	0	A	NA	<1 U	<1 U	NA	<1 U	0.3 J	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226E020	IR12MW13A	06/27/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.44 J	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	2.2	<0.5 U	NA	<0.5 U	NA	0.55	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0236E003Z	IR12MW13A	09/05/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.53	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	0.16 J	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425R003	IR12MW13A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.27 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425R004	IR12MW13A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438T009	IR12MW13A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.41 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438T010	IR12MW13A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.41 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449P026	IR12MW13A	11/30/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.48 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510R031	IR12MW13A	03/10/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.87	<0.5 U	NA	0.12 J	NA	0.57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526R037	IR12MW13A	06/27/2005	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	0.41 J	<0.5 UJ	NA	NA	<1 UJ	<0.5 UJ	NA	NA	<0.5 UJ	NA	<2 UJ	<0.5 UJ	<0.5 UJ	NA	<0.5 UJ	NA	<0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538D045	IR12MW13A	09/23/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.31 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H036	IR12MW13A	01/09/2006	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	0.21 J	<0.5 UJ	NA	NA	<1 UJ	<0.5 UJ	NA	NA	<0.5 UJ	NA	<2 UJ	<0.5 UJ	<0.5 UJ	NA	<0.5 UJ	NA	<0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612T037	IR12MW13A	03/21/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.27 J	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M033	IR12MW13A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.41 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0634D016	IR12MW13A	08/25/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.45 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G040	IR12MW13A	12/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.33 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G041	IR12MW13A	12/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.35 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709Z018	IR12MW13A	02/26/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.4 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0718D009	IR12MW13A	05/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.35 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734H073	IR12MW13A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734H074	IR12MW13A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740H031	IR12MW13A	10/04/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809D021	IR12MW13A	02/26/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.26 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816G015	IR12MW13A	04/16/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.29 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916H005	IR12MW13A	04/14/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X181	IR12MW14A	08/26/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9134X182	IR12MW14A	08/26/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9209X552	IR12MW14A	02/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X789	IR12MW14A	09/22/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
0110P012	IR12MW14A	03/13/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226E022	IR12MW14A	06/28/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	0.34 J	NA	<2 U	<0.5 U	NA	<2 U	84 J8	<0.5 U	NA	0.72	NA	19	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0236G004	IR12MW14A	09/06/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0236G006	IR12MW14A	09/06/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425S047	IR12MW14A	06/18/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G048	IR12MW14A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C036	IR12MW14A	12/01/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510G022	IR12MW14A	03/09/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526R038	IR12MW14A	06/27/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539A049	IR12MW14A	09/27/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H037	IR12MW14A	01/09/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H038	IR12MW14A	01/09/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612S034	IR12MW14A	03/22/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	0.7 J	NA	NA	<0.5 U	NA	<2 U	1.7 J	<0.5 U	NA	0.19 J	NA	0.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623D041	IR12MW14A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	0.41 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636C017	IR12MW14A	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	0.3 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636C018	IR12MW14A	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	0.27 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G042	IR12MW14A	12/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709W030	IR12MW14A	03/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720A054	IR12MW14A	05/17/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0735W064	IR12MW14A	08/28/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0742D056	IR12MW14A	10/15/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E031	IR12MW14A	02/29/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0823H061	IR12MW14A	06/04/2008	0	A	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916H002	IR12MW14A	04/14/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X186	IR12MW15A	08/27/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X553	IR12MW15A	02/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X778	IR12MW15A	09/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
0232E003	IR12MW15A	08/06/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238A003	IR12MW15A	09/16/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0238A004	IR12MW15A	09/16/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9134X188	IR12MW16A	08/27/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9134X189	IR12MW16A	08/27/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X555	IR12MW16A	02/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X797	IR12MW16A	09/24/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9234X690	IR12MW17A	08/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9234X691	IR12MW17A	08/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X795	IR12MW17A	09/24/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9612W186	IR12MW17A	03/22/1996	0	A	NA	2	<0.5 U	NA	<0.5 U	17	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0110T002	IR12MW17A	03/12/2001	0	A	NA	<1 U	<1 U	NA	<1 U	1	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	0.8 J	<1 U	NA	<1 U	NA	<2 U2	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229P018	IR12MW17A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.32 J	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.42 J	<0.5 U	NA	<0.5 U	NA	1.7	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0229P019	IR12MW17A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.33 J	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.41 J	<0.5 U	NA	<0.5 U	NA	1.7	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238A002	IR12MW17A	09/16/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.52	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	0.3 J	NA	<2 U	0.44 J	<0.5 U	NA	<0.5 U	NA	1.4	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0424M013	IR12MW17A	06/10/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.54	<0.5 U	NA	<0.5 U	NA	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0437P031	IR12MW17A	09/10/2004	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	0.39 J3	<0.5 UJ3	NA	NA	<1 UJ3	<0.5 UJ3	NA	NA	<0.5 UJ3	NA	<2 UJ3	0.41 J3	<0.5 UJ3	NA	<0.5 UJ3	NA	1.8 J3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447C009	IR12MW17A	11/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.33 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.39 J	NA	<2 U	0.79	<0.5 U	NA	0.11 J	NA	2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0509R005	IR12MW17A	03/02/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.2 J	NA	<2 U	0.82	<0.5 U	NA	0.25 J	NA	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0525T026	IR12MW17A	06/21/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.32 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.92	<0.5 U	NA	0.17 J	NA	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9234X692	IR12MW18A	08/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X793	IR12MW18A	09/24/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9239X794	IR12MW18A	09/24/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9613W189	IR12MW18A	03/25/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9613W190	IR12MW18A	03/25/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0109T022	IR12MW18A	03/09/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229A012	IR12MW18A	07/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0236E002Z	IR12MW18A	09/05/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0916H003	IR12MW18A	04/14/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9234X693	IR12MW19A	08/19/1992	0	A	NA	12	<5 U	NA	<5 U	17	1 J	NA	NA	NA	NA	NA	NA	2 J	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X800	IR12MW19A	09/25/1992	0	A	NA	8.79 J	<10 U	NA	<10 U	28.13	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9239X801	IR12MW19A	09/25/1992	0	A	NA	8.29 J	<10 U	NA	<10 U	26.95	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9613W191	IR12MW19A	03/25/1996	0	A	NA	5	<0.5 U	NA	<0.5 U	19	1	NA	NA	NA	NA	NA	NA	0.9	0.9	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0110P005	IR12MW19A	03/12/2001	0	A	NA	8	<1 U	NA	<1 U	15	2	NA	NA	NA	<1 U	NA	<1 U	1	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0230P017	IR12MW19A	07/26/2002	0	A	NA	7.3	<0.5 U	<0.5 U	<0.5 U	14	1.3	NA	<2 U	NA	<2 U	NA	<2 U	0.85	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237S012	IR12MW19A	09/11/2002	0	A	NA	2	<0.5 U	<0.5 U	<0.5 U	9.7	0.89	NA	<2 U	NA	<2 U	NA	<2 U	0.64	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0916H010	IR12MW19A	04/15/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	17	0.94	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9234X694	IR12MW20A	08/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X799	IR12MW20A	09/25/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9613 J971	IR12MW20A	03/25/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0109T025	IR12MW20A	03/09/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229A015	IR12MW20A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0229A016	IR12MW20A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238S003	IR12MW20A	09/17/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ3	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9234X695	IR12MW21A	08/19/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<.02 U	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9239A459	IR12MW21A	09/23/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9614Z022	IR12MW21A	04/02/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9618 J076	IR12MW21A	05/02/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
0216F010	IR12MW21A	04/19/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X193	IR13MW10A	08/28/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X550	IR13MW10A	02/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X551	IR13MW10A	02/25/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X777	IR13MW10A	09/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9134X190	IR13MW11A	08/28/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	2 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X558	IR13MW11A	02/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X768	IR13MW11A	09/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9238X769	IR13MW11A	09/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9134X191	IR13MW12A	08/28/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9134X192	IR13MW12A	08/28/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X557	IR13MW12A	02/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X775	IR13MW12A	09/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9238X776	IR13MW12A	09/18/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9148X304	IR14MW09A	11/27/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9148X305	IR14MW09A	11/27/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X559	IR14MW09A	02/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X560	IR14MW09A	02/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X754	IR14MW09A	09/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9147X285	IR14MW10A	11/22/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9147X286	IR14MW10A	11/22/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X562	IR14MW10A	02/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X752	IR14MW10A	09/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9238X753	IR14MW10A	09/15/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
0109T018	IR14MW10A	03/08/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229D002	IR14MW10A	07/15/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238E013	IR14MW10A	09/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ7	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9147X272	IR14MW12A	11/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X561	IR14MW12A	02/26/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9234X696	IR14MW13A	08/19/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<.024 U4 J7	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239A457	IR14MW13A	09/23/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9239A458	IR14MW13A	09/23/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9614Z021	IR14MW13A	04/02/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9619 J102	IR14MW13A	05/09/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9917B003	IR14MW13A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0216F009	IR14MW13A	04/19/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X276	IR15MW06A	11/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	2 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X564	IR15MW06A	02/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	3 J	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	8.71	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9238X750	IR15MW06A	09/14/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9917Z021	IR15MW06A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109T011	IR15MW06A	03/07/2001	0	A	NA	<1 U	<1 U	NA	<1 U	1	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U4	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0109T012	IR15MW06A	03/07/2001	0	A	NA	<1 U	<1 U	NA	<1 U	1	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U4	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0233E007	IR15MW06A	08/13/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.2	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.28 J	<0.5 U	NA	<0.5 U	NA	1.2	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238A008	IR15MW06A	09/17/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.58	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ3	NA	<2 U	0.13 J	<0.5 U	NA	<0.5 U	NA	0.18 J	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425G041	IR15MW06A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0437P030	IR15MW06A	09/10/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.19 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C033	IR15MW06A	12/01/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.48 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G051	IR15MW06A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.19 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526T045	IR15MW06A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.63 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539D047	IR15MW06A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.59 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602V033	IR15MW06A	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.66 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611H032	IR15MW06A	03/17/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622S010	IR15MW06A	06/01/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.3 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0634M016	IR15MW06A	08/25/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.56 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649W037	IR15MW06A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.5 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708W007	IR15MW06A	02/19/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.43 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708W008	IR15MW06A	02/19/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.5 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720A050	IR15MW06A	05/16/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.54 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734W049	IR15MW06A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.54 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734W050	IR15MW06A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740G007	IR15MW06A	10/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.57 J	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H027	IR15MW06A	02/27/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.58 J	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H028	IR15MW06A	02/27/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.55 J	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816H024	IR15MW06A	04/17/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9147X273	IR15MW07A	11/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9147X274	IR15MW07A	11/20/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X565	IR15MW07A	02/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X566	IR15MW07A	02/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9233X676	IR15MW08A	08/13/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X792	IR15MW08A	09/24/1992	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9613W201	IR15MW08A	03/28/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9613W202	IR15MW08A	03/28/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9917B002	IR15MW08A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0216F007	IR15MW08A	04/18/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9233X673	IR15MW09F	08/13/1992	0	F	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X780	IR15MW09F	09/21/1992	0	F	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9613W195	IR15MW09F	03/27/1996	0	F	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0109P010	IR15MW09F	03/09/2001	0	F	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0227E008	IR15MW09F	07/02/2002	0	F	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.66	<0.5 U	NA	<0.5 U	NA	0.18 J	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237E016	IR15MW09F	09/12/2002	0	F	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.16 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 UJ3	NA	NA	NA	NA	NA	NA	NA
0237E017	IR15MW09F	09/12/2002	0	F	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.21 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 UJ3	NA	NA	NA	NA	NA	NA	NA
9233X674	IR15MW10F	08/13/1992	0	F	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9239X781	IR15MW10F	09/21/1992	0	F	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9613W198	IR15MW10F	03/27/1996	0	F	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0109D013Z	IR15MW10F	03/09/2001	0	F	NA	<1 U	<1 UJ7	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 UJ7	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 UJ7	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0228P007	IR15MW10F	07/09/2002	0	F	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<10 U	<1 U	<10 U	NA	NA	NA	<1 U	NA	<1 U	<1 U
0228P008	IR15MW10F	07/09/2002	0	F	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<10 U	<1 U	<10 U	NA	NA	NA	<1 U	NA	<1 U	<1 U
0237E015	IR15MW10F	09/12/2002	0	F	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 UJ3	NA	NA	NA	NA	NA	NA	NA
0425G040	IR15MW10F	06/17/2004	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J030	IR15MW10F	09/15/2004	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448P018	IR15MW10F	11/23/2004	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G037	IR15MW10F	03/14/2005	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G038	IR15MW10F	03/14/2005	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526T042	IR15MW10F	06/27/2005	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ7	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539S053	IR15MW10F	09/27/2005	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602V034	IR15MW10F	01/10/2006	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611H034	IR15MW10F	03/17/2006	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611H035	IR15MW10F	03/17/2006	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622V022	IR15MW10F	06/01/2006	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0634M017	IR15MW10F	08/25/2006	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649W036	IR15MW10F	12/08/2006	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708W009	IR15MW10F	02/19/2007	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720A045	IR15MW10F	05/15/2007	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734W051	IR15MW10F	08/23/2007	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740G008	IR15MW10F	10/02/2007	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H029	IR15MW10F	02/27/2008	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816H026	IR15MW10F	04/17/2008	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9134X199	IR17MW11A	08/29/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	5	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X570	IR17MW11A	02/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	4 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X760	IR17MW11A	09/16/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	3.29 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9238X761	IR17MW11A	09/16/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	3.78 J	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9603 J803	IR17MW11A	01/16/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	5	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9134X198	IR17MW12A	08/29/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X568	IR17MW12A	02/27/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X770	IR17MW12A	09/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9134X196	IR17MW13A	08/29/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9134X197	IR17MW13A	08/29/1991	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X571	IR17MW13A	02/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9209X572	IR17MW13A	02/28/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9238X771	IR17MW13A	09/17/1992	0	A	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	<5 U	<5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9428E065	IR36MW09A	07/13/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 UJ7	NA	NA	NA	NA	NA	NA	NA
9604W038	IR36MW09A	01/25/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611 J932	IR36MW09A	03/15/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0720H060	IR36MW09A	05/18/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D054	IR36MW09A	08/24/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	0.14 J	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W022	IR36MW09A	10/04/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E037	IR36MW09A	02/29/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0823G044	IR36MW09A	06/03/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0829H013	IR36MW09A	07/18/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841C006	IR36MW09A	10/07/2008	0	A	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 UJ	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.1 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0911D011	IR36MW09A	03/10/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916H009	IR36MW09A	04/15/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928P008	IR36MW09A	07/08/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0940P005	IR36MW09A	10/02/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9437X471	IR36MW11A	09/12/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9437X472	IR36MW11A	09/12/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9603W012	IR36MW11A	01/18/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608 J883	IR36MW11A	02/21/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0109D011	IR36MW11A	03/07/2001	0	A	NA	<1 UJ0	<1 U	NA	<1 U	<1 UJ0	<1 UJ0	NA	NA	NA	0.8 J3	NA	<1 U	<0.5 UJ0	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 UJ0	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0109D014	IR36MW11A	03/07/2001	0	A	NA	<1 UJ0	<1 U	NA	0.5 J3	<1 UJ0	<1 UJ0	NA	NA	NA	<1 U	NA	<1 U	<0.5 UJ0	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U4 J03	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0229E018	IR36MW11A	07/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.1 J	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238G003	IR36MW11A	09/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ7	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425H027	IR36MW11A	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0437P026	IR36MW11A	09/09/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447 J012	IR36MW11A	11/19/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G042	IR36MW11A	03/14/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525G029	IR36MW11A	06/22/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539D049	IR36MW11A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602V037	IR36MW11A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612M040	IR36MW11A	03/21/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S016	IR36MW11A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B032	IR36MW11A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B033	IR36MW11A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709H036	IR36MW11A	02/26/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709H037	IR36MW11A	02/26/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719G005	IR36MW11A	05/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J066	IR36MW11A	08/24/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W023	IR36MW11A	10/04/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810H062	IR36MW11A	03/05/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0816H019	IR36MW11A	04/16/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9611 J923	IR36MW120B	03/13/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9617 J043	IR36MW120B	04/23/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9623 J174	IR36MW120B	06/04/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0111T016	IR36MW120B	03/22/2001	0	B	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226E024	IR36MW120B	06/28/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	0.37 J	NA	<2 U	<0.5 U	NA	<2 U	35	<0.5 U	NA	0.66	NA	17	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237S016	IR36MW120B	09/13/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425C034	IR36MW120B	06/16/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J027	IR36MW120B	09/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C040	IR36MW120B	12/02/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R041	IR36MW120B	03/14/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G042	IR36MW120B	06/27/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539V020	IR36MW120B	09/26/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H045	IR36MW120B	01/10/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612M042	IR36MW120B	03/21/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623D043	IR36MW120B	06/06/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G035	IR36MW120B	12/05/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708D019	IR36MW120B	02/19/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810E074	IR36MW120B	03/07/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9611 J924	IR36MW121A	03/13/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9617 J044	IR36MW121A	04/24/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9623 J175	IR36MW121A	06/04/1996	0	A	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<4 UJ5	NA	<4 UJ5	NA	NA	NA	NA	NA	NA	NA
9623 J176	IR36MW121A	06/04/1996	0	A	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<4 UJ5	NA	<4 UJ5	NA	NA	NA	NA	NA	NA	NA
0425G045	IR36MW121A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G049	IR36MW121A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449P031	IR36MW121A	12/01/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510D004	IR36MW121A	03/11/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524G019	IR36MW121A	06/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538T035	IR36MW121A	09/23/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H046	IR36MW121A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612 J044	IR36MW121A	03/22/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M034	IR36MW121A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G036	IR36MW121A	12/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708D018	IR36MW121A	02/19/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810E073	IR36MW121A	03/07/2008	0	A	<0.5 U	<0.5 U	<0.5 U	0.25 J	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9611W157	IR36MW122A	03/13/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.1 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9617 J055	IR36MW122A	04/25/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9623 J172	IR36MW122A	06/03/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0425X006	IR36MW122A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438T011	IR36MW122A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C042	IR36MW122A	12/02/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511T034	IR36MW122A	03/14/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524G020	IR36MW122A	06/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539T038	IR36MW122A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539T039	IR36MW122A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H047	IR36MW122A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612H040	IR36MW122A	03/20/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M035	IR36MW122A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0649W029	IR36MW122A	12/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649W030	IR36MW122A	12/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709L013	IR36MW122A	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709L014	IR36MW122A	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719A038	IR36MW122A	05/11/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719A039	IR36MW122A	05/11/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D048	IR36MW122A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D049	IR36MW122A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740D016	IR36MW122A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740D017	IR36MW122A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809D014	IR36MW122A	02/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809D015	IR36MW122A	02/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817H043	IR36MW122A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9611W156	IR36MW123B	03/13/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9618 J065	IR36MW123B	04/30/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9623 J171	IR36MW123B	06/03/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0109D006	IR36MW123B	03/06/2001	0	B	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226E023	IR36MW123B	06/28/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	8.7	<0.5 U	NA	<0.5 U	NA	2.2	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237E022	IR36MW123B	09/13/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425S040	IR36MW123B	06/16/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438B047	IR36MW123B	09/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448P019	IR36MW123B	11/23/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510G028	IR36MW123B	03/10/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524T019	IR36MW123B	06/17/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538T031	IR36MW123B	09/22/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602 J045	IR36MW123B	01/10/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612H047	IR36MW123B	03/22/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M036	IR36MW123B	06/08/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649G037	IR36MW123B	12/05/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709L010	IR36MW123B	02/26/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709L011	IR36MW123B	02/26/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720B002	IR36MW123B	05/17/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D046	IR36MW123B	08/23/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D047	IR36MW123B	08/23/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740D018	IR36MW123B	10/03/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809D013	IR36MW123B	02/25/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0823G042	IR36MW123B	06/03/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9604W031	IR36MW125A	01/24/1996	0	A	NA	<25 UJ5	<25 UJ5	NA	<25 UJ5	<25 UJ5	0.5 J0	NA	NA	NA	NA	NA	NA	<25 UJ5	680 J0	NA	NA	<25 UJ5	NA	NA	NA	NA	NA	NA	<200 UJ5	NA	<200 UJ5	NA	NA	NA	NA	NA	NA	NA
9611W165	IR36MW125A	03/15/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	0.3 J	NA	NA	NA	NA	NA	NA	<0.5 U	370 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9617 J057	IR36MW125A	04/26/1996	0	A	NA	<2 U	<2 U	NA	<2 U	<2 U	<2 U	NA	NA	NA	NA	NA	NA	<2 U	420 J8	NA	NA	<2 U	NA	NA	NA	NA	NA	NA	<20 U	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0109T008	IR36MW125A	03/06/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U4	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229E014	IR36MW125A	07/18/2002	0	A	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<4 U	NA	<4 U	NA	<4 U	<1 U	NA	<4 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	40R7	NA	40R7	NA	NA	NA	NA	NA	NA	NA
0238 J009	IR36MW125A	09/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ7	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0449P023	IR36MW125A	11/29/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511T038	IR36MW125A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526M046	IR36MW125A	06/27/2005	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	0.52 J3	<1 UJ37	3.1 J3	NA	NA	<1 UJ3	<0.5 UJ3	NA	NA	<0.5 UJ3	NA	<2 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611M035	IR36MW125A	03/17/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	0.32 J	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0623P055	IR36MW125A	06/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	3.7	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0837G026	IR36MW125A	09/11/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	3.9	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0911B010	IR36MW125A	03/10/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	1.2	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916H014	IR36MW125A	04/16/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	2.9	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9604W030	IR36MW126A	01/24/1996	0	A	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<4 UJ5	NA	<4 UJ5	NA	NA	NA	NA	NA	NA	NA
9611 J931	IR36MW126A	03/15/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9618 J063	IR36MW126A	04/29/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0109D012	IR36MW126A	03/07/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0109D015	IR36MW126A	03/07/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U4	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0230D007	IR36MW126A	07/24/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237E018	IR36MW126A	09/12/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 UJ3	NA	NA	NA	NA	NA	NA	NA
0425C037	IR36MW126A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438B045	IR36MW126A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448P017	IR36MW126A	11/23/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R048	IR36MW126A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R049	IR36MW126A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524G018	IR36MW126A	06/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D041	IR36MW126A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612M044	IR36MW126A	03/22/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623P050	IR36MW126A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0637S025	IR36MW126A	09/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649H021	IR36MW126A	12/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709Z021	IR36MW126A	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9604W036	IR36MW127A	01/25/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611 J930	IR36MW127A	03/15/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9618 J062	IR36MW127A	04/29/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0112T002	IR36MW127A	03/26/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226D021	IR36MW127A	06/28/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.55	<0.5 U	NA	<0.5 U	NA	0.13 J	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J003	IR36MW127A	09/09/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425C038	IR36MW127A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C045	IR36MW127A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C043	IR36MW127A	12/02/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511T041	IR36MW127A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524G017	IR36MW127A	06/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538A039	IR36MW127A	09/22/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602 J046	IR36MW127A	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612 J049	IR36MW127A	03/23/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623V030	IR36MW127A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0648H014	IR36MW127A	12/01/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709Z022	IR36MW127A	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720A042	IR36MW127A	05/14/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J057	IR36MW127A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J058	IR36MW127A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740H015	IR36MW127A	10/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809N004	IR36MW127A	02/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816N006	IR36MW127A	04/17/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0829H014	IR36MW127A	07/18/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0911D010	IR36MW127A	03/10/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0916H015	IR36MW127A	04/16/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928W024	IR36MW127A	07/10/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0940P006	IR36MW127A	10/02/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9604W032	IR36MW128A	01/24/1996	0	A	NA	0.5R0	0.5R0	NA	0.5R0	0.5R0	0.5R0	NA	NA	NA	NA	NA	NA	0.5R0	0.5R0	NA	NA	0.5R0	NA	NA	NA	NA	NA	NA	4R0	NA	4R0	NA	NA	NA	NA	NA	NA	NA
9611 J929	IR36MW128A	03/14/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9617 J037	IR36MW128A	04/22/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0109D008	IR36MW128A	03/06/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229P017	IR36MW128A	07/19/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237E010	IR36MW128A	09/10/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425G036	IR36MW128A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438C049	IR36MW128A	09/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449P036	IR36MW128A	12/02/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510S031	IR36MW128A	03/11/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510S032	IR36MW128A	03/11/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524T018	IR36MW128A	06/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539V022	IR36MW128A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D044	IR36MW128A	01/12/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D045	IR36MW128A	01/12/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612M046	IR36MW128A	03/23/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M023	IR36MW128A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B031	IR36MW128A	12/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G035	IR36MW128A	02/21/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720B003	IR36MW128A	05/17/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J059	IR36MW128A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J060	IR36MW128A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W011	IR36MW128A	10/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809N005	IR36MW128A	02/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E038	IR36MW128A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P008	IR36MW128A	04/15/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9611 J927	IR36MW129B	03/14/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9611 J928	IR36MW129B	03/14/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9617 J041	IR36MW129B	04/23/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9617 J042	IR36MW129B	04/23/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9622 J168	IR36MW129B	05/31/1996	0	B	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0109D011Z	IR36MW129B	03/09/2001	0	B	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229E021	IR36MW129B	07/19/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	7.4	<0.5 U	NA	<0.5 U	NA	1.6	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238E008	IR36MW129B	09/17/2002	0	B	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ3	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425G035	IR36MW129B	06/16/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438 J032	IR36MW129B	09/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C038	IR36MW129B	12/02/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C039	IR36MW129B	12/02/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R043	IR36MW129B	03/15/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524T017	IR36MW129B	06/17/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539V023	IR36MW129B	09/26/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602 J047	IR36MW129B	01/11/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612S035	IR36MW129B	03/22/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S023	IR36MW129B	06/07/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S024	IR36MW129B	06/07/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0649G047	IR36MW129B	12/07/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G033	IR36MW129B	02/21/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G034	IR36MW129B	02/21/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719G010	IR36MW129B	05/11/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719G011	IR36MW129B	05/11/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J061	IR36MW129B	08/23/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W009	IR36MW129B	10/02/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W010	IR36MW129B	10/02/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809N006	IR36MW129B	02/25/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E037	IR36MW129B	04/22/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9437X473	IR36MW12A	09/12/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9603W013	IR36MW12A	01/19/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608 J889	IR36MW12A	02/23/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0109D013	IR36MW12A	03/07/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0216F004	IR36MW12A	04/18/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425C033	IR36MW12A	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0437P034	IR36MW12A	09/10/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0447R007	IR36MW12A	11/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R040	IR36MW12A	03/14/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526T040	IR36MW12A	06/27/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526T041	IR36MW12A	06/27/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ7	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539A046	IR36MW12A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539A047	IR36MW12A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602V035	IR36MW12A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602V036	IR36MW12A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S017	IR36MW12A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S018	IR36MW12A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649H018	IR36MW12A	12/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709W023	IR36MW12A	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720B004	IR36MW12A	05/17/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D045	IR36MW12A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740H021	IR36MW12A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E034	IR36MW12A	02/29/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E041	IR36MW12A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9602 J783	IR36MW135A	01/09/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9607 J865	IR36MW135A	02/12/1996	0	A	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	NA	<0.5 UJ5	NA	0.5R7	NA	NA	NA	NA	NA	NA	NA
9611W164	IR36MW135A	03/15/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0230A002	IR36MW135A	07/22/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0230A003	IR36MW135A	07/22/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238 J006	IR36MW135A	09/17/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0823G056	IR36MW135A	06/06/2008	0	A	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0830E046	IR36MW135A	07/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0913W051	IR36MW135A	03/23/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9604Z011	IR36MW139A	01/22/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608 J888	IR36MW139A	02/23/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9613W199	IR36MW139A	03/28/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9444X560	IR36MW13A	11/03/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9444X561	IR36MW13A	11/03/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
9603W011	IR36MW13A	01/18/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608 J886	IR36MW13A	02/22/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9443X538	IR36MW14A	10/25/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9443X539	IR36MW14A	10/25/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9603W010	IR36MW14A	01/18/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608W116	IR36MW14A	02/22/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0109P006	IR36MW14A	03/08/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0109P007	IR36MW14A	03/08/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0234E004	IR36MW14A	08/20/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237G003	IR36MW14A	09/09/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0237G004	IR36MW14A	09/09/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0720H061	IR36MW14A	05/18/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J064	IR36MW14A	08/24/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740G011	IR36MW14A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740G012	IR36MW14A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E038	IR36MW14A	02/29/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E042	IR36MW14A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9438X484	IR36MW15A	09/20/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9438X485	IR36MW15A	09/20/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9605W060	IR36MW15A	02/01/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J903	IR36MW15A	03/04/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9439X498	IR36MW16A	09/27/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9439X499	IR36MW16A	09/27/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9605W054	IR36MW16A	01/31/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J906	IR36MW16A	03/05/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J907	IR36MW16A	03/05/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0425H034	IR36MW16A	06/18/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438T020	IR36MW16A	09/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C030	IR36MW16A	11/30/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510T028	IR36MW16A	03/11/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0524T020	IR36MW16A	06/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539D048	IR36MW16A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602 J048	IR36MW16A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611S018	IR36MW16A	03/15/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623V028	IR36MW16A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649D037	IR36MW16A	12/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709H039	IR36MW16A	02/26/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719W025	IR36MW16A	05/11/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719W026	IR36MW16A	05/11/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J065	IR36MW16A	08/24/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W021	IR36MW16A	10/04/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H038	IR36MW16A	02/28/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0845H039	IR36MW16A	11/07/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9442X532	IR36MW17A	10/18/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9442X533	IR36MW17A	10/18/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9603W016	IR36MW17A	01/19/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9603W017	IR36MW17A	01/19/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608 J887	IR36MW17A	02/23/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0719W023	IR36MW17A	05/11/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719W024	IR36MW17A	05/11/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D050	IR36MW17A	08/23/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W028	IR36MW17A	10/05/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E018	IR36MW17A	02/27/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809E019	IR36MW17A	02/27/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9441X521	IR38MW01A	10/12/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9441X522	IR38MW01A	10/12/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9604Z012	IR38MW01A	01/22/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608 J885	IR38MW01A	02/22/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9443X535	IR38MW02A	10/24/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9443X536	IR38MW02A	10/24/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9604W021	IR38MW02A	01/23/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9604W022	IR38MW02A	01/23/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9608W121	IR38MW02A	02/23/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9425E029	IR39MW21A	06/22/1994	0	A	NA	<100 U	<100 U	NA	<100 U	<100 U	<100 U	NA	NA	NA	NA	NA	NA	<100 U	<100 U	NA	NA	<100 U	NA	NA	NA	NA	NA	NA	<100 U	NA	<100 U	NA	NA	NA	NA	NA	NA	NA
9604W025	IR39MW21A	01/23/1996	0	A	NA	1R0	1R0	NA	1R0	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	8R0	NA	8R0	NA	NA	NA	NA	NA	NA	NA
9609 J886	IR39MW21A	02/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	0.4 J	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0109T024	IR39MW21A	03/09/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	0.3 J	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0227P007	IR39MW21A	07/02/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.35 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0227P008	IR39MW21A	07/02/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.31 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237S003	IR39MW21A	09/09/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	0.37 J	NA	<2 U	0.25 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0239R011	IR39MW21A	09/27/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425C036	IR39MW21A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.38 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C027	IR39MW21A	11/29/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	0.35 J	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0836G021	IR39MW21A	09/04/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841B026	IR39MW21A	10/10/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0913G003	IR39MW21A	03/25/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P005	IR39MW21A	04/14/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928W025	IR39MW21A	07/10/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0941H033	IR39MW21A	10/06/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9437X480	IR39MW22A	09/14/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9437X481	IR39MW22A	09/14/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9605W045	IR39MW22A	01/29/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9609 J897	IR39MW22A	02/29/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9437K156	IR39MW23A	09/15/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9437K157	IR39MW23A	09/15/1994	0	A	NA	<10 UJ5	<10 UJ5	NA	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA	NA	NA	NA	NA	<10 UJ5	<10 UJ5	NA	NA	<10 UJ5	NA	NA	NA	NA	NA	NA	<10 UJ5	NA	<10 UJ5	NA	NA	NA	NA	NA	NA	NA
9604W040	IR39MW23A	01/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9604W041	IR39MW23A	01/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9609 J884	IR39MW23A	02/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9438X490	IR39MW24A	09/21/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9438X491	IR39MW24A	09/21/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9604W042	IR39MW24A	01/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9609 J885	IR39MW24A	02/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9604W024	IR39MW33A	01/23/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9609W123	IR39MW33A	02/26/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9613W204	IR39MW33A	03/29/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0115D004	IR39MW33A	04/17/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0115D005	IR39MW33A	04/17/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0226D023	IR39MW33A	06/28/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.52	<0.5 U	NA	<0.5 U	NA	0.13 J	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0236E005Z	IR39MW33A	09/05/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0830H038	IR39MW33A	07/23/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841C016	IR39MW33A	10/09/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0941H032	IR39MW33A	10/06/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9602 J790	IR39MW35A	01/10/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9607W096	IR39MW35A	02/14/1996	0	A	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<0.5 UJ3	0.8 J3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<0.5 UJ3	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9607W097	IR39MW35A	02/14/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.8 J3	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	0.5R7	NA	NA	NA	NA	NA	NA	NA
9612 J934	IR39MW35A	03/18/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9602 J787	IR39MW36A	01/10/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9602 J789	IR39MW36A	01/10/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9607W098	IR39MW36A	02/14/1996	0	A	NA	<0.5 UJ0	<0.5 U	NA	<0.5 UJ0	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 UJ0	NA	NA	NA	NA	NA	NA	<4 U	NA	4R7	NA	NA	NA	NA	NA	NA	NA
9612 J935	IR39MW36A	03/18/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0425H033	IR39MW36A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438T016	IR39MW36A	09/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438T017	IR39MW36A	09/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448C017	IR39MW36A	11/22/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511S042	IR39MW36A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526M051	IR39MW36A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539S052	IR39MW36A	09/27/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602V031	IR39MW36A	01/09/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612H049	IR39MW36A	03/23/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622P038	IR39MW36A	06/01/2006	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 UJ	<0.5 UJ	NA	NA	<1 UJ	<0.5 UJ	NA	NA	<0.5 UJ	NA	<2 UJ	<0.5 UJ	<0.5 UJ	NA	<0.5 UJ	NA	<0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B034	IR39MW36A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B035	IR39MW36A	12/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G039	IR39MW36A	02/22/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G040	IR39MW36A	02/22/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720W044	IR39MW36A	05/17/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734W056	IR39MW36A	08/24/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740G010	IR39MW36A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	0.31 J	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809H036	IR39MW36A	02/28/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816H029	IR39MW36A	04/17/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9444X557	IR56MW39A	11/02/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9444X558	IR56MW39A	11/02/1994	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9610W136	IR56MW39A	03/04/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9620 J120	IR56MW39A	05/15/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0110P029	IR56MW39A	03/16/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0216F002	IR56MW39A	04/17/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0234E003	IR56MW39A	08/20/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	0.76	<0.5 U	NA	<0.5 U	NA	1.3	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237S008	IR56MW39A	09/10/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425X005	IR56MW39A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438B046	IR56MW39A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448C021	IR56MW39A	11/23/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511G046	IR56MW39A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526D036	IR56MW39A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539T037	IR56MW39A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602T030	IR56MW39A	01/09/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0612H050	IR56MW39A	03/23/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612H051	IR56MW39A	03/23/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S025	IR56MW39A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623S026	IR56MW39A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649W035	IR56MW39A	12/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708H027	IR56MW39A	02/20/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0718A005	IR56MW39A	05/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0735H082	IR56MW39A	08/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W016	IR56MW39A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809P006	IR56MW39A	02/26/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817D043	IR56MW39A	04/23/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P003	IR56MW39A	04/14/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9547W195	IR72MW32A	11/21/1995	0	A	NA	1	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610 J905	IR72MW32A	03/05/1996	0	A	NA	2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9620 J119	IR72MW32A	05/15/1996	0	A	NA	2	<0.5 U	NA	<0.5 U	0.3 J	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0110P027	IR72MW32A	03/16/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0229P003	IR72MW32A	07/15/2002	0	A	NA	0.18 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0238G004	IR72MW32A	09/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ37	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0238G005	IR72MW32A	09/18/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 UJ37	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0916P010	IR72MW32A	04/15/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9547W197	IR72MW33A	11/22/1995	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9547W198	IR72MW33A	11/22/1995	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9610W138	IR72MW33A	03/05/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 UR7	NA	NA	NA	NA	NA	NA	NA
9620 J118	IR72MW33A	05/15/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0425H028	IR74MW01A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G045	IR74MW01A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448P012	IR74MW01A	11/22/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D038	IR74MW01A	01/10/2006	0	A	<0.5 U	0.15 J	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612H043	IR74MW01A	03/21/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623D044	IR74MW01A	06/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0829H016	IR74MW01A	07/18/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841H017	IR74MW01A	10/08/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0911D025	IR74MW01A	03/13/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P004	IR74MW01A	04/14/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928H009	IR74MW01A	07/07/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0940H015	IR74MW01A	10/02/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9305 J230	PA36MW01A	02/04/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<4 U1	NA	NA	NA	NA	NA	NA	NA
9606W074	PA36MW01A	02/07/1996	0	A	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<4 UJ3	NA	<4 UJ3	NA	NA	NA	NA	NA	NA	NA
9611W148	PA36MW01A	03/11/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0425X004	PA36MW01A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G046	PA36MW01A	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0449C034	PA36MW01A	12/01/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511R044	PA36MW01A	03/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525T035	PA36MW01A	06/24/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0525T036	PA36MW01A	06/24/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538S047	PA36MW01A	09/23/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538S048	PA36MW01A	09/23/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D042	PA36MW01A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0612H042	PA36MW01A	03/21/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 UJ	<0.5 U	NA	NA	<0.5 U	NA	<2 UJ	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M027	PA36MW01A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0623M028	PA36MW01A	06/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0648D027	PA36MW01A	12/01/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708H030	PA36MW01A	02/21/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708H031	PA36MW01A	02/21/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0811E082	PA36MW01A	03/11/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9305 J232	PA36MW02A	02/04/1993	0	A	NA	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	NA	NA	NA	NA	<10 UJ3	<10 UJ3	NA	NA	<10 UJ3	NA	NA	NA	NA	NA	NA	<10 UJ3	NA	<10 UJ3	NA	NA	NA	NA	NA	NA	NA
9606W075	PA36MW02A	02/07/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611W149	PA36MW02A	03/11/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9306 J248	PA36MW03A	02/11/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9306 J249	PA36MW03A	02/11/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9606W076	PA36MW03A	02/07/1996	0	A	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<0.5 UJ3	0.7 J3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	<4 UJ3	NA	<4 UJ3	NA	NA	NA	NA	NA	NA	NA
9611 J920	PA36MW03A	03/11/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	0.5	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9305 J234	PA36MW04A	02/05/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9606W077	PA36MW04A	02/07/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	7	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611 J919	PA36MW04A	03/11/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	4	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0111T009	PA36MW04A	03/20/2001	0	A	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA
0227E005	PA36MW04A	07/01/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	0.3 J	NA	<2 U	<0.5 U	NA	<2 U	32	<0.5 U	NA	0.33 J	NA	7.8	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J012	PA36MW04A	09/11/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0720 J062	PA36MW04A	05/18/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0735H083	PA36MW04A	08/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740W014	PA36MW04A	10/03/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 UJ	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810H053	PA36MW04A	03/04/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E040	PA36MW04A	04/22/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P007	PA36MW04A	04/15/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9306 J244	PA36MW05A	02/10/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9306 J245	PA36MW05A	02/10/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9606W082	PA36MW05A	02/08/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611 J918	PA36MW05A	03/11/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9306 J252	PA36MW06A	02/11/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9607W099	PA36MW06A	02/16/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9612W172	PA36MW06A	03/19/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0230A017	PA36MW06A	07/26/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237 J013	PA36MW06A	09/11/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0237 J014	PA36MW06A	09/11/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
9308 J303	PA36MW07A	02/22/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<0.01 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9606W079	PA36MW07A	02/08/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611 J922	PA36MW07A	03/12/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0110T003	PA36MW07A	03/12/2001	0	A	NA	<1 U	<1 UJ7	NA	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	NA	<1 U	<0.5 U	NA	<1 UJ7	<1 U	<1 U	NA	<1 U	NA	<1 U	NA	NA	<5 U4 J7	NA	<5 UJ7	NA	NA	NA	NA	NA	NA	NA
0234E002	PA36MW07A	08/20/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	0.93	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237E019	PA36MW07A	09/12/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 UJ3	NA	NA	NA	NA	NA	NA	NA
0425S042	PA36MW07A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0511S046	PA36MW07A	03/17/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526D035	PA36MW07A	06/28/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0539S051	PA36MW07A	09/26/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D034	PA36MW07A	01/09/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0612 J042	PA36MW07A	03/21/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-Trifluoroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromomethane	1,2-Dichloroethane	1,2-Dichloroethene (Total)	1,2-Dibromo-3-Chloropropane	1,2-Dichlorobenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	1-Pentanol	1-Propanol	2-Butanone	2-Chlorotoluene	2-Hexanone	2-Methyl-1-Butanol	2-Methyl-2-Butanol	2-Methyl-2-Propanol	2,2-Dichloropropane	3-Pentanol	4-Chlorotoluene	4-Isopropyltoluene
0623V029	PA36MW07A	06/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B024	PA36MW07A	12/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649B025	PA36MW07A	12/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0709W024	PA36MW07A	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0719W027	PA36MW07A	05/11/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734 J037	PA36MW07A	08/20/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0740H016	PA36MW07A	10/02/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0810H076	PA36MW07A	03/07/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0816N007	PA36MW07A	04/17/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9307A590	PA36MW08A	02/16/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9307A591	PA36MW08A	02/16/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9606W080	PA36MW08A	02/08/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9606W081	PA36MW08A	02/08/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611W151	PA36MW08A	03/12/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611W152	PA36MW08A	03/12/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
0234A012	PA36MW08A	08/21/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0234A013	PA36MW08A	08/21/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	20 R7	NA	NA	NA	NA	NA	NA	NA
0237S002	PA36MW08A	09/09/2002	0	A	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<2 U	NA	<2 U	NA	<2 U	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	20 R7	NA	<20 U	NA	NA	NA	NA	NA	NA	NA
0425H029	PA36MW08A	06/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.5 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9307A611	PA39MW01A	02/18/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9307A612	PA39MW01A	02/18/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9606W084	PA39MW01A	02/09/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611W159	PA39MW01A	03/14/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA
0830D030	PA39MW01A	07/23/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0912D048	PA39MW01A	03/19/2009	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<0.1 U	NA	<2 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9307D024	PA39MW02A	02/19/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9307D025	PA39MW02A	02/19/1993	0	A	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	NA	NA	NA	NA	<10 U	<10 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	<10 U	NA	<10 U	NA	NA	NA	NA	NA	NA	NA
9606 J860	PA39MW02A	02/09/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 U	NA	<4 U	NA	NA	NA	NA	NA	NA	NA
9611W158	PA39MW02A	03/14/1996	0	A	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<4 UJ7	NA	4R7	NA	NA	NA	NA	NA	NA	NA

Notes:

* All concentrations in micrograms per liter

bgs below ground surface

VOCs volatile organic compounds

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0111P015	IR01MW367A	03/21/2001	0	A	<5 U	<20 U47	<1 U	<1 U	3	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	2	<1 U	<1 U	0.8 J	<1 U	<1 U	NA	NA	7 J7	NA	<4 UJ7	<1 U	NA	NA	NA	NA	NA
0229P002	IR01MW367A	07/15/2002	0	A	20 R7	<20 U4	<0.5 U	<0.5 U	3.4	<0.5 U	NA	<0.5 U	NA	NA	0.32 J	<0.5 U	1.3	0.17 J	2.2	<0.5 U	<0.5 U	1.2	<0.5 U	<0.5 U	NA	<0.5 U	<3 U	NA	6	0.16 J	NA	NA	NA	NA	NA
0238S008	IR01MW367A	09/18/2002	0	A	20 R7	<20 U4 J37	<0.5 U	<0.5 U	3.3	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	1.4	0.13 J	1.5	<0.5 U	<0.5 U	1.4	<0.5 U	<0.5 U	NA	<0.5 U	<3 U	NA	6	0.25 J	NA	NA	NA	NA	NA
9202A009	IR02MW101A1	01/07/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A010	IR02MW101A1	01/07/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J155	IR02MW101A1	07/08/1992	0	A	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<10 U1	NA	NA	NA	NA	NA
9235 J219	IR02MW101A1	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<1 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A007	IR02MW101A2	01/07/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J154	IR02MW101A2	07/08/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J218	IR02MW101A2	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203A085	IR02MW114A1	01/14/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228X646	IR02MW114A1	07/06/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J222	IR02MW114A1	08/24/1992	0	A	<0.01 U	<0.004 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<1 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J166	IR02MW114A2	07/10/1992	0	A	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J223	IR02MW114A2	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	<10 U	<12 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J147	IR02MW114A3	07/07/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J227	IR02MW114A3	08/25/1992	0	A	<0.01 U	<0.019 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<4 U1	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	10	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J157	IR02MW126A	07/08/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	1 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	14	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<2 U1	NA	NA	NA	NA	NA
9228 J158	IR02MW126A	07/08/1992	0	A	<0.01 U	<0.004 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	12	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA
9235X717	IR02MW126A	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	11	<5 U	NA	15	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0233D013	IR02MW126A	08/15/2002	0	A	20 R7	<20 U4 J37	<0.5 U	<0.5 U	1.1	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	14	<0.5 U	<0.5 U	<0.5 U	0.83	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0239 J006	IR02MW126A	09/24/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	0.92	<0.5 U	NA	0.23 J	NA	NA	<0.5 U	<0.5 U	<1 U	12	<0.5 U	<0.5 U	<0.5 U	0.94	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0424M014	IR02MW126A	06/10/2004	0	A	NA	NA	NA	<0.5 U	1.2	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	8.5	<0.5 U	<0.5 U	<0.5 U	0.36 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0437P033	IR02MW126A	09/10/2004	0	A	NA	NA	NA	<0.5 U	1.1 J3	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	13 J3	<0.5 U	<0.5 U	<0.5 U	0.66 J3	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0447C010	IR02MW126A	11/17/2004	0	A	NA	NA	NA	<0.5 U	0.32 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	12	<0.5 U	<0.5 U	<0.5 U	0.48 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G050	IR02MW126A	03/17/2005	0	A	NA	NA	NA	<0.5 U	0.78	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	5.7	<0.5 U	<0.5 U	<0.5 U	0.22 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526G049	IR02MW126A	06/29/2005	0	A	NA	NA	NA	<0.5 U	2	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	16	<0.5 U	<0.5 U	<0.5 U	0.47 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538A043	IR02MW126A	09/23/2005	0	A	NA	NA	NA	<0.5 U	1.7	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	15	<0.5 U	<0.5 U	<0.5 U	0.41 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602T033	IR02MW126A	01/10/2006	0	A	NA	NA	NA	<0.5 U	1	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	5.1	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611 J035	IR02MW126A	03/17/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	1.1	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623D040	IR02MW126A	06/06/2006	0	A	NA	NA	NA	<0.5 U	0.57	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	5.1	<0.5 U	<0.5 U	<0.5 U	0.49 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G043	IR02MW126A	12/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	2.5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709W026	IR02MW126A	02/28/2007	0	A	NA	NA	NA	<0.5 U	0.37 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	7.6	<0.5 U	<0.5 U	<0.5 U	0.36 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720 J051	IR02MW126A	05/14/2007	0	A	NA	NA	NA	<0.5 U	0.75	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	18	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0732 J005	IR02MW126A	08/10/2007	0	A	NA	NA	NA	<0.5 U	0.75	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	16	<0.5 U	<0.5 U	<0.5 U	0.55	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W013	IR02MW126A	10/03/2007	0	A	NA	NA	NA	<0.5 U	0.62	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	17	<0.5 U	<0.5 U	<0.5 U	0.44 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0808E010	IR02MW126A	02/21/2008	0	A	NA	NA	NA	<0.5 U	0.54	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	14	<0.5 U	<0.5 U	<0.5 U	0.34 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817H036	IR02MW126A	04/21/2008	0	A	NA	NA	NA	<0.5 U	0.78	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	12	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9205X468	IR02MW127B	01/28/1992	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J169	IR02MW127B	07/20/1992	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J229	IR02MW127B	08/25/1992	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0112P005	IR02MW127B	03/26/2001	0	B	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0230P006	IR02MW127B	07/23/2002	0	B	20 R7	<20 U4 J7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0230P007	IR02MW127B	07/23/2002	0	B	20 R7	<20 U4 J7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E025	IR02MW127B	09/13/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0237E026	IR02MW127B	09/13/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425G031	IR02MW127B	06/15/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0437P021	IR02MW127B	09/07/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0447R010	IR02MW127B	11/19/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G048	IR02MW127B	03/15/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9218Z059	IR02MW141A	05/07/1992	0	A	<0.01 U	<0.004 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9218Z060	IR02MW141A	05/07/1992	0	A	<0.01 U	<.005 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J177	IR02MW141A	07/21/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J178	IR02MW141A	07/21/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X715	IR02MW141A	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X716	IR02MW141A	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0425S041	IR02MW141A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0436P012	IR02MW141A	09/02/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448C018	IR02MW141A	11/22/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G041	IR02MW141A	03/14/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9205X478	IR02MW146A	01/30/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	3 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	12	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	8	NA	NA	NA	NA	NA
9205X479	IR02MW146A	01/30/1992	0	A	<0.01 U	<0.01 U4	NA	<5 U	2 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	11	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	7	NA	NA	NA	NA	NA
9613W194	IR02MW146A	03/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	3	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	14	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	3	NA	NA	NA	NA	NA
9622 J162	IR02MW146A	05/29/1996	0	A	<4 U	<4 U1 J7	NA	<0.5 U	2	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	15	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	3	NA	NA	NA	NA	NA
9622 J163	IR02MW146A	05/29/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	2	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U1	<0.5 U	NA	14	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	3	NA	NA	NA	NA	NA
9203X415	IR02MW147A	01/15/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J167	IR02MW147A	07/10/1992	0	A	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA
9235X719	IR02MW147A	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	18	<5 U	NA	3 J	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0425S036	IR02MW147A	06/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0437P022	IR02MW147A	09/07/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.19 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449P022	IR02MW147A	11/29/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G044	IR02MW147A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G045	IR02MW147A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526M052	IR02MW147A	06/29/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538T028	IR02MW147A	09/22/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602T037	IR02MW147A	01/12/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612 J041	IR02MW147A	03/21/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623D037	IR02MW147A	06/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0636D042	IR02MW147A	09/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B030	IR02MW147A	12/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709L015	IR02MW147A	02/28/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720B001	IR02MW147A	05/17/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0732 J006	IR02MW147A	08/10/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740G019	IR02MW147A	10/05/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0810E051	IR02MW147A	03/04/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817G029	IR02MW147A	04/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9112X067	IR02MW149A	03/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202N019	IR02MW149A	01/10/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	2 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	4 J	NA	NA	NA	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	2 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	4 J	NA	NA	NA	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	1	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
9622 J166	IR02MW173A	05/30/1996	0	A	<4 U	<4 U	NA	<0.5 U	0.8	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U1	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	3	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9203A089	IR02MW175A	01/14/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	4 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<2 U1	NA	NA	NA	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	12	<5 U	NA	<5 U	<10 U	2 J	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<8 U1	NA	NA	NA	NA	NA
9235 J230	IR02MW175A	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<2 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0110P002	IR02MW175A	03/12/2001	0	A	<5 UJ7	5R7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<1 U	<1 UJ7	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229P014	IR02MW175A	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0229P015	IR02MW175A	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0239G002	IR02MW175A	09/23/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.22 J	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425H032	IR02MW175A	06/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J028	IR02MW175A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J029	IR02MW175A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0447R006	IR02MW175A	11/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511Z023	IR02MW175A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511Z024	IR02MW175A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0721 J065	IR02MW175A	05/21/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0732W010	IR02MW175A	08/10/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W007	IR02MW175A	10/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0808D008	IR02MW175A	02/21/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817D033	IR02MW175A	04/21/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9203A086	IR02MW179A	01/14/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J231	IR02MW179A	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0110P004	IR02MW179A	03/12/2001	0	A	<5 UJ7	5R7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<1 U	<1 UJ7	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229D010	IR02MW179A	07/17/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0229D011	IR02MW179A	07/17/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238 J020	IR02MW179A	09/20/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	<10 U	<3 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J234	IR02MW183A	08/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<3 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9112X063	IR02MW196A	03/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	2.3 J	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	<10 U	<10 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<1 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0110P008	IR02MW206A1	03/13/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0110P009	IR02MW206A1	03/13/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0230D012	IR02MW206A1	07/25/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0230D013	IR02MW206A1	07/25/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0239A007	IR02MW206A1	09/24/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	<0.01 U	<.02 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0110P010	IR02MW206A2	03/13/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229D014	IR02MW206A2	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238 J018	IR02MW206A2	09/20/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0238 J019	IR02MW206A2	09/20/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.32 J	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	3 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	4 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	11	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	3 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<2 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0425G037	IR02MW209A	06/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438C046	IR02MW209A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438C047	IR02MW209A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C023	IR02MW209A	11/29/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G049	IR02MW209A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0525G036	IR02MW209A	06/24/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0525G037	IR02MW209A	06/24/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539T036	IR02MW209A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H051	IR02MW209A	01/12/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611H036	IR02MW209A	03/17/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623P048	IR02MW209A	06/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0636B016	IR02MW209A	09/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0636B017	IR02MW209A	09/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G049	IR02MW209A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G050	IR02MW209A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708L006	IR02MW209A	02/22/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720 J057	IR02MW209A	05/16/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0732W009	IR02MW209A	08/10/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W008	IR02MW209A	10/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0808H012	IR02MW209A	02/21/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E036	IR02MW209A	04/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9205X480	IR02MW210B	01/30/1992	0	B	<0.01 U	<.024 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
9230 J179	IR02MW210B	07/21/1992	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J235	IR02MW210B	08/26/1992	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<3 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J236	IR02MW210B	08/26/1992	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0112P007	IR02MW210B	03/27/2001	0	B	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226E019	IR02MW210B	06/27/2002	0	B	20 R7	<20 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J018	IR02MW210B	09/12/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9228 J145	IR02MW298A	07/07/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X724	IR02MW298A	08/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9612W184	IR02MW298A	03/21/1996	0	A	<4 U	<4 U1 J7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	<0.01 U	<.014 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J238	IR02MW299A	08/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9612 J946	IR02MW299A	03/21/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9917Z020	IR02MW299A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	<37 U2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA
0112P002	IR02MW299A	03/26/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	0.3 J	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0233A013	IR02MW299A	08/15/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J002	IR02MW299A	09/09/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.19 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9228X660	IR02MW300A	07/06/1992	0	A	<0.01 U	<0.004 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X726	IR02MW300A	08/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9612 J943	IR02MW300A	03/20/1996	0	A	<4 U	<4 U1 J7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0112T012	IR02MW300A	03/28/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0112T013	IR02MW300A	03/28/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229D006	IR02MW300A	07/16/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238G007	IR02MW300A	09/20/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0732D009	IR02MW301A	08/10/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740D007	IR02MW301A	10/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0808D007	IR02MW301A	02/21/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817G023	IR02MW301A	04/21/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9547 J609	IR02MW372A	11/22/1995	0	A	<4 U	<4 U	NA	<0.5 U	5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.8	NA	NA	NA	NA	NA
9610W140	IR02MW372A	03/07/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	2 J5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 UJ5	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.3 J5	NA	NA	NA	NA	NA
9619 J106	IR02MW372A	05/10/1996	0	A	<4 U	<6 U2 J7	NA	<0.5 U	3	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.4 J	NA	NA	NA	NA	NA
0112P003	IR02MW372A	03/26/2001	0	A	<5 U	<5 U4 J7	<1 U	<1 U	2	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	0.6 J	<1 U	<1 U	NA	NA	NA	NA	NA	0.4 J	NA	NA	NA	NA	NA
0229P009	IR02MW372A	07/17/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	0.34 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.65	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E008	IR02MW372A	09/10/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	0.22 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.5	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E009	IR02MW372A	09/10/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	0.22 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.53	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9547 J608	IR02MW373A	11/21/1995	0	A	<4 U	<10 U1 J7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	12	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.5	NA	NA	NA	NA	NA
9610 J904	IR02MW373A	03/04/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 UJ5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 UJ5	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA
9619 J107	IR02MW373A	05/10/1996	0	A	<4 U	<14 U2 J7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	0.6	<0.5 U	<0.5 U	0.5	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0830G033	IR02MW373A	07/23/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9113X078	IR02MW87A	03/26/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A001	IR02MW87A	01/06/1992	0	A	<10 U	<10 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J176	IR02MW89A	07/21/1992	0	A	<0.01 U	<.021 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9112X071	IR02MW93A	03/22/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A004	IR02MW93A	01/06/1992	0	A	<10 U	<10 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	14	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	12	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	12	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J220	IR02MW97A	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<2 U1	<5 U	NA	<5 U	<10 U	3 J	<11 U1	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J221	IR02MW97A	08/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<2 U1	<5 U	NA	<5 U	<10 U	2 J	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U2	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0230P016	IR02MW97A	07/26/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238E003	IR02MW97A	09/16/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U2	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9203A028	IR02MWB-1	01/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J148	IR02MWB-1	07/07/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J149	IR02MWB-1	07/07/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J239	IR02MWB-1	08/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228 J151	IR02MWB-2	07/07/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	11	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J240	IR02MWB-2	08/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0112T011	IR02MWB-2	03/28/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0230P011	IR02MWB-2	07/24/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0239 J005	IR02MWB-2	09/24/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9204X432	IR02MWB-3	01/20/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	<0.01 U	<.006 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	7	NA	NA	NA	NA	NA
9235 J241	IR02MWB-3	08/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	2 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J242	IR02MWB-3	08/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	2 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0425S045	IR02MWB-3	06/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438C055	IR02MWB-3	09/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448C019	IR02MWB-3	11/23/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G047	IR02MWB-3	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.28 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J245	IR02MWB-5	08/28/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<4 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	<.02 U	<.02 U	NA	<10 U	<10 U	<10 U	NA	<20 U	NA	NA	<10 U	<10 U	NA	7 J	<20 U	<10 U	<20 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	3 J	NA	NA	NA	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	<0.01 U	<.012 U4	NA	<5 U	1 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	6	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	3 J	NA	NA	NA	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	<.02 U	<.02 U	NA	<10 U	<10 U	<10 U	NA	<20 U	NA	NA	<10 U	<10 U	NA	11	<20 U	<10 U	<20 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	4 J	<4 U1	NA	<5 U	13	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	26	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	13	NA	NA	NA	NA	NA
9228X664	IR03MW218A2	07/09/1992	0	A	0.006 J	<.023 U1	NA	<5 U	10	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	22	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<11 U1	NA	NA	NA	NA	NA
9235X730	IR03MW218A2	08/27/1992	0	A	0.005 J7	<0.01 U1	NA	<5 U	10	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	22	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	11	NA	NA	NA	NA	NA
0110T012	IR03MW218A2	03/14/2001	0	A	<5 U	<18 U47	<1 U	<1 U	11	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	25	<1 U	<1 U	<1 U1	2	<1 U	<1 U	NA	NA	NA	NA	NA	12	NA	NA	NA	NA	NA
0231D006	IR03MW218A2	07/30/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	8.8	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	1.3	14	<0.5 U	<0.5 U	<0.5 U	0.28 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	8.6	NA	NA	NA	NA	NA
0239A002	IR03MW218A2	09/23/2002	0	A	8 R7	<20 U4 J7	<0.5 U	<0.5 U	13	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	1.6	21	<0.5 U	<0.5 U	<0.5 U	1.3	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	12	NA	NA	NA	NA	NA
0425H025	IR03MW218A2	06/15/2004	0	A	NA	NA	NA	<0.5 U	7	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	13	<0.5 U	<0.5 U	<0.5 U	0.27 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	9	NA	NA	NA	NA	NA
0438 J022	IR03MW218A2	09/14/2004	0	A	NA	NA	NA	<0.5 U	7.7 J3	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	12 J3	<0.5 U	<0.5 U	<0.5 U	0.38 J3	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	8.4 J3	NA	NA	NA	NA	NA
0448C020	IR03MW218A2	11/23/2004	0	A	NA	NA	NA	<0.5 U	5.2	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	8.7	<0.5 U	<0.5 U	<0.5 U	0.22 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	5.2	NA	NA	NA	NA	NA
0510G025	IR03MW218A2	03/10/2005	0	A	NA	NA	NA	<0.5 U	7.4	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	14	<0.5 U	<0.5 U	<0.5 U	0.62	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	8	NA	NA	NA	NA	NA
0526G039	IR03MW218A2	06/27/2005	0	A	NA	NA	NA	<0.5 U	7.4	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	14	<0.5 U	<0.5 U	<0.5 U	0.59	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	8.3	NA	NA	NA	NA	NA
0538A027	IR03MW218A2	09/21/2005	0	A	NA	NA	NA	<0.5 U	7.6	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	12	<0.5 U	<0.5 U	<0.5 U	0.32 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	7.1	NA	NA	NA	NA	NA
0602H042	IR03MW218A2	01/10/2006	0	A	NA	NA	NA	<0.5 U	9	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	15	<0.5 U	<0.5 U	<0.5 U	0.84	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	9.5	NA	NA	NA	NA	NA
0623T023	IR03MW218A2	06/08/2006	0	A	NA	NA	NA	<0.5 U	8.2	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	13	<0.5 U	<0.5 U	<0.5 U	0.68	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	7.3	NA	NA	NA	NA	NA
0636D036	IR03MW218A2	09/06/2006	0	A	NA	NA	NA	<0.5 U	14	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	18	<0.5 U	<0.5 U	<0.5 U	0.94	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	11	NA	NA	NA	NA	NA
0650B043	IR03MW218A2	12/12/2006	0	A	NA	NA	NA	<0.5 U	7.3	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	11	<0.5 U	0.81	2.1	0.37 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	7	NA	NA	NA	NA	NA
0709L012	IR03MW218A2	02/27/2007	0	A	NA	NA	NA	<0.5 U	12 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	18 J	<0.5 U	<0.5 U	<0.5 U	1.4 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	9.6 J	NA	NA	NA	NA	NA
0719G001	IR03MW218A2	05/10/2007	0	A	NA	NA	NA	<0.5 U	7.6	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	13	<0.5 U	<0.5 U	<0.5 U	0.89	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	7.7	NA	NA	NA	NA	NA
0734D035	IR03MW218A2	08/21/2007	0	A	NA	NA	NA	<0.5 U	10 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	16 J	<0.5 U	<0.5 U	<0.5 U	0.81 J	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	10 J	NA	NA	NA	NA	NA
0741D035	IR03MW218A2	10/08/2007	0	A	NA	NA	NA	<0.5 U	11	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	17	<0.5 U	<0.5 U	<0.5 U	0.63	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	12	NA	NA	NA	NA	NA
0810D051	IR03MW218A2	03/04/2008	0	A	NA	NA	NA	<0.5 U	6.6 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	8.2 J	<0.5 U	<0.5 U	<0.5 U	0.41 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	4.4 J	NA	NA	NA	NA	NA
0823H060	IR03MW218A2	06/04/2008	0	A	NA	NA	NA	<0.5 U	5.4	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 UJ	NA	9.5	<0.5 U	<0.5 U	<0.5 U	0.43 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	5.1	NA	NA	NA	NA	NA
9203A091	IR03MW218A3	01/15/1992	0	A	<10 U	<2 U1	NA	<5 U	3 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	6	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	3 J	NA	NA	NA	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	<0.01 U	<0.01 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	4 J	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA
9235X729	IR03MW218A3	08/27/1992	0	A	<0.01 U	<.006 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	5	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
0110T014	IR03MW218A3	03/14/2001	0	A	<5 U	<11 U47	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	0.3 J	<0.5 U	NA	3	<1 U	<1 U	<1 U1	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0231E013	IR03MW218A3	08/01/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	0.64	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	0.24 J	2.4	<0.5 U	<0.5 U	<0.5 UJ7	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0239E007	IR03MW218A3	09/25/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	0.82	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	0.51 J	2.9	<0.5 U	<0.5 U	<0.5 U	0.15 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	0.96	NA	NA	NA	NA	NA
9204X451	IR03MW224A	01/23/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J196	IR03MW224A	07/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<4 U1	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X734	IR03MW224A	08/28/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	1 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0109P003	IR03MW224A	03/06/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0230A007	IR03MW224A	07/23/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	1.6	<0.5 U	<0.5 U	<0.5 U	0.4 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237S010	IR03MW224A	09/11/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425C032	IR03MW224A	06/15/2004	0	A	NA	NA	NA	<0.5 U	1.2	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	0.27 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J023	IR03MW224A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C025	IR03MW224A	11/29/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C026	IR03MW224A	11/29/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511Z018	IR03MW224A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526G044	IR03MW224A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526G045	IR03MW224A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538T029	IR03MW224A	09/22/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.3	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602V032	IR03MW224A	01/10/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611S013	IR03MW224A	03/14/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623P049	IR03MW224A	06/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0634G007	IR03MW224A	08/25/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B038	IR03MW224A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709G047	IR03MW224A	02/28/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720W046	IR03MW224A	05/18/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734H057	IR03MW224A	08/20/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740D024	IR03MW224A	10/04/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E022	IR03MW224A	02/27/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E029	IR03MW224A	04/21/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9205X470	IR03MW225A	01/28/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	3 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	130	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	3 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	150	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA
9614Z024	IR03MW225A	04/03/1996	0	A	<4 U	<10 U1 J7	NA	<0.5 U	1	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	58 J	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.4 J	NA	NA	NA	NA	NA
9625Z049	IR03MW225A	06/19/1996	0	A	<4 U	<4 U	NA	<0.5 U	3	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	85 J8	<0.5 U	<.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.4 J	NA	NA	NA	NA	NA
9205X461	IR03MW226A	01/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	1 J	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J197	IR03MW226A	07/24/1992	0	A	<0.01 U	<.006 U1	NA	<5 U	3 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	4 J	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
9230 J198	IR03MW226A	07/24/1992	0	A	<0.01 U	<.012 U1	NA	<5 U	3 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	4 J	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	3 J	NA	NA	NA	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	4 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	7	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235 J244	IR03MW228B	08/28/1992	0	B	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0231E018	IR03MW228B	08/02/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U1	<0.5 UJ7	0.13 J	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237S014	IR03MW228B	09/12/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425X002	IR03MW228B	06/15/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425X003	IR03MW228B	06/15/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438C042	IR03MW228B	09/14/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0447C011	IR03MW228B	11/19/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511T036	IR03MW228B	03/15/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526M047	IR03MW228B	06/27/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538T034	IR03MW228B	09/23/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H039	IR03MW228B	01/09/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H040	IR03MW228B	01/09/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611S027	IR03MW228B	03/17/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611S028	IR03MW228B	03/17/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0622V021	IR03MW228B	06/01/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0634G005	IR03MW228B	08/25/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0648D018	IR03MW228B	11/29/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0707W004	IR03MW228B	02/16/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719G003	IR03MW228B	05/10/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719G004	IR03MW228B	05/10/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D034	IR03MW228B	08/21/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0741W036	IR03MW228B	10/08/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0810D050	IR03MW228B	03/04/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E030	IR03MW228B	04/21/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9228X647	IR03MW342A	07/06/1992	0	A	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9235X736	IR03MW342A	08/28/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	5	<5 U	NA	<10 U	NA	NA	24	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	12	NA	NA	NA	NA	NA
9612 J944	IR03MW342A	03/21/1996	0	A	<4 U	<7 U1 J7	NA	<0.5 U	1	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	2	NA	NA	NA	NA	NA
9612 J945	IR03MW342A	03/21/1996	0	A	<4 U	<6 U1 J7	NA	<0.5 U	1	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	2	NA	NA	NA	NA	NA
0110T017	IR03MW342A	03/15/2001	0	A	<5 UJ7	<6 U47	<1 U	<1 U	1	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U1	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	0.8 J	NA	NA	NA	NA	NA
0110T018	IR03MW342A	03/15/2001	0	A	<5 UJ7	<5 U47	<1 U	<1 U	1	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U1	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	0.8 J	NA	NA	NA	NA	NA
0230A013	IR03MW342A	07/25/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	1.5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	0.24 J	5.4	<0.5 U	<0.5 U	<0.5 U	0.54	<0.5 U	<0.5 U	NA	<0.5 UJ3	NA	NA	NA	0.13 J	NA	NA	NA	NA	NA
0238 J004	IR03MW342A	09/16/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	2.5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	0.27 J	0.48 J	<0.5 U	<0.5 U	<0.5 U	0.24 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	0.32 J	NA	NA	NA	NA	NA
0425S039	IR03MW342A	06/16/2004	0	A	NA	NA	NA	<0.5 U	1.6	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G042	IR03MW342A	09/14/2004	0	A	NA	NA	NA	<0.5 U	1.7	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448C016	IR03MW342A	11/22/2004	0	A	NA	NA	NA	<0.5 U	0.76	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510G026	IR03MW342A	03/10/2005	0	A	NA	NA	NA	<0.5 U	0.17 J3	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526G043	IR03MW342A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<01.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538A028	IR03MW342A	09/21/2005	0	A	NA	NA	NA	<0.5 U	3	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H043	IR03MW342A	01/10/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H044	IR03MW342A	01/10/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611S012	IR03MW342A	03/14/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0622S011	IR03MW342A	06/01/2006	0	A	NA	NA	NA	<0.5 U	0.31 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0636D037	IR03MW342A	09/06/2006	0	A	NA	NA	NA	<0.5 U	2.6	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	1	<0.5 U	<0.5 U	<0.5 U	0.38 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	0.34 J	NA	NA	NA	NA	NA
0636D038	IR03MW342A	09/06/2006	0	A	NA	NA	NA	<0.5 U	2.3	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.17 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0650W041	IR03MW342A	12/11/2006	0	A	NA	NA	NA	<0.5 U	0.17 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708L005	IR03MW342A	02/22/2007	0	A	NA	NA	NA	<0.5 U	0.16 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720G016	IR03MW342A	05/15/2007	0	A	NA	NA	NA	<0.5 U	1.7	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0735W059	IR03MW342A	08/27/2007	0	A	NA	NA	NA	<0.5 U	2.4	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0741G024	IR03MW342A	10/08/2007	0	A	NA	NA	NA	<0.5 U	4	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.26 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809D031	IR03MW342A	02/28/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E034	IR03MW342A	04/22/2008	0	A	NA	NA	NA	<0.5 U	0.78	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9548 J613	IR03MW369A	11/29/1995	0	A	<4 UR0	<4 UJ5	NA	<0.5 UJ05	2 J035	<0.5 UJ05	NA	<0.5 UJ5	NA	NA	<0.5 UJ5	<0.5 UJ05	NA	<0.5 UR0	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ05	<0.5 UJ05	NA	NA	NA	NA	NA	4 J035	NA	NA	NA	NA	NA
9610 J911	IR03MW369A	03/06/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	2	<0.5 U	NA	<0.5 U	NA	NA	0.4 J	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	3	NA	NA	NA	NA	NA
9621 J126	IR03MW369A	05/20/1996	0	A	<4 U	<4 U1	NA	<0.5 U	2	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	2	NA	NA	NA	NA	NA
9548 J615	IR03MW370A	11/30/1995	0	A	<4 U	<4 U	NA	<0.5 U	2	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	14	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA
9610 J908	IR03MW370A	03/06/1996	0	A	<4 U	<4 U	NA	<0.5 U	2	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	14	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
9620 J125	IR03MW370A	05/16/1996	0	A	<4 U	<4 U	NA	<0.5 U	1	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	11	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	3	NA	NA	NA	NA	NA
9548 J617	IR03MW371A	11/30/1995	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	0.5	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9548 J618	IR03MW371A	11/30/1995	0	A	<4 UJ3	<7 U1 J37	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	<0.5 UJ3	<0.5 UJ3	NA	0.7 J3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA
9610 J912	IR03MW371A	03/06/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9620 J123	IR03MW371A	05/16/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9620 J124	IR03MW371A	05/16/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	0.1 J	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0229H002	IR03MW372A	07/17/2002	0	A	<10 UJ7	<10 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	4.6	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	<1 U	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0229H003	IR03MW372A	07/18/2002	0	A	<10 UJ7	<10 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	2.1	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	<1 U	NA	NA	NA	NA
0229H004	IR03MW372A	07/18/2002	0	A	<10 UJ7	<10 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	1.9	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	<1 U	NA	NA	NA	NA
0425S037	IR03MW373B	06/15/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J024	IR03MW373B	09/14/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0447C013	IR03MW373B	11/19/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510R032	IR03MW373B	03/10/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526G046	IR03MW373B	06/28/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538A040	IR03MW373B	09/23/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H041	IR03MW373B	01/09/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611S026	IR03MW373B	03/17/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623P056	IR03MW373B	06/08/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0634G006	IR03MW373B	08/25/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G031	IR03MW373B	12/04/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709G048	IR03MW373B	02/28/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720A055	IR03MW373B	05/17/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0735W060	IR03MW373B	08/27/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740D023	IR03MW373B	10/04/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E020	IR03MW373B	02/27/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E021	IR03MW373B	02/27/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E028	IR03MW373B	04/21/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	<.02 U	<.02 U	NA	<10 U	6 J	<10 U	NA	<20 U	NA	NA	<10 U	<10 U	NA	47	<20 U	<10 U	<20 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	<.02 U	<.02 U	NA	<10 U	5 J	<10 U	NA	<20 U	NA	NA	<10 U	<10 U	NA	44	<20 U	<10 U	<20 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	<0.01 U	<.014 U1	NA	<5 U	9	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	55	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<33 U1	NA	NA	NA	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	<0.01 U	<.005 U1	NA	<5 U	9	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	66	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	7	NA	NA	NA	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X620	IR04MW09A	06/15/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9146X259	IR04MW13A	11/14/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X518	IR04MW13A	02/12/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X519	IR04MW13A	02/12/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X627	IR04MW13A	06/17/1992	0	A	<0.01 U	<0.01 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X628	IR04MW13A	06/17/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0110P006	IR04MW13A	03/12/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U2	<1 U	34	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229P012	IR04MW13A	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	39	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238 J002	IR04MW13A	09/16/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	41	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0427S052	IR04MW13A	06/28/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	37	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G051	IR04MW13A	09/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.18 J	<0.5 U	50	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0450G051	IR04MW13A	12/06/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.17 J	<0.5 U	41	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0509G009	IR04MW13A	03/03/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.18 J	<0.5 U	38	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526T039	IR04MW13A	06/27/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.16 J	<0.5 U	35	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0537T010	IR04MW13A	09/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.27 J	<0.5 U	33	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0537T011	IR04MW13A	09/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.31 J	<0.5 U	42	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D039	IR04MW13A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.16 J	<0.5 U	38	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611 J032	IR04MW13A	03/16/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	32	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611 J033	IR04MW13A	03/16/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	33	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0622T013	IR04MW13A	05/31/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	40	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649D036	IR04MW13A	12/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.26 J	<0.5 U	38	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708G030	IR04MW13A	02/21/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.17 J	<0.5 U	39	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0719W020	IR04MW13A	05/10/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.21 J	<0.5 U	30	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D031	IR04MW13A	08/20/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.23 J	<0.5 U	36	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0741D034	IR04MW13A	10/08/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.24 J	<0.5 U	40	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809H025	IR04MW13A	02/27/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.092 J	<0.5 U	32	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0830H028	IR04MW13A	07/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.25 J	<0.5 U	34	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0912N016	IR04MW13A	03/16/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.12 J	<0.5 U	29	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P013	IR04MW13A	04/16/2009	0	A	NA	NA	NA	<0.5 U	0.73 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	2.1	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	29	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9146X256	IR04MW31A	11/14/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X517	IR04MW31A	02/12/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X629	IR04MW31A	06/17/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0110P026	IR04MW31A	03/16/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0230A008	IR04MW31A	07/23/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	2.6	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	1	0.12 J	<0.5 U	<0.5 U	<0.5 U	0.58	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	0.73	NA	NA	NA	NA	NA
0237 J011	IR04MW31A	09/11/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0836G019	IR04MW31A	09/04/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0841H014	IR04MW31A	10/08/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0913W055	IR04MW31A	03/24/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916H004	IR04MW31A	04/14/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0928W014	IR04MW31A	07/07/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0941H020	IR04MW31A	10/05/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X623	IR04MW35A	06/15/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0111P003	IR04MW35A	03/19/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229E020	IR04MW35A	07/19/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.58	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237G008	IR04MW35A	09/10/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.51	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9146X254	IR04MW36A	11/14/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9146X255	IR04MW36A	11/14/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X523	IR04MW36A	02/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X524	IR04MW36A	02/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X630	IR04MW36A	06/17/1992	0	A	<0.01 UJ7	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438T014	IR04MW36A	09/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449P037	IR04MW36A	12/02/2004	0	A	NA	NA	NA	<0.5 U	2.7	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0509G004	IR04MW36A	03/02/2005	0	A	NA	NA	NA	<0.5 U	0.36 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524T014	IR04MW36A	06/16/2005	0	A	NA	NA	NA	<0.5 U	0.33 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0536T003	IR04MW36A	09/08/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0601T023	IR04MW36A	01/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612H046	IR04MW36A	03/22/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0622T012	IR04MW36A	05/31/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0648G018	IR04MW36A	11/28/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708G038	IR04MW36A	02/22/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0718 J007	IR04MW36A	05/01/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734H071	IR04MW36A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0741N003	IR04MW36A	10/08/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809D012	IR04MW36A	02/25/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0830H031	IR04MW36A	07/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0912W027	IR04MW36A	03/16/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9147X282	IR04MW37A	11/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9207X530	IR04MW37A	02/14/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X531	IR04MW37A	02/14/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X621	IR04MW37A	06/15/1992	0	A	<0.01 U	<0.01 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X622	IR04MW37A	06/15/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	4 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0111P017	IR04MW37A	03/21/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229P013	IR04MW37A	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.46 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237G007	IR04MW37A	09/10/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.55	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425G033	IR04MW37A	06/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.18 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G043	IR04MW37A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.66	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G044	IR04MW37A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.66	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C037	IR04MW37A	12/01/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.76	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R053	IR04MW37A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.5	<0.5 U	<0.5 U	<1 U	NA	NA	NA	0.5	NA	NA	NA	NA	NA
0526M049	IR04MW37A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539T040	IR04MW37A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.31 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0601T025	IR04MW37A	01/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.18 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611T032	IR04MW37A	03/17/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.22 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M026	IR04MW37A	06/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649W034	IR04MW37A	12/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.3 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708L002	IR04MW37A	02/20/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0718A004	IR04MW37A	05/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J056	IR04MW37A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W017	IR04MW37A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809P007	IR04MW37A	02/26/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0823G046	IR04MW37A	06/03/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0829G018	IR04MW37A	07/18/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0841H016	IR04MW37A	10/08/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0911B027	IR04MW37A	03/13/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	0.27 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P002	IR04MW37A	04/14/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0928W012	IR04MW37A	07/07/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.067 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0941H021	IR04MW37A	10/05/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 UJ	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9146X264	IR04MW38A	11/15/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X632	IR04MW38A	06/17/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
0111D002	IR04MW38A	03/20/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0111D003	IR04MW38A	03/20/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229A008	IR04MW38A	07/17/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J007	IR04MW38A	09/10/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9147X283	IR04MW39A	11/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X625	IR04MW39A	06/15/1992	0	A	<0.01 U	<0.01 U4	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0111T011	IR04MW39A	03/21/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	1	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0111T012	IR04MW39A	03/21/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	1	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229E015	IR04MW39A	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.92	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0236S002	IR04MW39A	09/06/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ7	0.67	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0236S003	IR04MW39A	09/06/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ7	0.65	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9146X261	IR04MW40A	11/15/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9225X631	IR04MW40A	06/17/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X644	IR05MW73A	06/19/1992	0	A	<0.01 UJ7	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<2 U2	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X269	IR05MW74A	11/18/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X640	IR05MW74A	06/18/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207A100	IR05MW76A	02/11/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X642	IR05MW76A	06/19/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X643	IR05MW76A	06/19/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	1 J	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207A096	IR05MW77A	02/10/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207A097	IR05MW77A	02/10/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X635	IR05MW77A	06/18/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X639	IR05MW82A	06/18/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9225X636	IR05MW85A	06/18/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
9225X637	IR05MW85A	06/18/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J194	IR05MW85A	07/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9230 J195	IR05MW85A	07/24/1992	0	A	<0.01 U	<.008 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9612W183	IR05MW85A	03/21/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425H026	IR05MW85A	06/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.3 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438C044	IR05MW85A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C035	IR05MW85A	12/01/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R050	IR05MW85A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.27 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0525G030	IR05MW85A	06/22/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0525G031	IR05MW85A	06/22/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538T033	IR05MW85A	09/23/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D046	IR05MW85A	01/13/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D047	IR05MW85A	01/13/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612 J048	IR05MW85A	03/23/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 UJ	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M032	IR05MW85A	06/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.45 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0636E006	IR05MW85A	09/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.46 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B026	IR05MW85A	12/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 UJ	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709N003	IR05MW85A	02/28/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.43 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0718 J013	IR05MW85A	05/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.59	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734H075	IR05MW85A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.38 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W015	IR05MW85A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.27 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809H026	IR05MW85A	02/27/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0816E025	IR05MW85A	04/16/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.22 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9028H279	IR08MW37A	07/11/1990	0	A	<0.01 U	<0.01 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9028H280	IR08MW37A	07/11/1990	0	A	<0.01 UJ3	<0.01 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	<10 UJ3	NA	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<10 UJ3	<5 UJ3	<10 UJ3	NA	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA	NA	NA
9101 J120	IR08MW37A	01/03/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9101 J121	IR08MW37A	01/03/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9128X091	IR08MW37A	07/10/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9128X092	IR08MW37A	07/10/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9151X352	IR08MW37A	12/19/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9344X052	IR08MW37A	11/05/1993	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9405N295	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9405N296	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA
9419X278	IR08MW37A	05/10/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9434M578	IR08MW37A	08/26/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9028H273	IR08MW38A	07/10/1990	0	A	<0.01 UJ3	<0.01 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	<10 UJ3	NA	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<10 UJ3	<5 UJ3	<10 UJ3	NA	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA	NA	NA
9101 J123	IR08MW38A	01/03/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9128X094	IR08MW38A	07/10/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9151X358	IR08MW38A	12/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9344X050	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9344X051	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9405N298	IR08MW38A	02/01/1994	0	A	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA
9419X277	IR08MW38A	05/10/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9434M579	IR08MW38A	08/26/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9028H274	IR08MW39A	07/10/1990	0	A	<0.01 UJ37	<0.01 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	<10 UJ3	NA	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<10 UJ3	<5 UJ3	<10 UJ3	NA	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA	NA	NA
9101 J126	IR08MW39A	01/03/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9128X095	IR08MW39A	07/10/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9151X359	IR08MW39A	12/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9151X360	IR08MW39A	12/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9435E158	IR08MW39A	09/01/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9028H276	IR08MW40A	07/10/1990	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9028H277	IR08MW40A	07/10/1990	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	1.2 J	NA	NA	NA	NA	NA
9101 J128	IR08MW40A	01/04/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9128X093	IR08MW40A	07/10/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9151X353	IR08MW40A	12/19/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9151X354	IR08MW40A	12/19/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9345X055	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA
9345X056	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA
9406X183	IR08MW40A	02/07/1994	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9419X287	IR08MW40A	05/11/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9435E160	IR08MW40A	09/01/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9028H281	IR08MW41A	07/11/1990	0	A	<0.01 UJ3	<0.01 UJ3	NA	<5 UJ3	<5 UJ3	<5 UJ3	NA	<10 UJ3	NA	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<10 UJ3	<5 UJ3	<10 UJ3	NA	<5 UJ3	<5 UJ3	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA	NA	NA
9101 J130	IR08MW41A	01/04/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9128X098	IR08MW41A	07/11/1991	0	A	NA	NA	NA	<1 U	<0.5 U	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2;<0.5 U;U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9151X355	IR08MW41A	12/19/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9344X053	IR08MW41A	11/05/1993	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9406X181	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9406X182	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9419X286	IR08MW41A	05/11/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9435E159	IR08MW41A	09/01/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0830D039	IR08MW41A	07/25/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0911D015	IR08MW41A	03/11/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	NA	NA	NA	<1 U	<0.3 UJ5	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2 U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.3 UJ5	NA	NA	NA	NA	NA
9141X204	IR08MW42A	10/07/1991	0	A	NA	NA	NA	<1 U	<0.3 UJ5	<5 U	NA	<5 U	NA	NA	NA	<0.5 U	NA	<2 U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	NA	NA	<0.3 UJ5	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9151X362	IR08MW42A	12/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9344X045	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9344X046	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9406X185	IR08MW42A	02/07/1994	0	A	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
9419X275	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9419X276	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9434M577	IR08MW42A	08/26/1994	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9440X501	IR08MW43A	10/03/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9440X502	IR08MW43A	10/03/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9606W066	IR08MW43A	02/05/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	0.7	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9610 J913	IR08MW43A	03/07/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	3	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9440X504	IR08MW44A	10/04/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	9 J	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9440X505	IR08MW44A	10/04/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	8 J	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9606W064	IR08MW44A	02/05/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9606W065	IR08MW44A	02/05/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9610 J914	IR08MW44A	03/07/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	0.4 J	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
8914W25	IR11MW25A	03/10/1989	0	A	<10 U	<6 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9034G313	IR11MW25A	08/22/1990	0	A	<1000 U	<1000 U	NA	<1 U	NA	<5 U	NA	<5 U	<1 U	NA	NA	<0.5 U	NA	<2 U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1 U
9034G314	IR11MW25A	08/22/1990	0	A	<1000 U	<1000 U	NA	<1 U	NA	<5 U	NA	<5 U	<1 U	NA	NA	<0.5 U	NA	<2 U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1 U
9147X289	IR11MW25A	11/22/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	2 J	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X748	IR11MW25A	09/14/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9917B004	IR11MW25A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	192	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA
0109P014	IR11MW25A	03/09/2001	0	A	<5 U	<5 U4	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	<10 U	<6 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	<10 U	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9034G301	IR11MW26A	08/21/1990	0	A	<1000 U	<1000 U	NA	<1 U	NA	<5 U	NA	<5 U	<1 U	NA	NA	<0.5 U	NA	<2 U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1 U
9147X288	IR11MW26A	11/22/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X747	IR11MW26A	09/14/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9917B001	IR11MW26A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	<16 U2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.02	NA	NA	NA
0109P012	IR11MW26A	03/09/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0231E005	IR11MW26A	07/30/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J022	IR11MW26A	09/13/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
8914W27	IR11MW27A	03/10/1989	0	A	<10 U	<5 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9034G300	IR11MW27A	08/21/1990	0	A	<1000 U	<1000 U	NA	<1 U	NA	<5 U	NA	<5 U	<1 U	NA	NA	<0.5 U	NA	<2 U	<5 U	<0.5 U	<5 U	NA	<2 U	<1 U	NA	NA	NA	<1 U	NA	NA	NA	NA	<1 U	<1 U	<1 U
9147X287	IR11MW27A	11/22/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X746	IR11MW27A	09/14/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9917Z019	IR11MW27A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	134	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA
0109P016	IR11MW27A	03/09/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229D013	IR11MW27A	07/19/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0229D019	IR11MW27A	07/19/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237G013	IR11MW27A	09/12/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0427S049	IR11MW27A	06/28/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J031	IR11MW27A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511T037	IR11MW27A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526D038	IR11MW27A	06/29/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602 J042	IR11MW27A	01/09/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611H033	IR11MW27A	03/17/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S022	IR11MW27A	06/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0635M020	IR11MW27A	08/28/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709Z030	IR11MW27A	03/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720A058	IR11MW27A	05/18/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X179	IR12MW11A	08/26/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X547	IR12MW11A	02/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9612W185	IR12MW11A	03/22/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0110P013	IR12MW11A	03/13/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226P016	IR12MW11A	06/28/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0236E008Z	IR12MW11A	09/06/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0839G034	IR12MW11A	09/23/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0912W037	IR12MW11A	03/17/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 UJ	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	0.31 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P014	IR12MW11A	04/16/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X185	IR12MW12A	08/27/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X544	IR12MW12A	02/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X782	IR12MW12A	09/21/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X783	IR12MW12A	09/21/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X180	IR12MW13A	08/26/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	3 J	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X545	IR12MW13A	02/24/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	1 J	<5 U	NA	56	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X546	IR12MW13A	02/24/1992	0	A	<0.01 U	<.003 U2	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	41	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X787	IR12MW13A	09/22/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X788	IR12MW13A	09/22/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	9.4	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0111P018	IR12MW13A	03/21/2001	0	A	<5 U	5R7	<1 U	<1 U	0.4 J	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	9	0.7 J	<1 U	<1 U	0.3 J	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226E020	IR12MW13A	06/27/2002	0	A	20 R7	<20 U	<0.5 U	<0.5 U	0.6	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	1.8	2.1	<0.5 U	<0.5 U	0.74	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0236E003Z	IR12MW13A	09/05/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	0.48 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	1.3	1.3	<0.5 U	<0.5 UJ37	0.64	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425R003	IR12MW13A	06/17/2004	0	A	NA	NA	NA	<0.5 U	0.36 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	4.7	<0.5 U	<0.5 U	<0.5 U	0.57	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425R004	IR12MW13A	06/17/2004	0	A	NA	NA	NA	<0.5 U	0.35 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	5.2	<0.5 U	<0.5 U	<0.5 U	0.59	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438T009	IR12MW13A	09/14/2004	0	A	NA	NA	NA	<0.5 U	0.29 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	4	<0.5 U	<0.5 U	<0.5 U	0.79	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438T010	IR12MW13A	09/14/2004	0	A	NA	NA	NA	<0.5 U	0.28 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	4	<0.5 U	<0.5 U	<0.5 U	0.81	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449P026	IR12MW13A	11/30/2004	0	A	NA	NA	NA	<0.5 U	0.36 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	2.8	<0.5 U	<0.5 U	<0.5 U	0.58	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510R031	IR12MW13A	03/10/2005	0	A	NA	NA	NA	<0.5 U	2.7	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526R037	IR12MW13A	06/27/2005	0	A	NA	NA	NA	<0.5 UJ	0.49 J	<0.5 UJ	<0.5 UJ	<1 UJ	NA	NA	NA	<0.5 UJ	NA	16 J	1.6 J	<0.5 UJ	<0.5 UJ	0.49 J	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 UJ	NA	NA	NA	<0.5 UJ	NA	NA	NA	NA	NA
0538D045	IR12MW13A	09/23/2005	0	A	NA	NA	NA	<0.5 U	0.26 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	7.4	1.4	<0.5 U	<0.5 U	0.74	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H036	IR12MW13A	01/09/2006	0	A	NA	NA	NA	<0.5 UJ	0.27 J	<0.5 UJ	<0.5 UJ	<1 UJ	NA	NA	NA	<0.5 UJ	NA	2.5 J	0.65 J	<0.5 UJ	<0.5 UJ	0.28 J	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 UJ	NA	NA	NA	<0.5 UJ	NA	NA	NA	NA	NA
0612T037	IR12MW13A	03/21/2006	0	A	NA	NA	NA	<0.5 U	0.49 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	13	1.1	<0.5 U	<0.5 U	0.41 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M033	IR12MW13A	06/07/2006	0	A	NA	NA	NA	<0.5 U	0.25 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	7.8	<0.5 U	<0.5 U	<0.5 U	0.69	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0634D016	IR12MW13A	08/25/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	6.3	0.88	<0.5 U	<0.5 U	0.53	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G040	IR12MW13A	12/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	3.1	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G041	IR12MW13A	12/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	3.1	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709Z018	IR12MW13A	02/26/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	2.7	<0.5 U	<0.5 U	<0.5 U	0.62	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0718D009	IR12MW13A	05/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	2.4	0.58	<0.5 U	<0.5 U	0.58	<0.5 U	<0.5 U	<0.5 UJ	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734H073	IR12MW13A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	3.3 J	<0.5 U	<0.5 U	<0.5 U	0.51 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734H074	IR12MW13A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	3.3 J	<0.5 U	<0.5 U	<0.5 U	0.5 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740H031	IR12MW13A	10/04/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	3	<0.5 U	<0.5 U	<0.5 U	0.58	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809D021	IR12MW13A	02/26/2008	0	A	NA	NA	NA	<0.5 U	0.96	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	15 J	<0.5 U	<0.5 U	<0.5 U	0.28 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0816G015	IR12MW13A	04/16/2008	0	A	NA	NA	NA	<0.5 U	0.26 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	6.1	0.3 J	<0.5 U	<0.5 U	0.4 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916H005	IR12MW13A	04/14/2009	0	A	NA	NA	NA	<0.5 U	0.52	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	13	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X181	IR12MW14A	08/26/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X182	IR12MW14A	08/26/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9209X552	IR12MW14A	02/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X789	IR12MW14A	09/22/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0110P012	IR12MW14A	03/13/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226E022	IR12MW14A	06/28/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	0.11 J	<0.5 U	<0.5 U	<0.5 U	0.27 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0236G004	IR12MW14A	09/06/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ7	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0236G006	IR12MW14A	09/06/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ7	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425S047	IR12MW14A	06/18/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G048	IR12MW14A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C036	IR12MW14A	12/01/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510G022	IR12MW14A	03/09/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526R038	IR12MW14A	06/27/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539A049	IR12MW14A	09/27/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H037	IR12MW14A	01/09/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H038	IR12MW14A	01/09/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612S034	IR12MW14A	03/22/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623D041	IR12MW14A	06/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0636C017	IR12MW14A	09/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0636C018	IR12MW14A	09/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G042	IR12MW14A	12/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709W030	IR12MW14A	03/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720A054	IR12MW14A	05/17/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0735W064	IR12MW14A	08/28/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0742D056	IR12MW14A	10/15/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E031	IR12MW14A	02/29/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0823H061	IR12MW14A	06/04/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 UJ	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916H002	IR12MW14A	04/14/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X186	IR12MW15A	08/27/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X553	IR12MW15A	02/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X778	IR12MW15A	09/18/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0232E003	IR12MW15A	08/06/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ3	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238A003	IR12MW15A	09/16/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	1.3	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	3	0.81	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238A004	IR12MW15A	09/16/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	1.2	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	2.9	0.8	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X188	IR12MW16A	08/27/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X189	IR12MW16A	08/27/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X555	IR12MW16A	02/25/1992	0	A	<0.01 U	<.007 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X797	IR12MW16A	09/24/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	12.3	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9234X690	IR12MW17A	08/19/1992	0	A	0.02 J7	<.016 U4	NA	<5 U	1 J	<5 U	NA	<10 U	NA	NA	1 J	<5 U	NA	14	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	48	NA	NA	NA	NA	NA
9234X691	IR12MW17A	08/19/1992	0	A	0.02 J7	<.022 U4	NA	<5 U	1 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	15	<10 U	<5 U	3 J	NA	<5 U	<5 U	NA	NA	NA	NA	NA	51	NA	NA	NA	NA	NA
9239X795	IR12MW17A	09/24/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	3.3 J	<10 U	NA	11.26	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	20.92	NA	NA	NA	NA	NA
9612W186	IR12MW17A	03/22/1996	0	A	<4 U	<8 U1	NA	<0.5 U	6	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	7	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	2	NA	NA	NA	NA	NA
0110T002	IR12MW17A	03/12/2001	0	A	<5 U	<14 U47	<1 U	<1 U	3	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	72	2	<1 U	0.7 J	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	0.6 J	NA	NA	NA	NA	NA
0229P018	IR12MW17A	07/19/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	2.8	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	51	0.39 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0229P019	IR12MW17A	07/19/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	2.9	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	51	0.41 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238A002	IR12MW17A	09/16/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	4	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	54	0.55	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0424M013	IR12MW17A	06/10/2004	0	A	NA	NA	NA	<0.5 U	4.2	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	75	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0437P031	IR12MW17A	09/10/2004	0	A	NA	NA	NA	<0.5 UJ3	3.3 J3	<0.5 UJ3	<0.5 UJ3	<1 UJ3	NA	NA	NA	<0.5 UJ3	NA	54 J3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<1 UJ3	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA
0447C009	IR12MW17A	11/17/2004	0	A	NA	NA	NA	<0.5 U	7.8	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	85	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0509R005	IR12MW17A	03/02/2005	0	A	NA	NA	NA	<0.5 U	<2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	74	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<2 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0525T026	IR12MW17A	06/21/2005	0	A	NA	NA	NA	<0.5 U	<04.4 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	97	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9234X692	IR12MW18A	08/19/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	4 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X793	IR12MW18A	09/24/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9239X794	IR12MW18A	09/24/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9613W189	IR12MW18A	03/25/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9613W190	IR12MW18A	03/25/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109T022	IR12MW18A	03/09/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229A012	IR12MW18A	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0236E002Z	IR12MW18A	09/05/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ37	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916H003	IR12MW18A	04/14/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9234X693	IR12MW19A	08/19/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	4 J	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X800	IR12MW19A	09/25/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9239X801	IR12MW19A	09/25/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9613W191	IR12MW19A	03/25/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0110P005	IR12MW19A	03/12/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	0.6 J	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0230P017	IR12MW19A	07/26/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.52	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237S012	IR12MW19A	09/11/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.73	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916H010	IR12MW19A	04/15/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	14	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9234X694	IR12MW20A	08/19/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X799	IR12MW20A	09/25/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9613 J971	IR12MW20A	03/25/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109T025	IR12MW20A	03/09/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229A015	IR12MW20A	07/19/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0229A016	IR12MW20A	07/19/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238S003	IR12MW20A	09/17/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9234X695	IR12MW21A	08/19/1992	0	A	<.02 U	<.021 U4	NA	<10 U	<10 U	<10 U	NA	<20 U	NA	NA	<10 U	<10 U	NA	<10 U	<20 U	<10 U	<20 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9239A459	IR12MW21A	09/23/1992	0	A	<10 UJ7	<7.19 U4	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9614Z022	IR12MW21A	04/02/1996	0	A	<4 U	<6 U1 J7	NA	<0.5 U	0.5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9618 J076	IR12MW21A	05/02/1996	0	A	<4 UR7	<4 U	NA	<0.5 U	0.4 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0216F010	IR12MW21A	04/19/2002	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X193	IR13MW10A	08/28/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X550	IR13MW10A	02/25/1992	0	A	<0.01 U	<.014 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X551	IR13MW10A	02/25/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X777	IR13MW10A	09/18/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X190	IR13MW11A	08/28/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	2 J	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X558	IR13MW11A	02/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X768	IR13MW11A	09/17/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X769	IR13MW11A	09/17/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X191	IR13MW12A	08/28/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X192	IR13MW12A	08/28/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X557	IR13MW12A	02/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X775	IR13MW12A	09/18/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X776	IR13MW12A	09/18/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9148X304	IR14MW09A	11/27/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9148X305	IR14MW09A	11/27/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X559	IR14MW09A	02/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X560	IR14MW09A	02/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X754	IR14MW09A	09/15/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9147X285	IR14MW10A	11/22/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9147X286	IR14MW10A	11/22/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X562	IR14MW10A	02/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X752	IR14MW10A	09/15/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X753	IR14MW10A	09/15/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
0109T018	IR14MW10A	03/08/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229D002	IR14MW10A	07/15/2002	0	A	20 R7	<20 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238E013	IR14MW10A	09/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9147X272	IR14MW12A	11/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X561	IR14MW12A	02/26/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	2 J	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9234X696	IR14MW13A	08/19/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	1 J	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239A457	IR14MW13A	09/23/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9239A458	IR14MW13A	09/23/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9614Z021	IR14MW13A	04/02/1996	0	A	<4 U	<4 U1 J7	NA	<0.5 U	0.3 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9619 J102	IR14MW13A	05/09/1996	0	A	<4 U	<4 U	NA	<0.5 U	0.3 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9917B003	IR14MW13A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	106	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA
0216F009	IR14MW13A	04/19/2002	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9147X276	IR15MW06A	11/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X564	IR15MW06A	02/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X750	IR15MW06A	09/14/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9917Z021	IR15MW06A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	<27 U2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA
0109T011	IR15MW06A	03/07/2001	0	A	<5 U	<5 U4	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	0.2 J	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0109T012	IR15MW06A	03/07/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	0.2 J	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0233E007	IR15MW06A	08/13/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238A008	IR15MW06A	09/17/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.12 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425G041	IR15MW06A	06/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0437P030	IR15MW06A	09/10/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C033	IR15MW06A	12/01/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G051	IR15MW06A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526T045	IR15MW06A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.17 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539D047	IR15MW06A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602V033	IR15MW06A	01/10/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611H032	IR15MW06A	03/17/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0622S010	IR15MW06A	06/01/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0634M016	IR15MW06A	08/25/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649W037	IR15MW06A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708W007	IR15MW06A	02/19/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708W008	IR15MW06A	02/19/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720A050	IR15MW06A	05/16/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734W049	IR15MW06A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734W050	IR15MW06A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740G007	IR15MW06A	10/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809H027	IR15MW06A	02/27/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809H028	IR15MW06A	02/27/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0816H024	IR15MW06A	04/17/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9147X273	IR15MW07A	11/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9147X274	IR15MW07A	11/20/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X565	IR15MW07A	02/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X566	IR15MW07A	02/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9233X676	IR15MW08A	08/13/1992	0	A	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X792	IR15MW08A	09/24/1992	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 UJ7	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9613W201	IR15MW08A	03/28/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9613W202	IR15MW08A	03/28/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9917B002	IR15MW08A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2 U	NA	NA	NA
0216F007	IR15MW08A	04/18/2002	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9233X673	IR15MW09F	08/13/1992	0	F	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X780	IR15MW09F	09/21/1992	0	F	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9613W195	IR15MW09F	03/27/1996	0	F	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109P010	IR15MW09F	03/09/2001	0	F	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0227E008	IR15MW09F	07/02/2002	0	F	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E016	IR15MW09F	09/12/2002	0	F	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E017	IR15MW09F	09/12/2002	0	F	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U1	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9233X674	IR15MW10F	08/13/1992	0	F	<0.01 U	<0.01 UJ7	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9239X781	IR15MW10F	09/21/1992	0	F	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9613W198	IR15MW10F	03/27/1996	0	F	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109D013Z	IR15MW10F	03/09/2001	0	F	<5 UJ7	5R7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<1 U	<1 UJ7	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0228P007	IR15MW10F	07/09/2002	0	F	<10 U	<10 U4 J7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	<1 U	NA	NA	NA	NA
0228P008	IR15MW10F	07/09/2002	0	F	<10 U	<10 U4 J7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	<1 U	<1 U	NA	NA	NA	NA
0237E015	IR15MW10F	09/12/2002	0	F	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425G040	IR15MW10F	06/17/2004	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J030	IR15MW10F	09/15/2004	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448P018	IR15MW10F	11/23/2004	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G037	IR15MW10F	03/14/2005	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G038	IR15MW10F	03/14/2005	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526T042	IR15MW10F	06/27/2005	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539S053	IR15MW10F	09/27/2005	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602V034	IR15MW10F	01/10/2006	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611H034	IR15MW10F	03/17/2006	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611H035	IR15MW10F	03/17/2006	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0622V022	IR15MW10F	06/01/2006	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0634M017	IR15MW10F	08/25/2006	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649W036	IR15MW10F	12/08/2006	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708W009	IR15MW10F	02/19/2007	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720A045	IR15MW10F	05/15/2007	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734W051	IR15MW10F	08/23/2007	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740G008	IR15MW10F	10/02/2007	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809H029	IR15MW10F	02/27/2008	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0816H026	IR15MW10F	04/17/2008	0	F	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X199	IR17MW11A	08/29/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X570	IR17MW11A	02/28/1992	0	A	<0.01 U	<0.01 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X760	IR17MW11A	09/16/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X761	IR17MW11A	09/16/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<10 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9603 J803	IR17MW11A	01/16/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9134X198	IR17MW12A	08/29/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X568	IR17MW12A	02/27/1992	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X770	IR17MW12A	09/17/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X196	IR17MW13A	08/29/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9134X197	IR17MW13A	08/29/1991	0	A	<0.01 U	<0.01 U	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X571	IR17MW13A	02/28/1992	0	A	<0.01 U	<.007 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9209X572	IR17MW13A	02/28/1992	0	A	<0.01 U	<0.004 U1	NA	<5 U	<5 U	<5 U	NA	<10 U	NA	NA	<5 U	<5 U	NA	<5 U	<10 U	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9238X771	IR17MW13A	09/17/1992	0	A	<5 UJ7	<10 U	NA	<5 U	<5 U	<5 U	NA	<10 UJ7	NA	NA	<10 U	<5 U	NA	<5 U	<10 UJ7	<5 U	<10 U	NA	<5 U	<5 U	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA
9428E065	IR36MW09A	07/13/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9604W038	IR36MW09A	01/25/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J932	IR36MW09A	03/15/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720H060	IR36MW09A	05/18/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D054	IR36MW09A	08/24/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W022	IR36MW09A	10/04/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E037	IR36MW09A	02/29/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0823G044	IR36MW09A	06/03/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0829H013	IR36MW09A	07/18/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0841C006	IR36MW09A	10/07/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0911D011	IR36MW09A	03/10/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916H009	IR36MW09A	04/15/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0928P008	IR36MW09A	07/08/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0940P005	IR36MW09A	10/02/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9437X471	IR36MW11A	09/12/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9437X472	IR36MW11A	09/12/1994	0	A	<10 U	<8 U1	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9603W012	IR36MW11A	01/18/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608 J883	IR36MW11A	02/21/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109D011	IR36MW11A	03/07/2001	0	A	<5 U	<5 UJ0	<1 UJ0	<1 UJ0	<0.5 UJ0	<1 U	NA	<1 UJ70	NA	NA	<1 U2 J03	0.4 J30	NA	<1 U	<1 UJ0	5 J30	2 J30	1 J30	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0109D014	IR36MW11A	03/07/2001	0	A	<5 U	<12 U4 J03	<1 UJ0	<1 UJ0	<0.5 UJ0	<1 U	NA	<1 UJ70	NA	NA	<1 UJ0	0.3 J30	NA	<1 U	<1 UJ0	5 J30	3 J30	1 J30	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229E018	IR36MW11A	07/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238G003	IR36MW11A	09/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425H027	IR36MW11A	06/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0437P026	IR36MW11A	09/09/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0447 J012	IR36MW11A	11/19/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511G042	IR36MW11A	03/14/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0525G029	IR36MW11A	06/22/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539D049	IR36MW11A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602V037	IR36MW11A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612M040	IR36MW11A	03/21/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S016	IR36MW11A	06/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B032	IR36MW11A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B033	IR36MW11A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709H036	IR36MW11A	02/26/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709H037	IR36MW11A	02/26/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719G005	IR36MW11A	05/10/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J066	IR36MW11A	08/24/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W023	IR36MW11A	10/04/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0810H062	IR36MW11A	03/05/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0816H019	IR36MW11A	04/16/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J923	IR36MW120B	03/13/1996	0	B	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9617 J043	IR36MW120B	04/23/1996	0	B	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9623 J174	IR36MW120B	06/04/1996	0	B	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0111T016	IR36MW120B	03/22/2001	0	B	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226E024	IR36MW120B	06/28/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237S016	IR36MW120B	09/13/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425C034	IR36MW120B	06/16/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J027	IR36MW120B	09/15/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C040	IR36MW120B	12/02/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R041	IR36MW120B	03/14/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526G042	IR36MW120B	06/27/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539V020	IR36MW120B	09/26/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H045	IR36MW120B	01/10/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612M042	IR36MW120B	03/21/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623D043	IR36MW120B	06/06/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G035	IR36MW120B	12/05/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708D019	IR36MW120B	02/19/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0810E074	IR36MW120B	03/07/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J924	IR36MW121A	03/13/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9617 J044	IR36MW121A	04/24/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	1	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9623 J175	IR36MW121A	06/04/1996	0	A	<4 UJ5	<4 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	NA	NA	<0.8 U2 J5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA
9623 J176	IR36MW121A	06/04/1996	0	A	<4 UJ5	<4 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	NA	NA	2 J5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA
0425G045	IR36MW121A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G049	IR36MW121A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449P031	IR36MW121A	12/01/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510D004	IR36MW121A	03/11/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524G019	IR36MW121A	06/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538T035	IR36MW121A	09/23/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	0.4 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H046	IR36MW121A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612 J044	IR36MW121A	03/22/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M034	IR36MW121A	06/07/2006	0	A	NA	NA	NA	<0.5 U	0.48 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G036	IR36MW121A	12/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708D018	IR36MW121A	02/19/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0810E073	IR36MW121A	03/07/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.7	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611W157	IR36MW122A	03/13/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9617 J055	IR36MW122A	04/25/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	0.6	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9623 J172	IR36MW122A	06/03/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425X006	IR36MW122A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438T011	IR36MW122A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C042	IR36MW122A	12/02/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511T034	IR36MW122A	03/14/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524G020	IR36MW122A	06/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539T038	IR36MW122A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539T039	IR36MW122A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602H047	IR36MW122A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612H040	IR36MW122A	03/20/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M035	IR36MW122A	06/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0649W029	IR36MW122A	12/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649W030	IR36MW122A	12/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709L013	IR36MW122A	02/27/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709L014	IR36MW122A	02/27/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719A038	IR36MW122A	05/11/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719A039	IR36MW122A	05/11/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D048	IR36MW122A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D049	IR36MW122A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740D016	IR36MW122A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740D017	IR36MW122A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809D014	IR36MW122A	02/25/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809D015	IR36MW122A	02/25/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817H043	IR36MW122A	04/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611W156	IR36MW123B	03/13/1996	0	B	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9618 J065	IR36MW123B	04/30/1996	0	B	4R7	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9623 J171	IR36MW123B	06/03/1996	0	B	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109D006	IR36MW123B	03/06/2001	0	B	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0109D007	IR36MW123B	03/06/2001	0	B	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226E023	IR36MW123B	06/28/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E022	IR36MW123B	09/13/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425S040	IR36MW123B	06/16/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438B047	IR36MW123B	09/15/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.61	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448P019	IR36MW123B	11/23/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510G028	IR36MW123B	03/10/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524T019	IR36MW123B	06/17/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.19 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538T031	IR36MW123B	09/22/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602 J045	IR36MW123B	01/10/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612H047	IR36MW123B	03/22/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 UJ	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M036	IR36MW123B	06/08/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649G037	IR36MW123B	12/05/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709L010	IR36MW123B	02/26/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709L011	IR36MW123B	02/26/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720B002	IR36MW123B	05/17/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D046	IR36MW123B	08/23/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D047	IR36MW123B	08/23/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740D018	IR36MW123B	10/03/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809D013	IR36MW123B	02/25/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0823G042	IR36MW123B	06/03/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604W031	IR36MW125A	01/24/1996	0	A	<200 UJ5	<240 U4 J5	NA	<25 UJ5	<25 UJ5	<25 UJ5	NA	<25 UJ5	NA	NA	<25 UJ5	<25 UJ5	NA	<25 UJ5	<25 UJ5	<25 UJ5	<25 UJ5	NA	<25 UJ5	<25 UJ5	NA	NA	NA	NA	NA	<25 UJ5	NA	NA	NA	NA	NA
9611W165	IR36MW125A	03/15/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	0.7 J	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9617 J057	IR36MW125A	04/26/1996	0	A	20 R7	<20 U	NA	<2 U	<2 U	<2 U	NA	<2 U	NA	NA	<2 U	<2 U	NA	<2 U	<2 U	<2 U	<2 U	NA	<2 U	<2 U	NA	NA	NA	NA	NA	<2 U	NA	NA	NA	NA	NA
0109T008	IR36MW125A	03/06/2001	0	A	<5 U	<5 U4	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	61	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229E014	IR36MW125A	07/18/2002	0	A	40R7	<40 U4 J7	<1 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	140	<1 U	<1 U	NA	<1 U	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0238 J009	IR36MW125A	09/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	15	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449P023	IR36MW125A	11/29/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	98	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511T038	IR36MW125A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<50 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526M046	IR36MW125A	06/27/2005	0	A	NA	NA	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<1 UJ3	NA	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	2100	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<1 UJ3	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA
0611M035	IR36MW125A	03/17/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	190 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0623P055	IR36MW125A	06/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1400 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0837G026	IR36MW125A	09/11/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.09 J	<0.5 U	700/1300 /	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0911B010	IR36MW125A	03/10/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.081 J	<0.5 U	110/480 /F	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916H014	IR36MW125A	04/16/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	000/940R,	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604W030	IR36MW126A	01/24/1996	0	A	<4 UJ5	<4 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	NA	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA
9611 J931	IR36MW126A	03/15/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9618 J063	IR36MW126A	04/29/1996	0	A	4R7	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109D012	IR36MW126A	03/07/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0109D015	IR36MW126A	03/07/2001	0	A	<5 U	<5 U4	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0230D007	IR36MW126A	07/24/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ3	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E018	IR36MW126A	09/12/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425C037	IR36MW126A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438B045	IR36MW126A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448P017	IR36MW126A	11/23/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R048	IR36MW126A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R049	IR36MW126A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524G018	IR36MW126A	06/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D041	IR36MW126A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612M044	IR36MW126A	03/22/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623P050	IR36MW126A	06/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.88 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0637S025	IR36MW126A	09/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649H021	IR36MW126A	12/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709Z021	IR36MW126A	02/27/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604W036	IR36MW127A	01/25/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J930	IR36MW127A	03/15/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9618 J062	IR36MW127A	04/29/1996	0	A	4R7	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0112T002	IR36MW127A	03/26/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226D021	IR36MW127A	06/28/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	0.48 J	<1 U	<0.5 U	<0.5 U	<0.94 U2	<0.5 U	0.23 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J003	IR36MW127A	09/09/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425C038	IR36MW127A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438C045	IR36MW127A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C043	IR36MW127A	12/02/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511T041	IR36MW127A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524G017	IR36MW127A	06/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538A039	IR36MW127A	09/22/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602 J046	IR36MW127A	01/10/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612 J049	IR36MW127A	03/23/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623V030	IR36MW127A	06/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0648H014	IR36MW127A	12/01/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709Z022	IR36MW127A	02/27/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720A042	IR36MW127A	05/14/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J057	IR36MW127A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J058	IR36MW127A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740H015	IR36MW127A	10/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809N004	IR36MW127A	02/25/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0816N006	IR36MW127A	04/17/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0829H014	IR36MW127A	07/18/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0911D010	IR36MW127A	03/10/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0916H015	IR36MW127A	04/16/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0928W024	IR36MW127A	07/10/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0940P006	IR36MW127A	10/02/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604W032	IR36MW128A	01/24/1996	0	A	4R0	4R0	NA	0.5R0	0.5R0	0.5R0	NA	0.5R0	NA	NA	0.5R0	0.5R0	NA	0.5R0	0.5R0	0.5R0	0.5R0	NA	0.5R0	0.5R0	NA	NA	NA	NA	NA	0.5R0	NA	NA	NA	NA	NA
9611 J929	IR36MW128A	03/14/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9617 J037	IR36MW128A	04/22/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109D008	IR36MW128A	03/06/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U2	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229P017	IR36MW128A	07/19/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E010	IR36MW128A	09/10/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425G036	IR36MW128A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438C049	IR36MW128A	09/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449P036	IR36MW128A	12/02/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510S031	IR36MW128A	03/11/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510S032	IR36MW128A	03/11/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524T018	IR36MW128A	06/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539V022	IR36MW128A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D044	IR36MW128A	01/12/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D045	IR36MW128A	01/12/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612M046	IR36MW128A	03/23/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M023	IR36MW128A	06/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B031	IR36MW128A	12/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708G035	IR36MW128A	02/21/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720B003	IR36MW128A	05/17/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J059	IR36MW128A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J060	IR36MW128A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W011	IR36MW128A	10/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809N005	IR36MW128A	02/25/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E038	IR36MW128A	04/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P008	IR36MW128A	04/15/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J927	IR36MW129B	03/14/1996	0	B	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J928	IR36MW129B	03/14/1996	0	B	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9617 J041	IR36MW129B	04/23/1996	0	B	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9617 J042	IR36MW129B	04/23/1996	0	B	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9622 J168	IR36MW129B	05/31/1996	0	B	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109D011Z	IR36MW129B	03/09/2001	0	B	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	0.7 J	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U2	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229E021	IR36MW129B	07/19/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	0.31 J	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238E008	IR36MW129B	09/17/2002	0	B	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425G035	IR36MW129B	06/16/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438 J032	IR36MW129B	09/15/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C038	IR36MW129B	12/02/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C039	IR36MW129B	12/02/2004	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R043	IR36MW129B	03/15/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524T017	IR36MW129B	06/17/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<01.8 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539V023	IR36MW129B	09/26/2005	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602 J047	IR36MW129B	01/11/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612S035	IR36MW129B	03/22/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 UJ	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S023	IR36MW129B	06/07/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S024	IR36MW129B	06/07/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0649G047	IR36MW129B	12/07/2006	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708G033	IR36MW129B	02/21/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708G034	IR36MW129B	02/21/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719G010	IR36MW129B	05/11/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719G011	IR36MW129B	05/11/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J061	IR36MW129B	08/23/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W009	IR36MW129B	10/02/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W010	IR36MW129B	10/02/2007	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809N006	IR36MW129B	02/25/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E037	IR36MW129B	04/22/2008	0	B	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9437X473	IR36MW12A	09/12/1994	0	A	<10 U	<10 U1	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9603W013	IR36MW12A	01/19/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	2	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608 J889	IR36MW12A	02/23/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109D013	IR36MW12A	03/07/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U2	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0216F004	IR36MW12A	04/18/2002	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425C033	IR36MW12A	06/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.21 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0437P034	IR36MW12A	09/10/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0447R007	IR36MW12A	11/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R040	IR36MW12A	03/14/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526T040	IR36MW12A	06/27/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526T041	IR36MW12A	06/27/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539A046	IR36MW12A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539A047	IR36MW12A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602V035	IR36MW12A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602V036	IR36MW12A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S017	IR36MW12A	06/05/2006	0	A	NA	NA	NA	<0.5 U	0.16 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S018	IR36MW12A	06/05/2006	0	A	NA	NA	NA	<0.5 U	0.17 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649H018	IR36MW12A	12/05/2006	0	A	NA	NA	NA	<0.5 U	0.16 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709W023	IR36MW12A	02/27/2007	0	A	NA	NA	NA	<0.5 U	0.25 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720B004	IR36MW12A	05/17/2007	0	A	NA	NA	NA	<0.5 U	0.52	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D045	IR36MW12A	08/23/2007	0	A	NA	NA	NA	<0.5 U	0.28 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740H021	IR36MW12A	10/03/2007	0	A	NA	NA	NA	<0.5 U	0.27 J	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E034	IR36MW12A	02/29/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E041	IR36MW12A	04/22/2008	0	A	NA	NA	NA	<0.5 U	0.28 J	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9602 J783	IR36MW135A	01/09/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9607 J865	IR36MW135A	02/12/1996	0	A	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	NA	NA	<0.5 U2 J5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA
9611W164	IR36MW135A	03/15/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0230A002	IR36MW135A	07/22/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0230A003	IR36MW135A	07/22/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238 J006	IR36MW135A	09/17/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0823G056	IR36MW135A	06/06/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 UJ	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0830E046	IR36MW135A	07/25/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0913W051	IR36MW135A	03/23/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604Z011	IR36MW139A	01/22/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608 J888	IR36MW139A	02/23/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9613W199	IR36MW139A	03/28/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9444X560	IR36MW13A	11/03/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9444X561	IR36MW13A	11/03/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
9603W011	IR36MW13A	01/18/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608 J886	IR36MW13A	02/22/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9443X538	IR36MW14A	10/25/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9443X539	IR36MW14A	10/25/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9603W010	IR36MW14A	01/18/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608W116	IR36MW14A	02/22/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0109P006	IR36MW14A	03/08/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0109P007	IR36MW14A	03/08/2001	0	A	<5 U	<5 U	<1 U	<1 U	<0.5 U	<1 U	NA	<1 UJ7	NA	NA	0.2 J	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0234E004	IR36MW14A	08/20/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237G003	IR36MW14A	09/09/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237G004	IR36MW14A	09/09/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720H061	IR36MW14A	05/18/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J064	IR36MW14A	08/24/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740G011	IR36MW14A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.24 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740G012	IR36MW14A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E038	IR36MW14A	02/29/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.24 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E042	IR36MW14A	04/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9438X484	IR36MW15A	09/20/1994	0	A	<10 U	<10 UJ7	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9438X485	IR36MW15A	09/20/1994	0	A	<10 U	<10 UJ7	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9605W060	IR36MW15A	02/01/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9610 J903	IR36MW15A	03/04/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9439X498	IR36MW16A	09/27/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9439X499	IR36MW16A	09/27/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9605W054	IR36MW16A	01/31/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9610 J906	IR36MW16A	03/05/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9610 J907	IR36MW16A	03/05/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425H034	IR36MW16A	06/18/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438T020	IR36MW16A	09/15/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C030	IR36MW16A	11/30/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0510T028	IR36MW16A	03/11/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.18 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0524T020	IR36MW16A	06/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.27 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539D048	IR36MW16A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602 J048	IR36MW16A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0611S018	IR36MW16A	03/15/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623V028	IR36MW16A	06/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649D037	IR36MW16A	12/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709H039	IR36MW16A	02/26/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719W025	IR36MW16A	05/11/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719W026	IR36MW16A	05/11/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J065	IR36MW16A	08/24/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W021	IR36MW16A	10/04/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809H038	IR36MW16A	02/28/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0845H039	IR36MW16A	11/07/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9442X532	IR36MW17A	10/18/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	5 J	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9442X533	IR36MW17A	10/18/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	10	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9603W016	IR36MW17A	01/19/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9603W017	IR36MW17A	01/19/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608 J887	IR36MW17A	02/23/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0719W023	IR36MW17A	05/11/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719W024	IR36MW17A	05/11/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734D050	IR36MW17A	08/23/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W028	IR36MW17A	10/05/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E018	IR36MW17A	02/27/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809E019	IR36MW17A	02/27/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9441X521	IR38MW01A	10/12/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9441X522	IR38MW01A	10/12/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9604Z012	IR38MW01A	01/22/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608 J885	IR38MW01A	02/22/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9443X535	IR38MW02A	10/24/1994	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9443X536	IR38MW02A	10/24/1994	0	A	<10 UJ7	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9604W021	IR38MW02A	01/23/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604W022	IR38MW02A	01/23/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9608W121	IR38MW02A	02/23/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9425E029	IR39MW21A	06/22/1994	0	A	<100 U	<100 U	NA	<100 U	1500	<100 U	NA	<100 U	NA	NA	<100 U	<100 U	NA	<100 U	<100 U	<100 U	<100 U	NA	<100 U	<100 U	NA	NA	NA	NA	NA	550	NA	NA	NA	NA	NA
9604W025	IR39MW21A	01/23/1996	0	A	8R0	<8 U	NA	1R0	90 J0	1R0	NA	<1 U	NA	NA	<1 U	1R0	NA	1R0	<1 U	<1 U	<1 U	NA	1R0	1R0	NA	NA	NA	NA	NA	83 J0	NA	NA	NA	NA	NA
9609 J886	IR39MW21A	02/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	61	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	72 J8	NA	NA	NA	NA	NA
0109T024	IR39MW21A	03/09/2001	0	A	<5 U	<5 U4	<1 U	<1 U	9	<1 U	NA	<1 UJ7	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA
0227P007	IR39MW21A	07/02/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	12	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	5.3	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0227P008	IR39MW21A	07/02/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	10	<0.5 U	NA	<0.5 U	NA	NA	0.19 J	<0.5 U	4.8	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	0.13 J	NA	NA	NA	NA	NA
0237S003	IR39MW21A	09/09/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	13	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	5.6	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	0.2 J	NA	NA	NA	NA	NA
0239R011	IR39MW21A	09/27/2002	0	A	NA	NA	NA	NA	14.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<01.1 U2	NA	NA	NA	NA	NA
0425C036	IR39MW21A	06/16/2004	0	A	NA	NA	NA	<0.5 U	0.74	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C027	IR39MW21A	11/29/2004	0	A	NA	NA	NA	<0.5 U	71	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	0.62	NA	NA	NA	NA	NA
0836G021	IR39MW21A	09/04/2008	0	A	NA	NA	NA	<0.5 U	23	<0.5 U	<0.5 U	<1 U	NA	NA	NA	).1/0.049 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	0.4 J	NA	NA	NA	NA	NA
0841B026	IR39MW21A	10/10/2008	0	A	NA	NA	NA	NA	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0913G003	IR39MW21A	03/25/2009	0	A	NA	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P005	IR39MW21A	04/14/2009	0	A	NA	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928W025	IR39MW21A	07/10/2009	0	A	NA	NA	NA	NA	6.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0941H033	IR39MW21A	10/06/2009	0	A	NA	NA	NA	NA	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9437X480	IR39MW22A	09/14/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 UJ7	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9437X481	IR39MW22A	09/14/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 UJ7	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9605W045	IR39MW22A	01/29/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9609 J897	IR39MW22A	02/29/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9437K156	IR39MW23A	09/15/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 UJ7	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9437K157	IR39MW23A	09/15/1994	0	A	<10 UJ5	<10 UJ5	NA	<10 UJ5	<10 UJ5	<10 UJ5	NA	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5	NA	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ57	NA	<10 UJ5	<10 UJ5	NA	NA	NA	NA	NA	<10 UJ5	NA	NA	NA	NA	NA
9604W040	IR39MW23A	01/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604W041	IR39MW23A	01/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9609 J884	IR39MW23A	02/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9438X490	IR39MW24A	09/21/1994	0	A	<10 U	<11 U1	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9438X491	IR39MW24A	09/21/1994	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 UJ7	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9604W042	IR39MW24A	01/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	0.4 J	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9609 J885	IR39MW24A	02/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9604W024	IR39MW33A	01/23/1996	0	A	<4 U	<4 U	NA	<0.5 U	4	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.5	NA	NA	NA	NA	NA
9609W123	IR39MW33A	02/26/1996	0	A	<4 U	<4 U	NA	<0.5 U	3 J3	<0.5 U	NA	<0.5 U	NA	NA	0.2 J37	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.1 J3	NA	NA	NA	NA	NA
9613W204	IR39MW33A	03/29/1996	0	A	<4 U	<4 U	NA	<0.5 U	3	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	0.1 J	NA	NA	NA	NA	NA
0115D004	IR39MW33A	04/17/2001	0	A	<5 U	<14 U47	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0115D005	IR39MW33A	04/17/2001	0	A	<5 U	<14 U47	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0226D023	IR39MW33A	06/28/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	0.29 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	0.43 J	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	0.52	NA	NA	NA	NA	NA
0236E005Z	IR39MW33A	09/05/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	0.23 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	0.4 J	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ37	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	0.38 J	NA	NA	NA	NA	NA
0830H038	IR39MW33A	07/23/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841C016	IR39MW33A	10/09/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0941H032	IR39MW33A	10/06/2009	0	A	NA	NA	NA	NA	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9602 J790	IR39MW35A	01/10/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9607W096	IR39MW35A	02/14/1996	0	A	<4 UJ03	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA
9607W097	IR39MW35A	02/14/1996	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9612 J934	IR39MW35A	03/18/1996	0	A	<4 U	<4 U2 J7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9602 J787	IR39MW36A	01/10/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9602 J789	IR39MW36A	01/10/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9607W098	IR39MW36A	02/14/1996	0	A	<4 U	<4 U	NA	<0.5 UJ0	<0.5 UJ0	<0.5 UJ0	NA	<0.5 U	NA	NA	<0.5 U	<0.5 UJ0	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ03	<0.5 UJ0	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9612 J935	IR39MW36A	03/18/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	0.1 J	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425H033	IR39MW36A	06/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438T016	IR39MW36A	09/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438T017	IR39MW36A	09/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448C017	IR39MW36A	11/22/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511S042	IR39MW36A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.22 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526M051	IR39MW36A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539S052	IR39MW36A	09/27/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602V031	IR39MW36A	01/09/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612H049	IR39MW36A	03/23/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0622P038	IR39MW36A	06/01/2006	0	A	NA	NA	NA	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 UJ	NA	NA	NA	<0.5 UJ	NA	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 UJ	NA	NA	NA	<0.5 UJ	NA	NA	NA	NA	NA
0649B034	IR39MW36A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B035	IR39MW36A	12/08/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708G039	IR39MW36A	02/22/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708G040	IR39MW36A	02/22/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720W044	IR39MW36A	05/17/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734W056	IR39MW36A	08/24/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740G010	IR39MW36A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809H036	IR39MW36A	02/28/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.24 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0816H029	IR39MW36A	04/17/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9444X557	IR56MW39A	11/02/1994	0	A	<10 U	<10 U	NA	<10 U	<12 U1	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	58	NA	NA	NA	NA	NA
9444X558	IR56MW39A	11/02/1994	0	A	<10 U	<10 U	NA	<10 U	<14 U1	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	71	NA	NA	NA	NA	NA
9610W136	IR56MW39A	03/04/1996	0	A	<4 U	<4 U	NA	<0.5 U	2 J5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 UJ5	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	110 J58	NA	NA	NA	NA	NA
9620 J120	IR56MW39A	05/15/1996	0	A	<4 U	<4 U	NA	<0.5 U	2	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	18	NA	NA	NA	NA	NA
0110P029	IR56MW39A	03/16/2001	0	A	<5 U	<5 U4 J7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	0.3 J	NA	NA	NA	NA	NA
0216F002	IR56MW39A	04/17/2002	0	A	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0234E003	IR56MW39A	08/20/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	0.13 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	6.1	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.17 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237S008	IR56MW39A	09/10/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<6 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425X005	IR56MW39A	06/16/2004	0	A	NA	NA	NA	<0.5 U	0.21 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438B046	IR56MW39A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448C021	IR56MW39A	11/23/2004	0	A	NA	NA	NA	<0.5 U	0.3 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 UJ7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	0.27 J	NA	NA	NA	NA	NA
0511G046	IR56MW39A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526D036	IR56MW39A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539T037	IR56MW39A	09/26/2005	0	A	NA	NA	NA	<0.5 U	0.18 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602T030	IR56MW39A	01/09/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0612H050	IR56MW39A	03/23/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612H051	IR56MW39A	03/23/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S025	IR56MW39A	06/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623S026	IR56MW39A	06/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649W035	IR56MW39A	12/07/2006	0	A	NA	NA	NA	<0.5 U	0.18 J	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708H027	IR56MW39A	02/20/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0718A005	IR56MW39A	05/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0735H082	IR56MW39A	08/27/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W016	IR56MW39A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0809P006	IR56MW39A	02/26/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817D043	IR56MW39A	04/23/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P003	IR56MW39A	04/14/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9547W195	IR72MW32A	11/21/1995	0	A	<4 U	<8 U1 J7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9610 J905	IR72MW32A	03/05/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 UJ5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 UJ5	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA
9620 J119	IR72MW32A	05/15/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	0.1 J	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0110P027	IR72MW32A	03/16/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 U	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0229P003	IR72MW32A	07/15/2002	0	A	20 R7	<20 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238G004	IR72MW32A	09/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0238G005	IR72MW32A	09/18/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U2	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P010	IR72MW32A	04/15/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9547W197	IR72MW33A	11/22/1995	0	A	<4 U	<7 U1 J7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9547W198	IR72MW33A	11/22/1995	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9610W138	IR72MW33A	03/05/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 UJ5	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 UJ5	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA
9620 J118	IR72MW33A	05/15/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425H028	IR74MW01A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G045	IR74MW01A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.27 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0448P012	IR74MW01A	11/22/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.32 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D038	IR74MW01A	01/10/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612H043	IR74MW01A	03/21/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623D044	IR74MW01A	06/07/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0829H016	IR74MW01A	07/18/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.26 J	0.37 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0841H017	IR74MW01A	10/08/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0911D025	IR74MW01A	03/13/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.12 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P004	IR74MW01A	04/14/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0928H009	IR74MW01A	07/07/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.61	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0940H015	IR74MW01A	10/02/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	0.49	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9305 J230	PA36MW01A	02/04/1993	0	A	<10 U	<14 U1 J7	NA	<10 U	<0.5 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9606W074	PA36MW01A	02/07/1996	0	A	<4 UJ3	<4 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA
9611W148	PA36MW01A	03/11/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425X004	PA36MW01A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0438G046	PA36MW01A	09/14/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0449C034	PA36MW01A	12/01/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511R044	PA36MW01A	03/15/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0525T035	PA36MW01A	06/24/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0525T036	PA36MW01A	06/24/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538S047	PA36MW01A	09/23/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0538S048	PA36MW01A	09/23/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D042	PA36MW01A	01/11/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0612H042	PA36MW01A	03/21/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M027	PA36MW01A	06/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0623M028	PA36MW01A	06/06/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0648D027	PA36MW01A	12/01/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708H030	PA36MW01A	02/21/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0708H031	PA36MW01A	02/21/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0811E082	PA36MW01A	03/11/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9305 J232	PA36MW02A	02/04/1993	0	A	<10 UJ3	<13 U1 J37	NA	<10 UJ3	<0.5 U	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9606W075	PA36MW02A	02/07/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611W149	PA36MW02A	03/11/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9306 J248	PA36MW03A	02/11/1993	0	A	<10 U	<10 U	NA	<10 U	<0.5 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9306 J249	PA36MW03A	02/11/1993	0	A	<10 U	<10 U	NA	<10 U	<0.5 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9606W076	PA36MW03A	02/07/1996	0	A	<4 UJ3	<4 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA
9611 J920	PA36MW03A	03/11/1996	0	A	<4 U	<4 U4	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9305 J234	PA36MW04A	02/05/1993	0	A	<10 U	<25 U1 J7	NA	<10 U	<0.5 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 UJ7	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9606W077	PA36MW04A	02/07/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J919	PA36MW04A	03/11/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0111T009	PA36MW04A	03/20/2001	0	A	<5 U	5R7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0227E005	PA36MW04A	07/01/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.13 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J012	PA36MW04A	09/11/2002	0	A	20 R7	<20 U4 J7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.12 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0720 J062	PA36MW04A	05/18/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.49 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0735H083	PA36MW04A	08/27/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.51	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740W014	PA36MW04A	10/03/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.37 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0810H053	PA36MW04A	03/04/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0817E040	PA36MW04A	04/22/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0916P007	PA36MW04A	04/15/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9306 J244	PA36MW05A	02/10/1993	0	A	<0.01 U	<0.01 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9306 J245	PA36MW05A	02/10/1993	0	A	<0.01 U	<0.01 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9606W082	PA36MW05A	02/08/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J918	PA36MW05A	03/11/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9306 J252	PA36MW06A	02/11/1993	0	A	<10 U	<10 U	NA	<10 U	<0.5 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9607W099	PA36MW06A	02/16/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9612W172	PA36MW06A	03/19/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0230A017	PA36MW06A	07/26/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J013	PA36MW06A	09/11/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237 J014	PA36MW06A	09/11/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9308 J303	PA36MW07A	02/22/1993	0	A	<0.01 U	<0.01 UJ7	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<1 U2	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9606W079	PA36MW07A	02/08/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611 J922	PA36MW07A	03/12/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0110T003	PA36MW07A	03/12/2001	0	A	<5 UJ7	<5 U4 J7	<1 U	<1 U	<0.5 U	<1 UJ7	NA	<1 U	NA	NA	<1 U	<0.5 U	NA	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<1 U	<1 UJ7	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA
0234E002	PA36MW07A	08/20/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237E019	PA36MW07A	09/12/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ7	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425S042	PA36MW07A	06/17/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0511S046	PA36MW07A	03/17/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0526D035	PA36MW07A	06/28/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0539S051	PA36MW07A	09/26/2005	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0602D034	PA36MW07A	01/09/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0612 J042	PA36MW07A	03/21/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Methyl-2-Pentanone	Acetone	Bromochloromethane	Bromodichloromethane	Benzene	Bromoform	Bromobenzene	Bromomethane	Butanol	Carbon Dioxide	Carbon Disulfide	Carbon Tetrachloride	Cyclohexane	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethane	Ethanol	Ethene	Ethylbenzene	Hexachlorobutadiene	Hydrogen	Isobutyl Alcohol	Isopentyl Alcohol	Isopropyl Alcohol
0623V029	PA36MW07A	06/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B024	PA36MW07A	12/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0649B025	PA36MW07A	12/05/2006	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0709W024	PA36MW07A	02/27/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0719W027	PA36MW07A	05/11/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0734 J037	PA36MW07A	08/20/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0740H016	PA36MW07A	10/02/2007	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0810H076	PA36MW07A	03/07/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0816N007	PA36MW07A	04/17/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9307A590	PA36MW08A	02/16/1993	0	A	<10 U	<5.12 U2	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9307A591	PA36MW08A	02/16/1993	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9606W080	PA36MW08A	02/08/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9606W081	PA36MW08A	02/08/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611W151	PA36MW08A	03/12/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611W152	PA36MW08A	03/12/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0234A012	PA36MW08A	08/21/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0234A013	PA36MW08A	08/21/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0237S002	PA36MW08A	09/09/2002	0	A	20 R7	20 R7	<0.5 U	<0.5 U	0.34 J	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	0.35 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0425H029	PA36MW08A	06/16/2004	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9307A611	PA39MW01A	02/18/1993	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9307A612	PA39MW01A	02/18/1993	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9606W084	PA39MW01A	02/09/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611W159	PA39MW01A	03/14/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0830D030	PA39MW01A	07/23/2008	0	A	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
0912D048	PA39MW01A	03/19/2009	0	A	NA	NA	NA	<0.5 U	<0.2 U	<0.5 U	<0.5 U	<1 UJ	NA	NA	NA	<0.1 U	NA	<0.5 U	<0.5 U	<0.2 U	<0.5 U	0.24 J	<0.5 U	<0.5 U	<0.5 U	<1 U	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9307D024	PA39MW02A	02/19/1993	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9307D025	PA39MW02A	02/19/1993	0	A	<10 U	<10 U	NA	<10 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	NA	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA
9606 J860	PA39MW02A	02/09/1996	0	A	<4 U	<4 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA
9611W158	PA39MW02A	03/14/1996	0	A	<4 U	<4 UJ7	NA	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA

Notes:

* All concentrations in micrograms per liter

bgs below ground surface

VOCs volatile organic compounds

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0111P015	IR01MW367A	03/21/2001	0	A	NA	5300 J7	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	0.3 J	0.3 J	<0.5 U	<1 U	NA	NA	0.4 J	0.3 J
0229P002	IR01MW367A	07/15/2002	0	A	0.53 J	6310	NA	<1 U	<0.5 U	1.8	<2 U	NA	NA	0.17 J	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	0.62	<0.5 U	<0.5 U	<0.5 UJ7	NA	0.58	0.25 J
0238S008	IR01MW367A	09/18/2002	0	A	0.72 J	12000	NA	<1 UJ3	0.08 J	2.1	<2 U	NA	NA	0.22 J3	NA	NA	<0.5 U	NA	<0.5 U	0.22 J	0.66	<0.5 U	<0.5 U	<0.5 U	NA	0.47 J	0.35 J
9202A009	IR02MW101A1	01/07/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A010	IR02MW101A1	01/07/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J155	IR02MW101A1	07/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J219	IR02MW101A1	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<11 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A007	IR02MW101A2	01/07/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J154	IR02MW101A2	07/08/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J218	IR02MW101A2	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<11 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<1 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9203A085	IR02MW114A1	01/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228X646	IR02MW114A1	07/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J222	IR02MW114A1	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<13 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<1 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9203A026	IR02MW114A2	01/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J166	IR02MW114A2	07/10/1992	0	A	NA	NA	NA	NA	NA	NA	<7 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	1 J	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J223	IR02MW114A2	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<13 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<1 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9203A084	IR02MW114A3	01/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J147	IR02MW114A3	07/07/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J227	IR02MW114A3	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<13 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<1 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A002	IR02MW126A	01/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J157	IR02MW126A	07/08/1992	0	A	NA	NA	NA	NA	NA	NA	<7 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J158	IR02MW126A	07/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<4 U1	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X717	IR02MW126A	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0233D013	IR02MW126A	08/15/2002	0	A	0.1 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	0.84	<0.5 U	<0.5 U	<0.5 U	NA	0.49 J	<0.5 U
0239 J006	IR02MW126A	09/24/2002	0	A	0.17 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.24 J	0.87	<0.5 U	<0.5 U	<0.5 U	NA	0.47 J	<0.5 U
0424M014	IR02MW126A	06/10/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.18 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.63	<0.5 U
0437P033	IR02MW126A	09/10/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.27 J3	0.49 J3	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0447C010	IR02MW126A	11/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	0.4 J	<0.5 U	<0.5 U	<0.5 U	NA	0.28 J	<0.5 U
0511G050	IR02MW126A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.2 J	<0.5 U	0.2 J	<0.5 U	0.19 J	<0.5 U	NA	<0.5 U	0.29 J
0526G049	IR02MW126A	06/29/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.41 J	0.4 J	<0.5 U	<0.5 U	<0.5 U	NA	<0.9 U	0.95
0538A043	IR02MW126A	09/23/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.52	0.34 J	<0.5 U	<0.5 U	<0.5 U	NA	0.57	0.3 J
0602T033	IR02MW126A	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.37 J	0.26 J	0.58	<0.5 U	0.25 J	<0.5 U	NA	0.61	0.39 J
0611 J035	IR02MW126A	03/17/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<.52 U	NA	NA	NA	NA	NA	NA	NA	0.25 J	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	NA	<0.5 U	<0.5 U
0623D040	IR02MW126A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.19 J	<0.5 U	0.62	<0.5 U	0.21 J	<0.5 U	NA	0.48 J	<0.5 U
0649G043	IR02MW126A	12/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.23 J	<0.5 U	<0.5 U	<0.5 U	0.29 J	<0.5 U	NA	<0.5 U	<0.5 U
0709W026	IR02MW126A	02/28/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.17 J	<0.5 U	0.34 J	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720 J051	IR02MW126A	05/14/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.27 J	0.43 J	<0.5 U	<0.5 U	<0.5 U	NA	0.64	<0.5 U
0732 J005	IR02MW126A	08/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.28 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.58	<0.5 U
0740W013	IR02MW126A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.27 J	0.34 J	<0.5 U	<0.5 U	<0.5 U	NA	0.5	<0.5 U
0808E010	IR02MW126A	02/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	0.49 J	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817H036	IR02MW126A	04/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	NA	<0.5 U	<0.5 U
9205X468	IR02MW127B	01/28/1992	0	B	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9230 J169	IR02MW127B	07/20/1992	0	B	NA	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J229	IR02MW127B	08/25/1992	0	B	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0112P005	IR02MW127B	03/26/2001	0	B	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0230P006	IR02MW127B	07/23/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	0.24 J	NA	<0.5 U	<0.5 U
0230P007	IR02MW127B	07/23/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	0.21 J	NA	<0.5 U	<0.5 U
0237E025	IR02MW127B	09/13/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.16 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0237E026	IR02MW127B	09/13/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.16 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425G031	IR02MW127B	06/15/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0437P021	IR02MW127B	09/07/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.71	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0447R010	IR02MW127B	11/19/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.74	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G048	IR02MW127B	03/15/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.38 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9218Z059	IR02MW141A	05/07/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	1 J	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9218Z060	IR02MW141A	05/07/1992	0	A	NA	NA	NA	NA	NA	NA	<3 U1	NA	NA	NA	NA	NA	<5 U	NA	3 J	1 J	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9230 J177	IR02MW141A	07/21/1992	0	A	NA	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9230 J178	IR02MW141A	07/21/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X715	IR02MW141A	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X716	IR02MW141A	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0425S041	IR02MW141A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0436P012	IR02MW141A	09/02/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0448C018	IR02MW141A	11/22/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G041	IR02MW141A	03/14/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.5R7	<0.5 U
9205X478	IR02MW146A	01/30/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	17
9205X479	IR02MW146A	01/30/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	17
9613W194	IR02MW146A	03/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9622 J162	IR02MW146A	05/29/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.3 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.7
9622 J163	IR02MW146A	05/29/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.3 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.7
9203X415	IR02MW147A	01/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J167	IR02MW147A	07/10/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	1 J	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X719	IR02MW147A	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0425S036	IR02MW147A	06/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.22 J	<0.5 U	NA	<0.5 U	<0.5 U
0437P022	IR02MW147A	09/07/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449P022	IR02MW147A	11/29/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G044	IR02MW147A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G045	IR02MW147A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526M052	IR02MW147A	06/29/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T028	IR02MW147A	09/22/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602T037	IR02MW147A	01/12/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612 J041	IR02MW147A	03/21/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623D037	IR02MW147A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636D042	IR02MW147A	09/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B030	IR02MW147A	12/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L015	IR02MW147A	02/28/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720B001	IR02MW147A	05/17/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0732 J006	IR02MW147A	08/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G019	IR02MW147A	10/05/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810E051	IR02MW147A	03/04/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817G029	IR02MW147A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9112X067	IR02MW149A	03/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202N019	IR02MW149A	01/10/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X718	IR02MW149A	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9205X474	IR02MW173A	01/29/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	4 J
9205X475	IR02MW173A	01/29/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	4 J
9613W193	IR02MW173A	03/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.3 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	3
9622 J166	IR02MW173A	05/30/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.2 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	2

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9203A089	IR02MW175A	01/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228X669	IR02MW175A	07/10/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<1 U1	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228X670	IR02MW175A	07/10/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<2 U1	NA	6	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J230	IR02MW175A	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0110P002	IR02MW175A	03/12/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229P014	IR02MW175A	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0229P015	IR02MW175A	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0239G002	IR02MW175A	09/23/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425H032	IR02MW175A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438 J028	IR02MW175A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438 J029	IR02MW175A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 UJ7	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0447R006	IR02MW175A	11/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511Z023	IR02MW175A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511Z024	IR02MW175A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0721 J065	IR02MW175A	05/21/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0732W010	IR02MW175A	08/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W007	IR02MW175A	10/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0808D008	IR02MW175A	02/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817D033	IR02MW175A	04/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9203A086	IR02MW179A	01/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X616	IR02MW179A	06/09/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J231	IR02MW179A	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0110P004	IR02MW179A	03/12/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229D010	IR02MW179A	07/17/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0229D011	IR02MW179A	07/17/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238 J020	IR02MW179A	09/20/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9203A087	IR02MW183A	01/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9203A088	IR02MW183A	01/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X618	IR02MW183A	06/09/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J234	IR02MW183A	08/26/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9112X063	IR02MW196A	03/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<1.2 U2	NA	<10 UR7	<10 U	<5 U
9112X064	IR02MW196A	03/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A017	IR02MW196A	01/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X722	IR02MW196A	08/26/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A015	IR02MW206A1	01/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X615	IR02MW206A1	06/09/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X720	IR02MW206A1	08/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0110P008	IR02MW206A1	03/13/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0110P009	IR02MW206A1	03/13/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0230D012	IR02MW206A1	07/25/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0230D013	IR02MW206A1	07/25/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0239A007	IR02MW206A1	09/24/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9202A016	IR02MW206A2	01/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X611	IR02MW206A2	06/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	1 J	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X723	IR02MW206A2	08/26/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0110P010	IR02MW206A2	03/13/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229D014	IR02MW206A2	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238 J018	IR02MW206A2	09/20/2002	0	A	<2 U	NA	NA	<1 UJ7	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0238 J019	IR02MW206A2	09/20/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9202A013	IR02MW209A	01/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A014	IR02MW209A	01/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X609	IR02MW209A	06/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X610	IR02MW209A	06/08/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X725	IR02MW209A	08/26/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0425G037	IR02MW209A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438C046	IR02MW209A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438C047	IR02MW209A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C023	IR02MW209A	11/29/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G049	IR02MW209A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G036	IR02MW209A	06/24/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G037	IR02MW209A	06/24/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T036	IR02MW209A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H051	IR02MW209A	01/12/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H036	IR02MW209A	03/17/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<.43 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623P048	IR02MW209A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636B016	IR02MW209A	09/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636B017	IR02MW209A	09/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G049	IR02MW209A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G050	IR02MW209A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708L006	IR02MW209A	02/22/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720 J057	IR02MW209A	05/16/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0732W009	IR02MW209A	08/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W008	IR02MW209A	10/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0808H012	IR02MW209A	02/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E036	IR02MW209A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9205X480	IR02MW210B	01/30/1992	0	B	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	13
9230 J179	IR02MW210B	07/21/1992	0	B	NA	NA	NA	NA	NA	NA	<2 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J235	IR02MW210B	08/26/1992	0	B	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J236	IR02MW210B	08/26/1992	0	B	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0112P007	IR02MW210B	03/27/2001	0	B	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226E019	IR02MW210B	06/27/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237 J018	IR02MW210B	09/12/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9228 J145	IR02MW298A	07/07/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X724	IR02MW298A	08/26/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9612W184	IR02MW298A	03/21/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9228X661	IR02MW299A	07/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J238	IR02MW299A	08/26/1992	0	A	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9612 J946	IR02MW299A	03/21/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9917Z020	IR02MW299A	04/26/1999	0	A	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0112P002	IR02MW299A	03/26/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0233A013	IR02MW299A	08/15/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237 J002	IR02MW299A	09/09/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9228X660	IR02MW300A	07/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X726	IR02MW300A	08/26/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9612 J943	IR02MW300A	03/20/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0112T012	IR02MW300A	03/28/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0112T013	IR02MW300A	03/28/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229D006	IR02MW300A	07/16/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238G007	IR02MW300A	09/20/2002	0	A	<2 U	NA	NA	<1 UJ7	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0732D009	IR02MW301A	08/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D007	IR02MW301A	10/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	NA	<0.5 U	<0.5 U
0808D007	IR02MW301A	02/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817G023	IR02MW301A	04/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9547 J609	IR02MW372A	11/22/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	4	NA	NA	0.7 J7	1
9610W140	IR02MW372A	03/07/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 U	<0.5 UJ5	NA	<0.5 U	0.5	NA	NA	0.7	<0.5 UJ5
9619 J106	IR02MW372A	05/10/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.1 J	NA	<0.5 U	2	NA	NA	0.8	0.4 J
0112P003	IR02MW372A	03/26/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	0.6 J	<0.5 U	0.2 J	NA	NA	0.2 J	<1 U
0229P009	IR02MW372A	07/17/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.72	<0.5 U	0.53	<0.5 U	NA	<0.5 U	<0.5 U
0237E008	IR02MW372A	09/10/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.33 J	<0.5 U	0.49 J	<0.5 U	NA	<0.5 U	<0.5 U
0237E009	IR02MW372A	09/10/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.36 J	<0.5 U	0.51	<0.5 U	NA	<0.5 U	<0.5 U
9547 J608	IR02MW373A	11/21/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.7
9610 J904	IR02MW373A	03/04/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 U	<0.5 UJ5	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 UJ5
9619 J107	IR02MW373A	05/10/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	0.04 J	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0830G033	IR02MW373A	07/23/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9113X078	IR02MW87A	03/26/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A001	IR02MW87A	01/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X710	IR02MW87A	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9204X444	IR02MW89A	01/22/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9230 J176	IR02MW89A	07/21/1992	0	A	NA	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<2 U4	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X711	IR02MW89A	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<1 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9112X070	IR02MW93A	03/22/1991	0	A	NA	NA	NA	NA	NA	NA	<1.6 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9112X071	IR02MW93A	03/22/1991	0	A	NA	NA	NA	NA	NA	NA	<2.1 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A003	IR02MW93A	01/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A004	IR02MW93A	01/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X712	IR02MW93A	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<1 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9112X065	IR02MW97A	03/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<1.6 U2	NA	<10 U	<10 U	<5 U
9203A093	IR02MW97A	01/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9203A094	IR02MW97A	01/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J220	IR02MW97A	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<11 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<1 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J221	IR02MW97A	08/24/1992	0	A	NA	NA	NA	NA	NA	NA	<12 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0109T007	IR02MW97A	03/06/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	9	NA	NA	<0.5 U	<1 U
0230P016	IR02MW97A	07/26/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238E003	IR02MW97A	09/16/2002	0	A	<2 UJ7	NA	NA	<1 U	<0.5 U	<1 U	<2 U4	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	NA	<0.5 U	<0.5 U
9203A028	IR02MWB-1	01/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9203A029	IR02MWB-1	01/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J148	IR02MWB-1	07/07/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J149	IR02MWB-1	07/07/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J239	IR02MWB-1	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9202A008	IR02MWB-2	01/07/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228 J151	IR02MWB-2	07/07/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<5 U	NA	2 J	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J240	IR02MWB-2	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0112T011	IR02MWB-2	03/28/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0230P011	IR02MWB-2	07/24/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0239 J005	IR02MWB-2	09/24/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9204X432	IR02MWB-3	01/20/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9228X671	IR02MWB-3	07/10/1992	0	A	NA	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J241	IR02MWB-3	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	<8 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J242	IR02MWB-3	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0425S045	IR02MWB-3	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438C055	IR02MWB-3	09/17/2004	0	A	NA	NA	NA	NA	<0.5 UJ7	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0448C019	IR02MWB-3	11/23/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G047	IR02MWB-3	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.62 U	<0.5 U	NA	<0.5 U	<0.5 U
9204X441	IR02MWB-5	01/21/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X613	IR02MWB-5	06/09/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9224X614	IR02MWB-5	06/09/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J245	IR02MWB-5	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9204X456	IR03MW218A1	01/24/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	<20 U	<20 U	5 J
9204X457	IR03MW218A1	01/24/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	4 J
9228X666	IR03MW218A1	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	2 J	NA	<10 U	<10 U	NA	<20 U	<20 U	3 J
9203A092	IR03MW218A2	01/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	6	NA	<5 U	<5 U	NA	<10 U	<10 U	28
9228X664	IR03MW218A2	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	6	NA	<5 U	<5 U	NA	<10 U	<10 U	27
9235X730	IR03MW218A2	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	<8 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<6 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	32
0110T012	IR03MW218A2	03/14/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	5	0.4 J	<0.5 U	<1 U	NA	NA	2	30
0231D006	IR03MW218A2	07/30/2002	0	A	2.6	NA	NA	<1 U	<0.5 U	1.2	<2 U	NA	NA	19	NA	NA	<0.5 U	NA	<0.5 U	3.4	<0.5 U	<0.5 U	0.22 J	<0.5 U	NA	<0.5 U	12
0239A002	IR03MW218A2	09/23/2002	0	A	4	NA	NA	<1 U	<0.5 U	1.3 J3	<2 U	NA	NA	21	NA	NA	<0.5 U	NA	<0.5 U	5.3	0.24 J	<0.5 U	<0.5 U	<0.5 U	NA	1.3	13
0425H025	IR03MW218A2	06/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	2.6	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	30
0438 J022	IR03MW218A2	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	3.9 J3	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	23 J3
0448C020	IR03MW218A2	11/23/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	2.2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	15
0510G025	IR03MW218A2	03/10/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	3	0.23 J	<0.5 U	<0.5 U	<0.5 U	NA	1.2	24
0526G039	IR03MW218A2	06/27/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	3.3	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.49 J	25
0538A027	IR03MW218A2	09/21/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	3.1	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	19
0602H042	IR03MW218A2	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	3.7	0.22 J	<0.5 U	<0.5 U	<0.5 U	NA	0.79	25
0623T023	IR03MW218A2	06/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	2.5	0.25 J	<0.5 U	<0.5 U	<0.5 U	NA	0.44 J	22
0636D036	IR03MW218A2	09/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	5	0.35 J	<0.5 U	<0.5 U	<0.5 U	NA	0.35 J	36
0650B043	IR03MW218A2	12/12/2006	0	A	NA	NA	NA	NA	<0.5 UJ	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	2.7	0.24 J	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	20
0709L012	IR03MW218A2	02/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	4.8 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	1.2 J	26 J
0719G001	IR03MW218A2	05/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	3.2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.88	22
0734D035	IR03MW218A2	08/21/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	4.1 J	0.28 J	<0.5 U	<0.5 U	<0.5 U	NA	0.87 J	30 J
0741D035	IR03MW218A2	10/08/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.87	34
0810D051	IR03MW218A2	03/04/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	2.7 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	19 J
0823H060	IR03MW218A2	06/04/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	2.6	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	NA	0.31 J	19
9203A091	IR03MW218A3	01/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	2 J	NA	<10 U	<10 U	<5 U
9228X665	IR03MW218A3	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X729	IR03MW218A3	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0110T014	IR03MW218A3	03/14/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U2	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	2
0231E013	IR03MW218A3	08/01/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	0.14 J	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	0.43 J	<0.5 U	NA	<0.5 U	<0.5 U
0239E007	IR03MW218A3	09/25/2002	0	A	0.58 J	NA	NA	<1 U	<0.5 U	0.44 J3	<2 U	NA	NA	0.53	NA	NA	<0.5 U	NA	<0.5 U	0.42 J	<0.5 U	<0.5 U	0.12 J	<0.5 U	NA	<0.5 U	0.83
9204X451	IR03MW224A	01/23/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9230 J196	IR03MW224A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	<8 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X734	IR03MW224A	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<1 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X735	IR03MW224A	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0109P003	IR03MW224A	03/06/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0230A007	IR03MW224A	07/23/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237S010	IR03MW224A	09/11/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425C032	IR03MW224A	06/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.27 J
0438 J023	IR03MW224A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C025	IR03MW224A	11/29/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C026	IR03MW224A	11/29/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U4	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511Z018	IR03MW224A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526G044	IR03MW224A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526G045	IR03MW224A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T029	IR03MW224A	09/22/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V032	IR03MW224A	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611S013	IR03MW224A	03/14/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623P049	IR03MW224A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0634G007	IR03MW224A	08/25/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B038	IR03MW224A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709G047	IR03MW224A	02/28/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720W046	IR03MW224A	05/18/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734H057	IR03MW224A	08/20/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D024	IR03MW224A	10/04/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E022	IR03MW224A	02/27/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E029	IR03MW224A	04/21/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9205X470	IR03MW225A	01/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	14
9205X471	IR03MW225A	01/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	14
9614Z024	IR03MW225A	04/03/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.2 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.6
9625Z049	IR03MW225A	06/19/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.5
9205X461	IR03MW226A	01/27/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	4 J
9205X462	IR03MW226A	01/27/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	4 J
9230 J197	IR03MW226A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	<7 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	4 J
9230 J198	IR03MW226A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	<8 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	6
9235X732	IR03MW226A	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<3 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	7
9119M013	IR03MW228B	05/06/1991	0	B	NA	NA	NA	NA	NA	NA	<2.2 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9119M014	IR03MW228B	05/06/1991	0	B	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9203X417	IR03MW228B	01/16/1992	0	B	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235 J244	IR03MW228B	08/28/1992	0	B	NA	NA	NA	NA	NA	NA	<9 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0231E018	IR03MW228B	08/02/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	34	<0.5 U	NA	<0.5 U	<0.5 U
0237S014	IR03MW228B	09/12/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.16 J	<0.5 U	<0.5 U	0.13 J	<0.5 U	NA	<0.5 U	<0.5 U
0425X002	IR03MW228B	06/15/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425X003	IR03MW228B	06/15/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438C042	IR03MW228B	09/14/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0447C011	IR03MW228B	11/19/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.16 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511T036	IR03MW228B	03/15/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526M047	IR03MW228B	06/27/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T034	IR03MW228B	09/23/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H039	IR03MW228B	01/09/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H040	IR03MW228B	01/09/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611S027	IR03MW228B	03/17/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<.44 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611S028	IR03MW228B	03/17/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<.44 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622V021	IR03MW228B	06/01/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0634G005	IR03MW228B	08/25/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648D018	IR03MW228B	11/29/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0707W004	IR03MW228B	02/16/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G003	IR03MW228B	05/10/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G004	IR03MW228B	05/10/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D034	IR03MW228B	08/21/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0741W036	IR03MW228B	10/08/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810D050	IR03MW228B	03/04/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E030	IR03MW228B	04/21/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9228X647	IR03MW342A	07/06/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9235X736	IR03MW342A	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	9
9612 J944	IR03MW342A	03/21/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	0.1 J	0.1 J	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	0.4 J
9612 J945	IR03MW342A	03/21/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	0.1 J	0.1 J	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	0.4 J
0110T017	IR03MW342A	03/15/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	0.3 J	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	0.4 J
0110T018	IR03MW342A	03/15/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	0.2 J	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	0.4 J
0230A013	IR03MW342A	07/25/2002	0	A	0.3 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	0.22 J	<0.5 U2	<0.5 U	<0.5 U	0.14 J	<0.5 U	NA	0.87	<0.5 U
0238 J004	IR03MW342A	09/16/2002	0	A	0.69 J7	NA	NA	<1 U	<0.5 U	0.33 J	<2 U	NA	NA	0.09 J	NA	NA	<0.5 U	NA	0.12 J	0.37 J	<0.5 U	<0.5 U	0.25 J	<0.5 U	NA	<0.5 U	<0.5 U
0425S039	IR03MW342A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.36 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438G042	IR03MW342A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.25 J	<0.5 U	<0.5 U	0.29 J	<0.5 U	NA	<0.5 U	<0.5 U
0448C016	IR03MW342A	11/22/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.28 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510G026	IR03MW342A	03/10/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.43 J3	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526G043	IR03MW342A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.18 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538A028	IR03MW342A	09/21/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.36 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H043	IR03MW342A	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.66	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H044	IR03MW342A	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.6	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611S012	IR03MW342A	03/14/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.32 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622S011	IR03MW342A	06/01/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.26 J	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	NA	<0.5 U	<0.5 U
0636D037	IR03MW342A	09/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.81	<0.5 U	<0.5 U	0.46 J	<0.5 U	NA	<0.5 U	1.7
0636D038	IR03MW342A	09/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.64	<0.5 U	<0.5 U	0.43 J	<0.5 U	NA	<0.5 U	<0.5 U
0650W041	IR03MW342A	12/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.98	<0.5 U	<0.5 U	<0.5 U	0.42 J	<0.5 U	NA	<0.5 U	<0.5 U
0708L005	IR03MW342A	02/22/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.3 J	<0.5 U	<0.5 U	<0.5 U	0.61	<0.5 U	NA	<0.5 U	<0.5 U
0720G016	IR03MW342A	05/15/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.46 J	<0.5 U	NA	<0.5 U	<0.5 U
0735W059	IR03MW342A	08/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.87	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0741G024	IR03MW342A	10/08/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.98	<0.5 U	<0.5 U	0.18 J	<0.5 U	NA	<0.5 U	0.25 J
0809D031	IR03MW342A	02/28/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.62	<0.5 U	<0.5 U	<0.5 U	0.64	<0.5 U	NA	<0.5 U	<0.5 U
0817E034	IR03MW342A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.43 J	<0.5 U	NA	<0.5 U	<0.5 U
9548 J613	IR03MW369A	11/29/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UR0	NA	<0.5 UR0	<0.5 UJ035	NA	<0.5 UJ05	<0.5 UJ05	NA	NA	<0.5 UJ5	5 J035
9610 J911	IR03MW369A	03/06/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.3 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	3
9621 J126	IR03MW369A	05/20/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	2
9548 J615	IR03MW370A	11/30/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 U1 J7	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.7	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	2
9610 J908	IR03MW370A	03/06/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.6	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	4
9620 J125	IR03MW370A	05/16/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.4 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	3
9548 J617	IR03MW371A	11/30/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9548 J618	IR03MW371A	11/30/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	<0.5 UJ3	<0.5 UJ3
9610 J912	IR03MW371A	03/06/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9620 J123	IR03MW371A	05/16/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9620 J124	IR03MW371A	05/16/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0229H002	IR03MW372A	07/17/2002	0	A	<1 U	NA	NA	NA	<1 U	NA	<10 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.4 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0229H003	IR03MW372A	07/18/2002	0	A	<1 U	NA	NA	NA	0.4 J	NA	<10 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	1.1	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U
0229H004	IR03MW372A	07/18/2002	0	A	<1 U	NA	NA	NA	<1 U	NA	<10 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 U	<1 U	<10 U	<1 U	<1 U
0425S037	IR03MW373B	06/15/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438 J024	IR03MW373B	09/14/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0447C013	IR03MW373B	11/19/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510R032	IR03MW373B	03/10/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526G046	IR03MW373B	06/28/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538A040	IR03MW373B	09/23/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H041	IR03MW373B	01/09/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611S026	IR03MW373B	03/17/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623P056	IR03MW373B	06/08/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.67	<0.5 U	NA	<0.5 U	<0.5 U
0634G006	IR03MW373B	08/25/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G031	IR03MW373B	12/04/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709G048	IR03MW373B	02/28/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A055	IR03MW373B	05/17/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0735W060	IR03MW373B	08/27/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D023	IR03MW373B	10/04/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E020	IR03MW373B	02/27/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E021	IR03MW373B	02/27/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E028	IR03MW373B	04/21/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9204X452	IR03MWO-1	01/23/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	3 J	NA	<10 U	<10 U	NA	<20 U	<20 U	2 J
9204X453	IR03MWO-1	01/23/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	2 J	NA	<10 U	<10 U	NA	<20 U	<20 U	<10 U
9228X667	IR03MWO-1	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	27	NA	1 J	4 J	NA	<5 U	15	NA	<10 U	<10 U	6
9235X737	IR03MWO-1	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	9
9146X263	IR04MW09A	11/15/1991	0	A	NA	NA	NA	NA	NA	NA	<3 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207X526	IR04MW09A	02/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X620	IR04MW09A	06/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9146X259	IR04MW13A	11/14/1991	0	A	NA	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA	<5 U	NA	19	<5 U	NA	<5 U	8	NA	<10 U	<10 U	<5 U
9207X518	IR04MW13A	02/12/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	38.34	<5 U	NA	<5 U	20.16	NA	<10 U	<10 U	<5 U
9207X519	IR04MW13A	02/12/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	51.84	<5 U	NA	<5 U	22.67	NA	<10 U	<10 U	<5 U
9225X627	IR04MW13A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U2	NA	NA	NA	NA	NA	<5 U	NA	22	<5 U	NA	<5 U	<10 U2	NA	<10 U	<10 U	<5 U
9225X628	IR04MW13A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	32	<5 U	NA	<5 U	16	NA	<10 U	<10 U	1 J
0110P006	IR04MW13A	03/12/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	61	<1 U	3	<0.5 U	51	NA	NA	2	<1 U
0229P012	IR04MW13A	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	56	<0.5 U	4.7	<0.5 U	57	<0.5 U	NA	2.3	<0.5 U
0238 J002	IR04MW13A	09/16/2002	0	A	<2 UJ7	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	52	<0.5 U	4.4	<0.5 U	50	<0.5 U	NA	2.3	<0.5 U
0427S052	IR04MW13A	06/28/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	52	<0.5 U	4.1	<0.5 U	46	<0.5 U	NA	2.1	<0.5 U
0438G051	IR04MW13A	09/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	62	<0.5 U	7.2	<0.5 U	68	<0.5 U	NA	4.2	<0.5 U
0450G051	IR04MW13A	12/06/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	61	<0.5 U	6.3	<0.5 U	54	<0.5 U	NA	2.8	<0.5 U
0509G009	IR04MW13A	03/03/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	47	<0.5 U	5	<0.5 U	47	<0.5 U	NA	4	<0.5 U
0526T039	IR04MW13A	06/27/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	36	<0.5 U	6.4	<0.5 U	40	<0.5 U	NA	3.9	<0.5 U
0537T010	IR04MW13A	09/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	67	<0.5 U	5	<0.5 U	54	<0.5 U	NA	2.3	<0.5 U
0537T011	IR04MW13A	09/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	81	<0.5 U	6.9	<0.5 U	68	<0.5 U	NA	3.2	<0.5 U
0602D039	IR04MW13A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	42	<0.5 U	5.1	<0.5 U	48	<0.5 U	NA	2.4	<0.5 U
0611 J032	IR04MW13A	03/16/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	50	<0.5 U	4.7	<0.5 U	43	<0.5 U	NA	2.3	<0.5 U
0611 J033	IR04MW13A	03/16/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	47	<0.5 U	4.7	<0.5 U	43	<0.5 U	NA	2.3	<0.5 U
0622T013	IR04MW13A	05/31/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	37	<0.5 U	7.7	<0.5 U	46	<0.5 U	NA	2.2	<0.5 U
0649D036	IR04MW13A	12/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	63	<0.5 U	5.5	<0.5 U	62	<0.5 U	NA	2.7	<0.5 U
0708G030	IR04MW13A	02/21/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	52	<0.5 U	7.1	<0.5 U	52	<0.5 U	NA	2.3	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0719W020	IR04MW13A	05/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	49	<0.5 U	4.9	<0.5 U	43	<0.5 U	NA	3.1	<0.5 U
0734D031	IR04MW13A	08/20/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	56	<0.5 U	5.7	<0.5 U	57	<0.5 UJ	NA	4.1	<0.5 U
0741D034	IR04MW13A	10/08/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	71	<0.5 U	8.5	<0.5 U	65	<0.5 U	NA	4.4	<0.5 U
0809H025	IR04MW13A	02/27/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	28	<0.5 U	7.1	<0.5 U	44	<0.5 U	NA	2.7	<0.5 U
0830H028	IR04MW13A	07/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	57	<0.5 U	6.3	<0.5 U	58	<0.5 U	NA	3.2	<0.5 U
0912N016	IR04MW13A	03/16/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	<1.2 U	NA	NA	NA	NA	NA	NA	40	<0.5 U	5.2	<0.5 U	44	<0.5 U	NA	1.8	<0.5 U
0916P013	IR04MW13A	04/16/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	<0.5 U	NA	NA	NA	NA	NA	NA	33	<0.5 U	6.9	<0.5 U	44	<0.5 U	NA	2.3	<0.5 U
9146X256	IR04MW31A	11/14/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207X517	IR04MW31A	02/12/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X629	IR04MW31A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0110P026	IR04MW31A	03/16/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0230A008	IR04MW31A	07/23/2002	0	A	0.09 J	NA	NA	<1 U	<0.5 U	0.3 J	<2 U	NA	NA	1.9	NA	NA	<0.5 U	NA	<0.5 U	1.9	<0.5 U	<0.5 U	0.32 J	<0.5 U	NA	<0.5 U	5.7
0237 J011	IR04MW31A	09/11/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0836G019	IR04MW31A	09/04/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.3 J	NA	<0.1 U	<0.5 U
0841H014	IR04MW31A	10/08/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.31 J	NA	<0.1 U	<0.5 U
0913W055	IR04MW31A	03/24/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0916H004	IR04MW31A	04/14/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0928W014	IR04MW31A	07/07/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0941H020	IR04MW31A	10/05/2009	0	A	NA	NA	NA	NA	<0.5 UJ	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9146X257	IR04MW35A	11/14/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207X520	IR04MW35A	02/12/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	5.43	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X623	IR04MW35A	06/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	2 J	<5 U	NA	<5 U	<1 U2	NA	<10 U	<10 U	<5 U
0111P003	IR04MW35A	03/19/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229E020	IR04MW35A	07/19/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.12 J	<0.5 U	NA	<0.5 U	<0.5 U
0237G008	IR04MW35A	09/10/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	0.13 J	<0.5 U	<0.5 U	<0.5 U	0.17 J	<0.5 U	NA	<0.5 U	<0.5 U
9146X254	IR04MW36A	11/14/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9146X255	IR04MW36A	11/14/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207X523	IR04MW36A	02/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207X524	IR04MW36A	02/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X630	IR04MW36A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0425S044	IR04MW36A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438T014	IR04MW36A	09/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449P037	IR04MW36A	12/02/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.25 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.5
0509G004	IR04MW36A	03/02/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T014	IR04MW36A	06/16/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0536T003	IR04MW36A	09/08/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0601T023	IR04MW36A	01/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H046	IR04MW36A	03/22/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622T012	IR04MW36A	05/31/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648G018	IR04MW36A	11/28/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G038	IR04MW36A	02/22/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718 J007	IR04MW36A	05/01/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734H071	IR04MW36A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0741N003	IR04MW36A	10/08/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D012	IR04MW36A	02/25/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0830H031	IR04MW36A	07/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0912W027	IR04MW36A	03/16/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	<1.2 U	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	0.17 J	<0.5 U	NA	<0.1 U	<0.5 U
9147X282	IR04MW37A	11/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	5	NA	<10 U	<10 U	<5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9207X530	IR04MW37A	02/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	7.87	NA	<10 U	<10 U	<5 U
9207X531	IR04MW37A	02/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	7.55	NA	<10 U	<10 U	<5 U
9225X621	IR04MW37A	06/15/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U2	NA	<10 U	<10 U	<5 U
9225X622	IR04MW37A	06/15/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<4 U2	NA	<10 U	<10 U	<5 U
0111P017	IR04MW37A	03/21/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	6	NA	NA	<0.5 U	<1 U
0229P013	IR04MW37A	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	4	<0.5 U	NA	<0.5 U	<0.5 U
0237G007	IR04MW37A	09/10/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.8	<0.5 U	NA	<0.5 U	<0.5 U
0425G033	IR04MW37A	06/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.8	<0.5 U	NA	<0.5 U	<0.5 U
0438G043	IR04MW37A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	4.7	<0.5 U	NA	<0.5 U	<0.5 U
0438G044	IR04MW37A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	4.9	<0.5 U	NA	<0.5 U	<0.5 U
0449C037	IR04MW37A	12/01/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	7	<0.5 U	NA	<0.5 U	<0.5 U
0511R053	IR04MW37A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	0.5	<6.2 U	<0.5 U	NA	<0.5 U	<0.5 U
0526M049	IR04MW37A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.2 J3	<0.5 U	NA	<0.5 U	<0.5 U
0539T040	IR04MW37A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.7	<0.5 U	NA	<0.5 U	<0.5 U
0601T025	IR04MW37A	01/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	13	<0.5 U	NA	<0.5 U	<0.5 U
0611T032	IR04MW37A	03/17/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<.41 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	7.5	<0.5 U	NA	<0.5 U	<0.5 U
0623M026	IR04MW37A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2.9	<0.5 U	NA	<0.5 U	<0.5 U
0649W034	IR04MW37A	12/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	4	<0.5 U	NA	<0.5 U	<0.5 U
0708L002	IR04MW37A	02/20/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	7.8	<0.5 U	NA	<0.5 U	<0.5 U
0718A004	IR04MW37A	05/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.5	<0.5 U	NA	<0.5 U	<0.5 U
0734 J056	IR04MW37A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	5.3 J	<0.5 U	NA	<0.5 U	<0.5 U
0740W017	IR04MW37A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	4.4	<0.5 U	NA	<0.5 U	<0.5 U
0809P007	IR04MW37A	02/26/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	8.5	<0.5 U	NA	<0.5 U	<0.5 U
0823G046	IR04MW37A	06/03/2008	0	A	NA	NA	NA	NA	<0.5 UJ	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	5.5	<0.5 U	NA	<0.5 U	<0.5 U
0829G018	IR04MW37A	07/18/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	6	<0.5 U	NA	<0.1 U	<0.5 U
0841H016	IR04MW37A	10/08/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.3	<0.5 U	NA	<0.1 U	<0.5 U
0911B027	IR04MW37A	03/13/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	1.9	<0.5 U	NA	<0.1 U	<0.5 U
0916P002	IR04MW37A	04/14/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	8.4	<0.5 U	NA	<0.1 U	<0.5 U
0928W012	IR04MW37A	07/07/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	5.4	<0.5 U	NA	<0.1 U	<0.5 U
0941H021	IR04MW37A	10/05/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	5.2	<0.5 U	NA	<0.1 U	<0.5 U
9146X264	IR04MW38A	11/15/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207X529	IR04MW38A	02/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X632	IR04MW38A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
0111D002	IR04MW38A	03/20/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	0.6 J	NA	NA	<0.5 U	<1 U
0111D003	IR04MW38A	03/20/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	0.6 J	NA	NA	<0.5 U	<1 U
0229A008	IR04MW38A	07/17/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	0.41 J	<0.5 U	NA	<0.5 U	<0.5 U
0237 J007	IR04MW38A	09/10/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.47 J	<0.5 U	NA	<0.5 U	<0.5 U
9147X283	IR04MW39A	11/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	9	NA	<10 U	<10 U	<5 U
9207X527	IR04MW39A	02/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	10.3	NA	<10 U	<10 U	<5 U
9225X625	IR04MW39A	06/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<10 U2	NA	<10 U	<10 U	<5 U
0111T011	IR04MW39A	03/21/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	2	NA	NA	<0.5 U	<1 U
0111T012	IR04MW39A	03/21/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	2	NA	NA	<0.5 U	<1 U
0229E015	IR04MW39A	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.1	<0.5 U	NA	<0.5 U	<0.5 U
0236S002	IR04MW39A	09/06/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.79	<0.5 U	NA	<0.5 U	<0.5 U
0236S003	IR04MW39A	09/06/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.78	<0.5 U	NA	<0.5 U	<0.5 U
9146X261	IR04MW40A	11/15/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9146X262	IR04MW40A	11/15/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207X525	IR04MW40A	02/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9225X631	IR04MW40A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9147X278	IR05MW73A	11/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9147X279	IR05MW73A	11/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207A102	IR05MW73A	02/11/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X644	IR05MW73A	06/19/1992	0	A	NA	NA	NA	NA	NA	NA	<8 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9147X268	IR05MW74A	11/18/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9147X269	IR05MW74A	11/18/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207A101	IR05MW74A	02/11/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X640	IR05MW74A	06/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9147X281	IR05MW76A	11/21/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207A099	IR05MW76A	02/11/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207A100	IR05MW76A	02/11/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X642	IR05MW76A	06/19/1992	0	A	NA	NA	NA	NA	NA	NA	<3 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X643	IR05MW76A	06/19/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	2 J	<5 U	NA	<5 U	2 J	NA	<10 U	<10 U	2 J
9147X270	IR05MW77A	11/18/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207A096	IR05MW77A	02/10/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207A097	IR05MW77A	02/10/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X635	IR05MW77A	06/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9147X267	IR05MW82A	11/18/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9207A098	IR05MW82A	02/11/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X639	IR05MW82A	06/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X636	IR05MW85A	06/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9225X637	IR05MW85A	06/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	1 J
9230 J194	IR05MW85A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	1 J	NA	<10 U	<10 U	<5 U
9230 J195	IR05MW85A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	<8 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9612W183	IR05MW85A	03/21/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	0.2 J	NA	NA	<0.5 U	<0.5 U
0425H026	IR05MW85A	06/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438C044	IR05MW85A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C035	IR05MW85A	12/01/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R050	IR05MW85A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G030	IR05MW85A	06/22/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525G031	IR05MW85A	06/22/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T033	IR05MW85A	09/23/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D046	IR05MW85A	01/13/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D047	IR05MW85A	01/13/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612 J048	IR05MW85A	03/23/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M032	IR05MW85A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	NA	<0.5 U	<0.5 U
0636E006	IR05MW85A	09/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B026	IR05MW85A	12/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709N003	IR05MW85A	02/28/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718 J013	IR05MW85A	05/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	NA	<0.5 U	<0.5 U
0734H075	IR05MW85A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W015	IR05MW85A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H026	IR05MW85A	02/27/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816E025	IR05MW85A	04/16/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9028H279	IR08MW37A	07/11/1990	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	1.6 J
9028H280	IR08MW37A	07/11/1990	0	A	NA	NA	NA	NA	NA	NA	<6.1 U1 J3	NA	NA	NA	NA	NA	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<10 UJ3	<10 UJ3	<5 UJ3
9101 J120	IR08MW37A	01/03/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9101 J121	IR08MW37A	01/03/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9128X091	IR08MW37A	07/10/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<2.4 U2 J5	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9128X092	IR08MW37A	07/10/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<2.5 U2 J5	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9151X352	IR08MW37A	12/19/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9344X052	IR08MW37A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9405N295	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9405N296	IR08MW37A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA	NA	<1 UJ3
9419X278	IR08MW37A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9434M578	IR08MW37A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9028H273	IR08MW38A	07/10/1990	0	A	NA	NA	NA	NA	NA	NA	<5 U1 J3	NA	NA	NA	NA	NA	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<10 UJ3	<10 UJ3	<5 UJ3
9101 J123	IR08MW38A	01/03/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9128X094	IR08MW38A	07/10/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<2 U2 J5	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9151X358	IR08MW38A	12/20/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9344X050	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9344X051	IR08MW38A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9405N298	IR08MW38A	02/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA	NA	NA	NA	<1 UJ3
9419X277	IR08MW38A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9434M579	IR08MW38A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9028H274	IR08MW39A	07/10/1990	0	A	NA	NA	NA	NA	NA	NA	<5 U1 J3	NA	NA	NA	NA	NA	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<10 UJ3	<10 UJ3	<5 UJ3
9101 J126	IR08MW39A	01/03/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9128X095	IR08MW39A	07/10/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<1.8 U2 J5	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9151X359	IR08MW39A	12/20/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9151X360	IR08MW39A	12/20/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9435E158	IR08MW39A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9028H276	IR08MW40A	07/10/1990	0	A	NA	NA	NA	NA	NA	NA	<40 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9028H277	IR08MW40A	07/10/1990	0	A	NA	NA	NA	NA	NA	NA	<5.2 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	3.3 J	NA	<5 U	<5 U	NA	<10 U	<10 U	8
9101 J128	IR08MW40A	01/04/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9128X093	IR08MW40A	07/10/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<2.1 U2 J5	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9151X353	IR08MW40A	12/19/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9151X354	IR08MW40A	12/19/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9345X055	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA	NA	<1 UJ5
9345X056	IR08MW40A	11/08/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 UJ5	NA	NA	NA	NA	NA	NA	<1 UJ5
9406X183	IR08MW40A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9419X287	IR08MW40A	05/11/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9435E160	IR08MW40A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9028H281	IR08MW41A	07/11/1990	0	A	NA	NA	NA	NA	NA	NA	<5 U1 J3	NA	NA	NA	NA	NA	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<5 UJ3	<5 UJ3	NA	<10 UJ3	<10 UJ3	<5 UJ3
9101 J130	IR08MW41A	01/04/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9128X098	IR08MW41A	07/11/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<1.4 U2	NA	<1 U	<0.5 U	NA	NA	<1 U	<1 U
9151X355	IR08MW41A	12/19/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9344X053	IR08MW41A	11/05/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9406X181	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9406X182	IR08MW41A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9419X286	IR08MW41A	05/11/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9435E159	IR08MW41A	09/01/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
0830D039	IR08MW41A	07/25/2008	0	A	NA	NA	NA	NA	<0.62 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0911D015	IR08MW41A	03/11/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9141X203	IR08MW42A	10/07/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.3 UJ5	NA	<1 U	<0.5 U	NA	NA	<1 U	<0.6 UJ5
9141X204	IR08MW42A	10/07/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.3 UJ5	NA	<1 U	<0.5 U	NA	NA	<1 U	<0.6 UJ5

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9151X362	IR08MW42A	12/20/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	2 J	NA	<5 U	<5 U	NA	<10 U	<10 U	1 J
9344X045	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9344X046	IR08MW42A	11/04/1993	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9406X185	IR08MW42A	02/07/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	<1 U
9419X275	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9419X276	IR08MW42A	05/10/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9434M577	IR08MW42A	08/26/1994	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<1 U
9440X501	IR08MW43A	10/03/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9440X502	IR08MW43A	10/03/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9606W066	IR08MW43A	02/05/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9610 J913	IR08MW43A	03/07/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9440X504	IR08MW44A	10/04/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9440X505	IR08MW44A	10/04/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9606W064	IR08MW44A	02/05/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9606W065	IR08MW44A	02/05/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9610 J914	IR08MW44A	03/07/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
8914W25	IR11MW25A	03/10/1989	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9034G313	IR11MW25A	08/22/1990	0	A	NA	NA	<1 U	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<1 U	NA
9034G314	IR11MW25A	08/22/1990	0	A	NA	NA	<1 U	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<1 U	NA
9147X289	IR11MW25A	11/22/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	38	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X748	IR11MW25A	09/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9917B004	IR11MW25A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P014	IR11MW25A	03/09/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
8914DUP2	IR11MW26A	03/10/1989	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
8914W26	IR11MW26A	03/10/1989	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9034G301	IR11MW26A	08/21/1990	0	A	NA	NA	<1 U	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<1 U	NA
9147X288	IR11MW26A	11/22/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	21	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X747	IR11MW26A	09/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9917B001	IR11MW26A	04/26/1999	0	A	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P012	IR11MW26A	03/09/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0231E005	IR11MW26A	07/30/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237 J022	IR11MW26A	09/13/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
8914W27	IR11MW27A	03/10/1989	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9034G300	IR11MW27A	08/21/1990	0	A	NA	NA	<1 U	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	<1 U	<0.5 U	NA	NA	<1 U	NA
9147X287	IR11MW27A	11/22/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	9	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X746	IR11MW27A	09/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9917Z019	IR11MW27A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P016	IR11MW27A	03/09/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229D013	IR11MW27A	07/19/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0229D019	IR11MW27A	07/19/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237G013	IR11MW27A	09/12/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0427S049	IR11MW27A	06/28/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.43 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438 J031	IR11MW27A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511T037	IR11MW27A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526D038	IR11MW27A	06/29/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602 J042	IR11MW27A	01/09/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H033	IR11MW27A	03/17/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S022	IR11MW27A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0635M020	IR11MW27A	08/28/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z030	IR11MW27A	03/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A058	IR11MW27A	05/18/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9134X179	IR12MW11A	08/26/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	2 J	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X547	IR12MW11A	02/24/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9612W185	IR12MW11A	03/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0110P013	IR12MW11A	03/13/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226P016	IR12MW11A	06/28/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.15 J	0.39 J	NA	<0.5 U	<0.5 U
0236E008Z	IR12MW11A	09/06/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0839G034	IR12MW11A	09/23/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0912W037	IR12MW11A	03/17/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	<1.2 U	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0916P014	IR12MW11A	04/16/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	<0.5 U	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	0.79	<0.5 U	NA	<0.1 U	<0.5 U
9134X185	IR12MW12A	08/27/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X544	IR12MW12A	02/24/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9239X782	IR12MW12A	09/21/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9239X783	IR12MW12A	09/21/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9134X180	IR12MW13A	08/26/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X545	IR12MW13A	02/24/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	2 J
9209X546	IR12MW13A	02/24/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9239X787	IR12MW13A	09/22/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9239X788	IR12MW13A	09/22/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
0111P018	IR12MW13A	03/21/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226E020	IR12MW13A	06/27/2002	0	A	0.22 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	1.3	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0236E003Z	IR12MW13A	09/05/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.15 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425R003	IR12MW13A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425R004	IR12MW13A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438T009	IR12MW13A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438T010	IR12MW13A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449P026	IR12MW13A	11/30/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510R031	IR12MW13A	03/10/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2.5	<0.5 U	NA	<0.5 U	1.2
0526R037	IR12MW13A	06/27/2005	0	A	NA	NA	NA	NA	<0.5 UJ	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	NA	<0.5 UJ	<0.5 UJ
0538D045	IR12MW13A	09/23/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H036	IR12MW13A	01/09/2006	0	A	NA	NA	NA	NA	<0.5 UJ	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	NA	<0.5 UJ	<0.5 UJ
0612T037	IR12MW13A	03/21/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M033	IR12MW13A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0634D016	IR12MW13A	08/25/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G040	IR12MW13A	12/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G041	IR12MW13A	12/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z018	IR12MW13A	02/26/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718D009	IR12MW13A	05/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734H073	IR12MW13A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734H074	IR12MW13A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740H031	IR12MW13A	10/04/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D021	IR12MW13A	02/26/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816G015	IR12MW13A	04/16/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0916H005	IR12MW13A	04/14/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9134X181	IR12MW14A	08/26/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9134X182	IR12MW14A	08/26/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9209X552	IR12MW14A	02/25/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9239X789	IR12MW14A	09/22/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
0110P012	IR12MW14A	03/13/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226E022	IR12MW14A	06/28/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	56	<0.5 U	<0.5 U	<0.5 U	3.7	<0.5 U	NA	<0.5 U	<0.5 U
0236G004	IR12MW14A	09/06/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0236G006	IR12MW14A	09/06/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425S047	IR12MW14A	06/18/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438G048	IR12MW14A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 UJ7	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C036	IR12MW14A	12/01/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510G022	IR12MW14A	03/09/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526R038	IR12MW14A	06/27/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539A049	IR12MW14A	09/27/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H037	IR12MW14A	01/09/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H038	IR12MW14A	01/09/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612S034	IR12MW14A	03/22/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<.7 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623D041	IR12MW14A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636C017	IR12MW14A	09/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0636C018	IR12MW14A	09/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G042	IR12MW14A	12/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709W030	IR12MW14A	03/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A054	IR12MW14A	05/17/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0735W064	IR12MW14A	08/28/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0742D056	IR12MW14A	10/15/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E031	IR12MW14A	02/29/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0823H061	IR12MW14A	06/04/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	NA	<0.5 U	<0.5 U
0916H002	IR12MW14A	04/14/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9134X186	IR12MW15A	08/27/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X553	IR12MW15A	02/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X778	IR12MW15A	09/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
0232E003	IR12MW15A	08/06/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238A003	IR12MW15A	09/16/2002	0	A	0.09 J7	NA	NA	<1 U	0.15 J	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	NA	<0.5 U	<0.5 U
0238A004	IR12MW15A	09/16/2002	0	A	0.08 J7	NA	NA	<1 U	0.15 J	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	NA	<0.5 U	<0.5 U
9134X188	IR12MW16A	08/27/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9134X189	IR12MW16A	08/27/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X555	IR12MW16A	02/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9239X797	IR12MW16A	09/24/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9234X690	IR12MW17A	08/19/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<9 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<99 U1
9234X691	IR12MW17A	08/19/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<10 U1	NA	<5 U	<5 U	NA	<10 U	<10 U	<110 U1
9239X795	IR12MW17A	09/24/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	27.9
9612W186	IR12MW17A	03/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U1 J7	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	0.7	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	39
0110T002	IR12MW17A	03/12/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	0.2 J	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	6
0229P018	IR12MW17A	07/19/2002	0	A	0.9 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0229P019	IR12MW17A	07/19/2002	0	A	0.9 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.1 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238A002	IR12MW17A	09/16/2002	0	A	0.71 J7	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.16 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0424M013	IR12MW17A	06/10/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0437P031	IR12MW17A	09/10/2004	0	A	NA	NA	NA	NA	<0.5 UJ3	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	NA	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3
0447C009	IR12MW17A	11/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.79
0509R005	IR12MW17A	03/02/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.25 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	13

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0525T026	IR12MW17A	06/21/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.37 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9234X692	IR12MW18A	08/19/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9239X793	IR12MW18A	09/24/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9239X794	IR12MW18A	09/24/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9613W189	IR12MW18A	03/25/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9613W190	IR12MW18A	03/25/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109T022	IR12MW18A	03/09/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229A012	IR12MW18A	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0236E002Z	IR12MW18A	09/05/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.27 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0916H003	IR12MW18A	04/14/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9234X693	IR12MW19A	08/19/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	5	<5 U	NA	<5 U	1 J	NA	<10 U	<10 U	<5 U
9239X800	IR12MW19A	09/25/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	6.88 J	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9239X801	IR12MW19A	09/25/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	6.37 J	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9613W191	IR12MW19A	03/25/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	6	<0.5 U	NA	<0.5 U	3	NA	NA	<0.5 U	<0.5 U
0110P005	IR12MW19A	03/12/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	5	<1 U	<1 U	<0.5 U	3	NA	NA	<0.5 U	<1 U
0230P017	IR12MW19A	07/26/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	3.8	<0.5 U2	<0.5 U	<0.5 U	2.8	0.21 J	NA	<0.5 U	<0.5 U
0237S012	IR12MW19A	09/11/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	2.1	<0.5 U2	<0.5 U	<0.5 U	2.3	<0.5 U	NA	<0.5 U	<0.5 U
0916H010	IR12MW19A	04/15/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	2.3	<0.5 U	0.51	<0.5 U	2.8	<0.5 U	NA	0.55	<0.5 U
9234X694	IR12MW20A	08/19/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9239X799	IR12MW20A	09/25/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9613 J971	IR12MW20A	03/25/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109T025	IR12MW20A	03/09/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229A015	IR12MW20A	07/19/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0229A016	IR12MW20A	07/19/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238S003	IR12MW20A	09/17/2002	0	A	<2 U	NA	NA	<1 UJ7	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.15 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9234X695	IR12MW21A	08/19/1992	0	A	NA	NA	NA	NA	NA	NA	<6 U1	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	<20 U	<20 U	<10 U
9239A459	IR12MW21A	09/23/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9614Z022	IR12MW21A	04/02/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9618 J076	IR12MW21A	05/02/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0216F010	IR12MW21A	04/19/2002	0	A	NA	NA	NA	NA	<2 U	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U
9134X193	IR13MW10A	08/28/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X550	IR13MW10A	02/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X551	IR13MW10A	02/25/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X777	IR13MW10A	09/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9134X190	IR13MW11A	08/28/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X558	IR13MW11A	02/26/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X768	IR13MW11A	09/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9238X769	IR13MW11A	09/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9134X191	IR13MW12A	08/28/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9134X192	IR13MW12A	08/28/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X557	IR13MW12A	02/26/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U4	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X775	IR13MW12A	09/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9238X776	IR13MW12A	09/18/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9148X304	IR14MW09A	11/27/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9148X305	IR14MW09A	11/27/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X559	IR14MW09A	02/26/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X560	IR14MW09A	02/26/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X754	IR14MW09A	09/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9147X285	IR14MW10A	11/22/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9147X286	IR14MW10A	11/22/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X562	IR14MW10A	02/26/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X752	IR14MW10A	09/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9238X753	IR14MW10A	09/15/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
0109T018	IR14MW10A	03/08/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229D002	IR14MW10A	07/15/2002	0	A	<2 U	NA	NA	<1 UJ3	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ7	NA	<0.5 U	<0.5 U
0238E013	IR14MW10A	09/18/2002	0	A	<2 U	NA	NA	<1 UJ3	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9147X272	IR14MW12A	11/20/1991	0	A	NA	NA	NA	NA	NA	NA	<3 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X561	IR14MW12A	02/26/1992	0	A	NA	NA	NA	NA	NA	NA	<2 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X763	IR14MW12A	09/16/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9234X696	IR14MW13A	08/19/1992	0	A	NA	NA	NA	NA	NA	NA	<4 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9239A457	IR14MW13A	09/23/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9239A458	IR14MW13A	09/23/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9614Z021	IR14MW13A	04/02/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9619 J102	IR14MW13A	05/09/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.1 J
9917B003	IR14MW13A	04/26/1999	0	A	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0216F009	IR14MW13A	04/19/2002	0	A	NA	NA	NA	NA	<2 U	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U
9147X276	IR15MW06A	11/20/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X564	IR15MW06A	02/27/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X749	IR15MW06A	09/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9238X750	IR15MW06A	09/14/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9917Z021	IR15MW06A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109T011	IR15MW06A	03/07/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	0.4 J	NA	NA	<0.5 U	<1 U
0109T012	IR15MW06A	03/07/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	0.4 J	NA	NA	<0.5 U	<1 U
0233E007	IR15MW06A	08/13/2002	0	A	<2 U	NA	NA	<1 UJ3	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238A008	IR15MW06A	09/17/2002	0	A	<2 U	NA	NA	<1 UJ7	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425G041	IR15MW06A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0437P030	IR15MW06A	09/10/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C033	IR15MW06A	12/01/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G051	IR15MW06A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.26 J	<0.5 U	NA	<0.5 U	<0.5 U
0526T045	IR15MW06A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539D047	IR15MW06A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V033	IR15MW06A	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H032	IR15MW06A	03/17/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622S010	IR15MW06A	06/01/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0634M016	IR15MW06A	08/25/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W037	IR15MW06A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708W007	IR15MW06A	02/19/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708W008	IR15MW06A	02/19/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A050	IR15MW06A	05/16/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W049	IR15MW06A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W050	IR15MW06A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G007	IR15MW06A	10/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H027	IR15MW06A	02/27/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H028	IR15MW06A	02/27/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816H024	IR15MW06A	04/17/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9147X273	IR15MW07A	11/20/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9147X274	IR15MW07A	11/20/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X565	IR15MW07A	02/27/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	1 J	NA	<10 U	<10 U	<5 U
9209X566	IR15MW07A	02/27/1992	0	A	NA	NA	NA	NA	NA	NA	<1 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X762	IR15MW07A	09/16/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9233X675	IR15MW08A	08/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 UR7	<10 U	<5 U
9233X676	IR15MW08A	08/13/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 UR7	<10 U	<5 U
9239X792	IR15MW08A	09/24/1992	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9613W201	IR15MW08A	03/28/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9613W202	IR15MW08A	03/28/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9917B002	IR15MW08A	04/26/1999	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0216F007	IR15MW08A	04/18/2002	0	A	NA	NA	NA	NA	<2 U	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U
9233X673	IR15MW09F	08/13/1992	0	F	NA	NA	NA	NA	NA	NA	<7 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 UR7	<10 U	<5 U
9239X780	IR15MW09F	09/21/1992	0	F	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9613W195	IR15MW09F	03/27/1996	0	F	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109P010	IR15MW09F	03/09/2001	0	F	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0227E008	IR15MW09F	07/02/2002	0	F	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	0.36 J	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237E016	IR15MW09F	09/12/2002	0	F	0.08 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.27 J	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237E017	IR15MW09F	09/12/2002	0	F	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.28 J	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9233X674	IR15MW10F	08/13/1992	0	F	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	1 J	NA	<10 UR7	<10 U	<5 U
9239X781	IR15MW10F	09/21/1992	0	F	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9613W198	IR15MW10F	03/27/1996	0	F	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109D013Z	IR15MW10F	03/09/2001	0	F	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0228P007	IR15MW10F	07/09/2002	0	F	<1 U	NA	NA	NA	<1 U	NA	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 UJ7	<1 U	<1 U
0228P008	IR15MW10F	07/09/2002	0	F	<1 U	NA	NA	NA	<1 U	NA	<10 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<10 UJ7	<1 U	<1 U
0237E015	IR15MW10F	09/12/2002	0	F	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.19 J	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425G040	IR15MW10F	06/17/2004	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438 J030	IR15MW10F	09/15/2004	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0448P018	IR15MW10F	11/23/2004	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G037	IR15MW10F	03/14/2005	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G038	IR15MW10F	03/14/2005	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526T042	IR15MW10F	06/27/2005	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539S053	IR15MW10F	09/27/2005	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V034	IR15MW10F	01/10/2006	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H034	IR15MW10F	03/17/2006	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0611H035	IR15MW10F	03/17/2006	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622V022	IR15MW10F	06/01/2006	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0634M017	IR15MW10F	08/25/2006	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W036	IR15MW10F	12/08/2006	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708W009	IR15MW10F	02/19/2007	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A045	IR15MW10F	05/15/2007	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W051	IR15MW10F	08/23/2007	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G008	IR15MW10F	10/02/2007	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H029	IR15MW10F	02/27/2008	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816H026	IR15MW10F	04/17/2008	0	F	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9134X199	IR17MW11A	08/29/1991	0	A	NA	NA	NA	NA	NA	NA	<7 U2	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X570	IR17MW11A	02/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X760	IR17MW11A	09/16/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9238X761	IR17MW11A	09/16/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9603 J803	IR17MW11A	01/16/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9134X198	IR17MW12A	08/29/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X568	IR17MW12A	02/27/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X770	IR17MW12A	09/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9134X196	IR17MW13A	08/29/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9134X197	IR17MW13A	08/29/1991	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X571	IR17MW13A	02/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9209X572	IR17MW13A	02/28/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	<10 U	<10 U	<5 U
9238X771	IR17MW13A	09/17/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA	NA	NA	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	NA	NA	<10 U	<5 U
9428E065	IR36MW09A	07/13/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9604W038	IR36MW09A	01/25/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611 J932	IR36MW09A	03/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0720H060	IR36MW09A	05/18/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D054	IR36MW09A	08/24/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W022	IR36MW09A	10/04/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E037	IR36MW09A	02/29/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0823G044	IR36MW09A	06/03/2008	0	A	NA	NA	NA	NA	<0.5 UJ	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0829H013	IR36MW09A	07/18/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0841C006	IR36MW09A	10/07/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0911D011	IR36MW09A	03/10/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0916H009	IR36MW09A	04/15/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0928P008	IR36MW09A	07/08/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0940P005	IR36MW09A	10/02/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9437X471	IR36MW11A	09/12/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9437X472	IR36MW11A	09/12/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9603W012	IR36MW11A	01/18/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608 J883	IR36MW11A	02/21/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109D011	IR36MW11A	03/07/2001	0	A	NA	NA	NA	NA	<1 UJ0	NA	<2 UJ0	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 UJ0	<0.5 U	200	NA	NA	<0.5 UJ0	<1 U
0109D014	IR36MW11A	03/07/2001	0	A	NA	NA	NA	NA	<1 UJ0	NA	<2 UJ0	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 UJ0	<0.5 U	210	NA	NA	<0.5 UJ0	<1 U
0229E018	IR36MW11A	07/18/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238G003	IR36MW11A	09/18/2002	0	A	<2 U	NA	NA	<1 UJ3	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425H027	IR36MW11A	06/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0437P026	IR36MW11A	09/09/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0447 J012	IR36MW11A	11/19/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511G042	IR36MW11A	03/14/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.5R7	<0.5 U
0525G029	IR36MW11A	06/22/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539D049	IR36MW11A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V037	IR36MW11A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612M040	IR36MW11A	03/21/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S016	IR36MW11A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B032	IR36MW11A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B033	IR36MW11A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709H036	IR36MW11A	02/26/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709H037	IR36MW11A	02/26/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G005	IR36MW11A	05/10/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734 J066	IR36MW11A	08/24/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W023	IR36MW11A	10/04/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810H062	IR36MW11A	03/05/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.39 J	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0816H019	IR36MW11A	04/16/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9611 J923	IR36MW120B	03/13/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9617 J043	IR36MW120B	04/23/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9623 J174	IR36MW120B	06/04/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0111T016	IR36MW120B	03/22/2001	0	B	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226E024	IR36MW120B	06/28/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	41	<0.5 U	<0.5 U	<0.5 U	1.5	<0.5 U	NA	<0.5 U	<0.5 U
0237S016	IR36MW120B	09/13/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.18 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425C034	IR36MW120B	06/16/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438 J027	IR36MW120B	09/15/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C040	IR36MW120B	12/02/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R041	IR36MW120B	03/14/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526G042	IR36MW120B	06/27/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539V020	IR36MW120B	09/26/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H045	IR36MW120B	01/10/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612M042	IR36MW120B	03/21/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623D043	IR36MW120B	06/06/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G035	IR36MW120B	12/05/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708D019	IR36MW120B	02/19/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810E074	IR36MW120B	03/07/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9611 J924	IR36MW121A	03/13/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9617 J044	IR36MW121A	04/24/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9623 J175	IR36MW121A	06/04/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ5	<0.5 UJ5
9623 J176	IR36MW121A	06/04/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ5	<0.5 UJ5
0425G045	IR36MW121A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438G049	IR36MW121A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449P031	IR36MW121A	12/01/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510D004	IR36MW121A	03/11/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G019	IR36MW121A	06/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T035	IR36MW121A	09/23/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H046	IR36MW121A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612 J044	IR36MW121A	03/22/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M034	IR36MW121A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G036	IR36MW121A	12/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708D018	IR36MW121A	02/19/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810E073	IR36MW121A	03/07/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.3 J	<0.5 U	<0.5 U	<0.5 U	2.3	<0.5 U	NA	<0.5 U	<0.5 U
9611W157	IR36MW122A	03/13/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	0.4 J	NA	NA	<0.5 U	<0.5 U
9617 J055	IR36MW122A	04/25/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	<0.5 U
9623 J172	IR36MW122A	06/03/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	<0.5 U
0425X006	IR36MW122A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438T011	IR36MW122A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C042	IR36MW122A	12/02/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511T034	IR36MW122A	03/14/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G020	IR36MW122A	06/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T038	IR36MW122A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T039	IR36MW122A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602H047	IR36MW122A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H040	IR36MW122A	03/20/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M035	IR36MW122A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0649W029	IR36MW122A	12/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W030	IR36MW122A	12/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L013	IR36MW122A	02/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L014	IR36MW122A	02/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719A038	IR36MW122A	05/11/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719A039	IR36MW122A	05/11/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D048	IR36MW122A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D049	IR36MW122A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D016	IR36MW122A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D017	IR36MW122A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D014	IR36MW122A	02/25/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D015	IR36MW122A	02/25/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817H043	IR36MW122A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9611W156	IR36MW123B	03/13/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9618 J065	IR36MW123B	04/30/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9623 J171	IR36MW123B	06/03/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109D006	IR36MW123B	03/06/2001	0	B	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0109D007	IR36MW123B	03/06/2001	0	B	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226E023	IR36MW123B	06/28/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	6.1	<0.5 U	<0.5 U	<0.5 U	0.35 J	<0.5 U	NA	<0.5 U	<0.5 U
0237E022	IR36MW123B	09/13/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.11 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425S040	IR36MW123B	06/16/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438B047	IR36MW123B	09/15/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	1.3	<0.5 U
0448P019	IR36MW123B	11/23/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510G028	IR36MW123B	03/10/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T019	IR36MW123B	06/17/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538T031	IR36MW123B	09/22/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602 J045	IR36MW123B	01/10/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H047	IR36MW123B	03/22/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<.72 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M036	IR36MW123B	06/08/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649G037	IR36MW123B	12/05/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L010	IR36MW123B	02/26/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709L011	IR36MW123B	02/26/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720B002	IR36MW123B	05/17/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D046	IR36MW123B	08/23/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D047	IR36MW123B	08/23/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740D018	IR36MW123B	10/03/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809D013	IR36MW123B	02/25/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0823G042	IR36MW123B	06/03/2008	0	B	NA	NA	NA	NA	<0.5 UJ	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9604W031	IR36MW125A	01/24/1996	0	A	NA	NA	NA	NA	NA	NA	<90 U4 J5	NA	NA	NA	NA	NA	<25 UJ5	NA	<25 UJ5	<25 UJ5	NA	<25 UJ5	1200 J0	NA	NA	<25 UJ5	<25 UJ5
9611W165	IR36MW125A	03/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	22	<0.5 U
9617 J057	IR36MW125A	04/26/1996	0	A	NA	NA	NA	NA	NA	NA	<4 U1 J7	NA	NA	NA	NA	NA	<2 U	NA	<2 U	<2 U	NA	<2 U	860	NA	NA	25	<2 U
0109T008	IR36MW125A	03/06/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	0.5 J	0.8 J	<0.5 U	55	NA	NA	<0.5 U	<1 U
0229E014	IR36MW125A	07/18/2002	0	A	<4 U	NA	NA	<2 U	<1 U	<2 U	<4 U	NA	NA	<1 U	NA	NA	<1 U	NA	<1 U	<1 U	5.4	<1 U	130	<1 U	NA	<1 U	<1 U
0238 J009	IR36MW125A	09/18/2002	0	A	<2 U	NA	NA	<1 UJ3	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	0.34 J	<0.5 U	12	<0.5 U	NA	<0.5 U	<0.5 U
0449P023	IR36MW125A	11/29/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<.62 U4	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	3.7	<0.5 U	110	<0.5 U	NA	<0.5 U	<0.5 U
0511T038	IR36MW125A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	0.77	<0.5 U	<94 U	<0.5 U	NA	<0.5 U	<0.5 U
0526M046	IR36MW125A	06/27/2005	0	A	NA	NA	NA	NA	<0.5 UJ3	NA	<5 UJ3	NA	NA	NA	NA	NA	NA	NA	0.82 J3	<0.5 UJ3	44 J3	<0.5 UJ3	7600	<0.5 UJ3	NA	64 J3	<0.5 UJ3
0611M035	IR36MW125A	03/17/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<.43 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	3.7	<0.5 U	500 J	<0.5 U	NA	2.9	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0623P055	IR36MW125A	06/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.6	<0.5 U	19	<0.5 U	4800	<0.5 U	NA	21	<0.5 U
0837G026	IR36MW125A	09/11/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.36 J	<0.5 U	37	<0.5 U	500/1700 /	<0.5 U	NA	81/85 /R	<0.5 U
0911B010	IR36MW125A	03/10/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	14	<0.5 U	560/610 /R	<0.5 U	NA	10	<0.5 U
0916H014	IR36MW125A	04/16/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.57	<0.5 U	14	<0.5 U	500/1300R	<0.5 U	NA	74R	<0.5 U
9604W030	IR36MW126A	01/24/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	2 J5	NA	NA	<0.5 UJ5	<0.5 UJ5
9611 J931	IR36MW126A	03/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.7 U2 J3	NA	NA	<0.5 U	<0.5 U
9618 J063	IR36MW126A	04/29/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	0.3 J	NA	NA	<0.5 U	<0.5 U
0109D012	IR36MW126A	03/07/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	0.5 J	NA	NA	<0.5 U	<1 U
0109D015	IR36MW126A	03/07/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	0.5 J	NA	NA	<0.5 U	<1 U
0230D007	IR36MW126A	07/24/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237E018	IR36MW126A	09/12/2002	0	A	0.12 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.24 J	<0.5 U	<0.5 UJ3	0.13 J	<0.5 U	NA	<0.5 U	<0.5 U
0425C037	IR36MW126A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	NA	<0.5 U	<0.5 U
0438B045	IR36MW126A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0448P017	IR36MW126A	11/23/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	NA	<0.5 U	<0.5 U
0511R048	IR36MW126A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R049	IR36MW126A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G018	IR36MW126A	06/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.19 J	<0.5 U	NA	<0.5 U	<0.5 U
0602D041	IR36MW126A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612M044	IR36MW126A	03/22/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<.75 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623P050	IR36MW126A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0637S025	IR36MW126A	09/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649H021	IR36MW126A	12/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z021	IR36MW126A	02/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9604W036	IR36MW127A	01/25/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611 J930	IR36MW127A	03/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.6 U4	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9618 J062	IR36MW127A	04/29/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0112T002	IR36MW127A	03/26/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226D021	IR36MW127A	06/28/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	5.9	<0.5 U	NA	<0.5 U	<0.5 U
0237 J003	IR36MW127A	09/09/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425C038	IR36MW127A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438C045	IR36MW127A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C043	IR36MW127A	12/02/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511T041	IR36MW127A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524G017	IR36MW127A	06/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538A039	IR36MW127A	09/22/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602 J046	IR36MW127A	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612 J049	IR36MW127A	03/23/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623V030	IR36MW127A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648H014	IR36MW127A	12/01/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709Z022	IR36MW127A	02/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720A042	IR36MW127A	05/14/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734 J057	IR36MW127A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734 J058	IR36MW127A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740H015	IR36MW127A	10/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809N004	IR36MW127A	02/25/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816N006	IR36MW127A	04/17/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0829H014	IR36MW127A	07/18/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0911D010	IR36MW127A	03/10/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0916H015	IR36MW127A	04/16/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.14	<0.5 U
0928W024	IR36MW127A	07/10/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.044 J	<0.5 U
0940P006	IR36MW127A	10/02/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	0.057 J	<0.5 U
9604W032	IR36MW128A	01/24/1996	0	A	NA	NA	NA	NA	NA	NA	0.5R0	NA	NA	NA	NA	NA	0.5R0	NA	0.5R0	0.5R0	NA	0.5R0	2 J0	NA	NA	0.5R0	0.5R0
9611 J929	IR36MW128A	03/14/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	2	NA	NA	<0.5 U	<0.5 U
9617 J037	IR36MW128A	04/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	2	NA	NA	<0.5 U	<0.5 U
0109D008	IR36MW128A	03/06/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	3	NA	NA	<0.5 U	<1 U
0229P017	IR36MW128A	07/19/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.61	<0.5 U	NA	<0.5 U	<0.5 U
0237E010	IR36MW128A	09/10/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.13 J	<0.5 U	NA	<0.5 U	<0.5 U
0425G036	IR36MW128A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.17 J	<0.5 U	NA	<0.5 U	<0.5 U
0438C049	IR36MW128A	09/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.28 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449P036	IR36MW128A	12/02/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510S031	IR36MW128A	03/11/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510S032	IR36MW128A	03/11/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T018	IR36MW128A	06/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539V022	IR36MW128A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	NA	<0.5 U	<0.5 U
0602D044	IR36MW128A	01/12/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.35 J	<0.5 U	NA	<0.5 U	<0.5 U
0602D045	IR36MW128A	01/12/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.36 J	<0.5 U	NA	<0.5 U	<0.5 U
0612M046	IR36MW128A	03/23/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.1	<0.5 U	NA	<0.5 U	<0.5 U
0623M023	IR36MW128A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1	<0.5 U	NA	<0.5 U	<0.5 U
0649B031	IR36MW128A	12/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.72	<0.5 U	NA	<0.5 U	<0.5 U
0708G035	IR36MW128A	02/21/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.58	<0.5 U	NA	<0.5 U	<0.5 U
0720B003	IR36MW128A	05/17/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2.3	<0.5 U	NA	<0.5 U	<0.5 U
0734 J059	IR36MW128A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2 J	<0.5 U	NA	<0.5 U	<0.5 U
0734 J060	IR36MW128A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2 J	<0.5 U	NA	<0.5 U	<0.5 U
0740W011	IR36MW128A	10/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.8	<0.5 U	NA	<0.5 U	<0.5 U
0809N005	IR36MW128A	02/25/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.1	<0.5 U	NA	<0.5 U	<0.5 U
0817E038	IR36MW128A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.44 J	<0.5 U	NA	<0.5 U	<0.5 U
0916P008	IR36MW128A	04/15/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	1	<0.5 U	NA	<0.1 U	<0.5 U
9611 J927	IR36MW129B	03/14/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611 J928	IR36MW129B	03/14/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9617 J041	IR36MW129B	04/23/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9617 J042	IR36MW129B	04/23/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9622 J168	IR36MW129B	05/31/1996	0	B	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109D011Z	IR36MW129B	03/09/2001	0	B	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229E021	IR36MW129B	07/19/2002	0	B	<2 U	NA	NA	<1 U	<0.5 U	<1 UJ7	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	2.9	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238E008	IR36MW129B	09/17/2002	0	B	<2 U	NA	NA	<1 UJ7	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425G035	IR36MW129B	06/16/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438 J032	IR36MW129B	09/15/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C038	IR36MW129B	12/02/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C039	IR36MW129B	12/02/2004	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R043	IR36MW129B	03/15/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T017	IR36MW129B	06/17/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539V023	IR36MW129B	09/26/2005	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602 J047	IR36MW129B	01/11/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612S035	IR36MW129B	03/22/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<.71 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S023	IR36MW129B	06/07/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S024	IR36MW129B	06/07/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0649G047	IR36MW129B	12/07/2006	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G033	IR36MW129B	02/21/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G034	IR36MW129B	02/21/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G010	IR36MW129B	05/11/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719G011	IR36MW129B	05/11/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734 J061	IR36MW129B	08/23/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W009	IR36MW129B	10/02/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W010	IR36MW129B	10/02/2007	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809N006	IR36MW129B	02/25/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E037	IR36MW129B	04/22/2008	0	B	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9437X473	IR36MW12A	09/12/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9603W013	IR36MW12A	01/19/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608 J889	IR36MW12A	02/23/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109D013	IR36MW12A	03/07/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0216F004	IR36MW12A	04/18/2002	0	A	NA	NA	NA	NA	<2 U	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U
0425C033	IR36MW12A	06/15/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0437P034	IR36MW12A	09/10/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0447R007	IR36MW12A	11/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R040	IR36MW12A	03/14/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526T040	IR36MW12A	06/27/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526T041	IR36MW12A	06/27/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539A046	IR36MW12A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539A047	IR36MW12A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V035	IR36MW12A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V036	IR36MW12A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S017	IR36MW12A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S018	IR36MW12A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649H018	IR36MW12A	12/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1.9
0709W023	IR36MW12A	02/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720B004	IR36MW12A	05/17/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D045	IR36MW12A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740H021	IR36MW12A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E034	IR36MW12A	02/29/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E041	IR36MW12A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9602 J783	IR36MW135A	01/09/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9607 J865	IR36MW135A	02/12/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	<0.5 UJ5	<0.5 UJ5	NA	NA	<0.5 UJ5	<0.5 UJ5
9611W164	IR36MW135A	03/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0230A002	IR36MW135A	07/22/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0230A003	IR36MW135A	07/22/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0238 J006	IR36MW135A	09/17/2002	0	A	<2 UJ7	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0823G056	IR36MW135A	06/06/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	NA	<0.5 U	<0.5 U
0830E046	IR36MW135A	07/25/2008	0	A	NA	NA	NA	NA	<0.77 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0913W051	IR36MW135A	03/23/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9604Z011	IR36MW139A	01/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608 J888	IR36MW139A	02/23/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9613W199	IR36MW139A	03/28/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9444X560	IR36MW13A	11/03/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9444X561	IR36MW13A	11/03/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
9603W011	IR36MW13A	01/18/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608 J886	IR36MW13A	02/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9443X538	IR36MW14A	10/25/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9443X539	IR36MW14A	10/25/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9603W010	IR36MW14A	01/18/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608W116	IR36MW14A	02/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0109P006	IR36MW14A	03/08/2001	0	A	NA	NA	NA	NA	6	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0109P007	IR36MW14A	03/08/2001	0	A	NA	NA	NA	NA	6	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U2	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0234E004	IR36MW14A	08/20/2002	0	A	<2 U	NA	NA	<1 U	2.2	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237G003	IR36MW14A	09/09/2002	0	A	<2 U	NA	NA	<1 U	1.8	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237G004	IR36MW14A	09/09/2002	0	A	<2 U	NA	NA	<1 U	1.8	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720H061	IR36MW14A	05/18/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734 J064	IR36MW14A	08/24/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	NA	<0.5 U	<0.5 U
0740G011	IR36MW14A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.19 J	<0.5 U	NA	<0.5 U	<0.5 U
0740G012	IR36MW14A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.23 J	<0.5 U	NA	<0.5 U	<0.5 U
0809E038	IR36MW14A	02/29/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817E042	IR36MW14A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9438X484	IR36MW15A	09/20/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9438X485	IR36MW15A	09/20/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9605W060	IR36MW15A	02/01/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9610 J903	IR36MW15A	03/04/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9439X498	IR36MW16A	09/27/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9439X499	IR36MW16A	09/27/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9605W054	IR36MW16A	01/31/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9610 J906	IR36MW16A	03/05/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9610 J907	IR36MW16A	03/05/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0425H034	IR36MW16A	06/18/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438T020	IR36MW16A	09/15/2004	0	A	NA	NA	NA	NA	<0.5 UJ7	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C030	IR36MW16A	11/30/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0510T028	IR36MW16A	03/11/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0524T020	IR36MW16A	06/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539D048	IR36MW16A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.21 J	<0.5 U	NA	<0.5 U	<0.5 U
0602 J048	IR36MW16A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.18 J	<0.5 U	NA	<0.5 U	<0.5 U
0611S018	IR36MW16A	03/15/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623V028	IR36MW16A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	NA	<0.5 U	<0.5 U
0649D037	IR36MW16A	12/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709H039	IR36MW16A	02/26/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W025	IR36MW16A	05/11/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W026	IR36MW16A	05/11/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734 J065	IR36MW16A	08/24/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W021	IR36MW16A	10/04/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.17 J	<0.5 U	<0.5 U	<0.5 U	0.17 J	<0.5 U	NA	<0.5 U	<0.5 U
0809H038	IR36MW16A	02/28/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	NA	<0.5 U	<0.5 U
0845H039	IR36MW16A	11/07/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.2 J	<0.5 U	NA	<0.1 U	<0.5 U
9442X532	IR36MW17A	10/18/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9442X533	IR36MW17A	10/18/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9603W016	IR36MW17A	01/19/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9603W017	IR36MW17A	01/19/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608 J887	IR36MW17A	02/23/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0719W023	IR36MW17A	05/11/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W024	IR36MW17A	05/11/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734D050	IR36MW17A	08/23/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W028	IR36MW17A	10/05/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E018	IR36MW17A	02/27/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809E019	IR36MW17A	02/27/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9441X521	IR38MW01A	10/12/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9441X522	IR38MW01A	10/12/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9604Z012	IR38MW01A	01/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608 J885	IR38MW01A	02/22/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9443X535	IR38MW02A	10/24/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9443X536	IR38MW02A	10/24/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9604W021	IR38MW02A	01/23/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9604W022	IR38MW02A	01/23/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9608W121	IR38MW02A	02/23/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9425E029	IR39MW21A	06/22/1994	0	A	NA	NA	NA	NA	NA	NA	<100 U	NA	NA	NA	NA	NA	<100 U	NA	<100 U	60 J	NA	<100 U	<100 U	NA	NA	<100 U	1300
9604W025	IR39MW21A	01/23/1996	0	A	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA	NA	NA	1R0	NA	5R0	4 J0	NA	1R0	NA	NA	NA	<1 U	120 J0
9609 J886	IR39MW21A	02/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	3	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	110 J8
0109T024	IR39MW21A	03/09/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U2	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	1
0227P007	IR39MW21A	07/02/2002	0	A	0.28 J	NA	NA	<1 U	<0.5 U	0.92 J	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0227P008	IR39MW21A	07/02/2002	0	A	0.2 J	NA	NA	<1 U	<0.5 U	1.1	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237S003	IR39MW21A	09/09/2002	0	A	1 J	NA	NA	<1 U	<0.5 U	1.7	<2 U	NA	NA	0.1 J	NA	NA	<0.5 U	NA	<0.5 U	0.77	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.41 J
0239R011	IR39MW21A	09/27/2002	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<01.8 U2	NA	NA	NA	NA	NA	NA	<1 U2
0425C036	IR39MW21A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C027	IR39MW21A	11/29/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	2.9	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	1
0836G021	IR39MW21A	09/04/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	1	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 UJ	0.43 J
0841B026	IR39MW21A	10/10/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0913G003	IR39MW21A	03/25/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0916P005	IR39MW21A	04/14/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0928W025	IR39MW21A	07/10/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0941H033	IR39MW21A	10/06/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9437X480	IR39MW22A	09/14/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9437X481	IR39MW22A	09/14/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9605W045	IR39MW22A	01/29/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9609 J897	IR39MW22A	02/29/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9437K156	IR39MW23A	09/15/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9437K157	IR39MW23A	09/15/1994	0	A	NA	NA	NA	NA	NA	NA	<10 UJ5	NA	NA	NA	NA	NA	<10 UJ5	NA	<10 UJ5	<10 UJ5	NA	<10 UJ5	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5
9604W040	IR39MW23A	01/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9604W041	IR39MW23A	01/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9609 J884	IR39MW23A	02/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9438X490	IR39MW24A	09/21/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9438X491	IR39MW24A	09/21/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9604W042	IR39MW24A	01/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9609 J885	IR39MW24A	02/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9604W024	IR39MW33A	01/23/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.6
9609W123	IR39MW33A	02/26/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	1 J3
9613W204	IR39MW33A	03/29/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	0.7
0115D004	IR39MW33A	04/17/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0115D005	IR39MW33A	04/17/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0226D023	IR39MW33A	06/28/2002	0	A	0.29 J	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	0.16 J	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	1.3	<0.5 U	NA	<0.5 U	<0.5 U
0236E005Z	IR39MW33A	09/05/2002	0	A	0.83 J	NA	NA	<1 U	0.22 J	<1 U	<2 U	NA	NA	0.28 J	NA	NA	<0.5 U	NA	<0.5 U	0.49 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.52
0830H038	IR39MW33A	07/23/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0841C016	IR39MW33A	10/09/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	0.33 J
0941H032	IR39MW33A	10/06/2009	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9602 J790	IR39MW35A	01/10/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	1	NA	NA	<0.5 U	<0.5 U
9607W096	IR39MW35A	02/14/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	3 J3	NA	NA	<0.5 UJ3	<0.5 UJ3
9607W097	IR39MW35A	02/14/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	3 J3	NA	NA	<0.5 U	<0.5 U
9612 J934	IR39MW35A	03/18/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	1	NA	NA	<0.5 U	<0.5 U
9602 J787	IR39MW36A	01/10/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9602 J789	IR39MW36A	01/10/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9607W098	IR39MW36A	02/14/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 UJ0	<0.5 UJ0	NA	NA	<0.5 U	<0.5 U
9612 J935	IR39MW36A	03/18/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0425H033	IR39MW36A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438T016	IR39MW36A	09/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438T017	IR39MW36A	09/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	0.2 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0448C017	IR39MW36A	11/22/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511S042	IR39MW36A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526M051	IR39MW36A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539S052	IR39MW36A	09/27/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602V031	IR39MW36A	01/09/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H049	IR39MW36A	03/23/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0622P038	IR39MW36A	06/01/2006	0	A	NA	NA	NA	NA	<0.5 UJ	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	NA	<0.5 UJ	<0.5 UJ
0649B034	IR39MW36A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B035	IR39MW36A	12/08/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G039	IR39MW36A	02/22/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708G040	IR39MW36A	02/22/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0720W044	IR39MW36A	05/17/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734W056	IR39MW36A	08/24/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740G010	IR39MW36A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809H036	IR39MW36A	02/28/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816H029	IR39MW36A	04/17/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.25 J	<0.5 U	NA	<0.5 U	<0.5 U
9444X557	IR56MW39A	11/02/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9444X558	IR56MW39A	11/02/1994	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9610W136	IR56MW39A	03/04/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 U	<0.5 UJ5	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	53 J58
9620 J120	IR56MW39A	05/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	0.1 J	0.3 J	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	1
0110P029	IR56MW39A	03/16/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0216F002	IR56MW39A	04/17/2002	0	A	NA	NA	NA	NA	<2 U	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	<0.5 U
0234E003	IR56MW39A	08/20/2002	0	A	12	NA	NA	<1 U	<0.5 U	1.5	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	0.31 J	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237S008	IR56MW39A	09/10/2002	0	A	2.5 J3	NA	NA	<1 U	<0.5 U	<2.9 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.1 J	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425X005	IR56MW39A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.24 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438B046	IR56MW39A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0448C021	IR56MW39A	11/23/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.23 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	0.35 J
0511G046	IR56MW39A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526D036	IR56MW39A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539T037	IR56MW39A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	0.18 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602T030	IR56MW39A	01/09/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0612H050	IR56MW39A	03/23/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612H051	IR56MW39A	03/23/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S025	IR56MW39A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623S026	IR56MW39A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649W035	IR56MW39A	12/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708H027	IR56MW39A	02/20/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0718A005	IR56MW39A	05/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0735H082	IR56MW39A	08/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740W016	IR56MW39A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0809P006	IR56MW39A	02/26/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0817D043	IR56MW39A	04/23/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0916P003	IR56MW39A	04/14/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9547W195	IR72MW32A	11/21/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9610 J905	IR72MW32A	03/05/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 U	<0.5 UJ5	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 UJ5
9620 J119	IR72MW32A	05/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U1	NA	NA	NA	NA	NA	<0.5 U	NA	0.2 J	<0.5 U	NA	<0.5 U	0.1 J	NA	NA	<0.5 U	<0.5 U
0110P027	IR72MW32A	03/16/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0229P003	IR72MW32A	07/15/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ7	NA	<0.5 U	<0.5 U
0238G004	IR72MW32A	09/18/2002	0	A	<2 U	NA	NA	<1 UJ7	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.16 J	<0.5 U	NA	<0.5 U	<0.5 U
0238G005	IR72MW32A	09/18/2002	0	A	<2 U	NA	NA	<1 UJ7	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.15 J	<0.5 U	NA	<0.5 U	<0.5 U
0916P010	IR72MW32A	04/15/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9547W197	IR72MW33A	11/22/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9547W198	IR72MW33A	11/22/1995	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9610W138	IR72MW33A	03/05/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 UJ5	NA	<0.5 U	<0.5 UJ5	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 UJ5
9620 J118	IR72MW33A	05/15/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0425H028	IR74MW01A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.7	<0.5 U	NA	<0.5 U	<0.5 U
0438G045	IR74MW01A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.4	<0.5 U	NA	<0.5 U	<0.5 U
0448P012	IR74MW01A	11/22/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.3	<0.5 U	NA	<0.5 U	<0.5 U
0602D038	IR74MW01A	01/10/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	3.4	<0.5 U	NA	<0.5 U	<0.5 U
0612H043	IR74MW01A	03/21/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.5 J	<0.5 U	NA	<0.5 U	<0.5 U
0623D044	IR74MW01A	06/07/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.5	<0.5 U	NA	<0.5 U	<0.5 U
0829H016	IR74MW01A	07/18/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2.5	<0.5 U	NA	<0.1 U	<0.5 U
0841H017	IR74MW01A	10/08/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	2.8	<0.5 U	NA	<0.1 U	<0.5 U
0911D025	IR74MW01A	03/13/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	0.75	<0.5 U	NA	<0.1 U	<0.5 U
0916P004	IR74MW01A	04/14/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	2	<0.5 U	NA	<0.1 U	<0.5 U
0928H009	IR74MW01A	07/07/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	2.7	<0.5 U	NA	<0.1 U	<0.5 U
0940H015	IR74MW01A	10/02/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	4	<0.5 U	NA	<0.1 U	<0.5 U
9305 J230	PA36MW01A	02/04/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	0.3 J	NA	<10 U	<10 U	NA	NA	<10 U	0.5
9606W074	PA36MW01A	02/07/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	<0.5 UJ3	<0.5 UJ3
9611W148	PA36MW01A	03/11/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0425X004	PA36MW01A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0438G046	PA36MW01A	09/14/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0449C034	PA36MW01A	12/01/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511R044	PA36MW01A	03/15/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525T035	PA36MW01A	06/24/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0525T036	PA36MW01A	06/24/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538S047	PA36MW01A	09/23/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0538S048	PA36MW01A	09/23/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 UJ	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D042	PA36MW01A	01/11/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0612H042	PA36MW01A	03/21/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M027	PA36MW01A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0623M028	PA36MW01A	06/06/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0648D027	PA36MW01A	12/01/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708H030	PA36MW01A	02/21/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0708H031	PA36MW01A	02/21/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0811E082	PA36MW01A	03/11/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9305 J232	PA36MW02A	02/04/1993	0	A	NA	NA	NA	NA	NA	NA	<10 UJ3	NA	NA	NA	NA	NA	<10 UJ3	NA	<10 UJ3	<0.5 U	NA	<10 UJ3	<10 UJ3	NA	NA	<10 UJ3	<0.5 U
9606W075	PA36MW02A	02/07/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611W149	PA36MW02A	03/11/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9306 J248	PA36MW03A	02/11/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<0.5 U	NA	<10 U	<10 U	NA	NA	<10 U	<0.5 U
9306 J249	PA36MW03A	02/11/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<0.5 U	NA	<10 U	<10 U	NA	NA	<10 U	<0.5 U
9606W076	PA36MW03A	02/07/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	NA	NA	<0.5 UJ3	<0.5 UJ3
9611 J920	PA36MW03A	03/11/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	0.07 J	NA	NA	<0.5 U	<0.5 U
9305 J234	PA36MW04A	02/05/1993	0	A	NA	NA	NA	NA	NA	NA	<10 UJ7	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<0.5 U	NA	<10 U	6 J	NA	NA	<10 U	<0.5 U
9606W077	PA36MW04A	02/07/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U4	NA	<0.5 U	5	NA	NA	4	0.8
9611 J919	PA36MW04A	03/11/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	1	NA	NA	2	<0.5 U
0111T009	PA36MW04A	03/20/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0227E005	PA36MW04A	07/01/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	17	<0.5 U	<0.5 U	<0.5 U	0.55	<0.5 U	NA	<0.5 U	<0.5 U
0237 J012	PA36MW04A	09/11/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.13 J	<0.5 U	NA	<0.5 U	<0.5 U
0720 J062	PA36MW04A	05/18/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.78	<0.5 U	NA	<0.5 U	<0.5 U
0735H083	PA36MW04A	08/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.4	<0.5 U	NA	<0.5 U	<0.5 U
0740W014	PA36MW04A	10/03/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.63	<0.5 U	NA	<0.5 U	<0.5 U
0810H053	PA36MW04A	03/04/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.48 J	<0.5 U	NA	<0.5 U	<0.5 U
0817E040	PA36MW04A	04/22/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.63	<0.5 U	NA	<0.5 U	<0.5 U
0916P007	PA36MW04A	04/15/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
9306 J244	PA36MW05A	02/10/1993	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9306 J245	PA36MW05A	02/10/1993	0	A	NA	NA	NA	NA	NA	NA	<5 U1	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9606W082	PA36MW05A	02/08/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611 J918	PA36MW05A	03/11/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9306 J252	PA36MW06A	02/11/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	0.6	NA	<10 U	<10 U	NA	NA	<10 U	0.4 J
9607W099	PA36MW06A	02/16/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9612W172	PA36MW06A	03/19/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0230A017	PA36MW06A	07/26/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237 J013	PA36MW06A	09/11/2002	0	A	<2 U	NA	NA	<1 U	0.09 J	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237 J014	PA36MW06A	09/11/2002	0	A	<2 U	NA	NA	<1 U	0.09 J	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9308 J303	PA36MW07A	02/22/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9606W079	PA36MW07A	02/08/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611 J922	PA36MW07A	03/12/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0110T003	PA36MW07A	03/12/2001	0	A	NA	NA	NA	NA	<1 U	NA	<2 U	NA	NA	NA	NA	NA	<1 U	NA	<1 U	<1 U	<1 U	<0.5 U	<1 U	NA	NA	<0.5 U	<1 U
0234E002	PA36MW07A	08/20/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237E019	PA36MW07A	09/12/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	0.21 J	<0.5 U	<0.5 UJ3	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425S042	PA36MW07A	06/17/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0511S046	PA36MW07A	03/17/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0526D035	PA36MW07A	06/28/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0539S051	PA36MW07A	09/26/2005	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0602D034	PA36MW07A	01/09/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0612 J042	PA36MW07A	03/21/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U

Table A2-7. Summary of Analytical Results for VOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Isopropylbenzene	Methane	Methanol	Methyl Acetate	Methyl Tert Butyl Ether	Methylcyclohexane	Methylene Chloride	Naphthalene	n-Butylbenzene	o-Xylene	Propylbenzene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Acetate	Vinyl Chloride	Xylene (Total)
0623V029	PA36MW07A	06/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B024	PA36MW07A	12/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0649B025	PA36MW07A	12/05/2006	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0709W024	PA36MW07A	02/27/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0719W027	PA36MW07A	05/11/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0734 J037	PA36MW07A	08/20/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0740H016	PA36MW07A	10/02/2007	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0810H076	PA36MW07A	03/07/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0816N007	PA36MW07A	04/17/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9307A590	PA36MW08A	02/16/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9307A591	PA36MW08A	02/16/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9606W080	PA36MW08A	02/08/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9606W081	PA36MW08A	02/08/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611W151	PA36MW08A	03/12/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611W152	PA36MW08A	03/12/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0234A012	PA36MW08A	08/21/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0234A013	PA36MW08A	08/21/2002	0	A	<2 U	NA	NA	<1 U	<0.5 U	<1 U	<2 U	NA	NA	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0237S002	PA36MW08A	09/09/2002	0	A	0.52 J	NA	NA	<1 U	<0.5 U	0.3 J	<2 U	NA	NA	0.2 J	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U2	0.21 J	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
0425H029	PA36MW08A	06/16/2004	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U
9307A611	PA39MW01A	02/18/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9307A612	PA39MW01A	02/18/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9606W084	PA39MW01A	02/09/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611W159	PA39MW01A	03/14/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U1	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
0830D030	PA39MW01A	07/23/2008	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.1 U	<0.5 U
0912D048	PA39MW01A	03/19/2009	0	A	NA	NA	NA	NA	<0.5 U	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<0.3 U	<0.5 U	<0.5 U	<0.5 U	0.22 J	<0.5 U	NA	<0.1 U	<0.5 U
9307D024	PA39MW02A	02/19/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9307D025	PA39MW02A	02/19/1993	0	A	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA	NA	NA	<10 U	NA	<10 U	<10 U	NA	<10 U	<10 U	NA	NA	<10 U	<10 U
9606 J860	PA39MW02A	02/09/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U
9611W158	PA39MW02A	03/14/1996	0	A	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA	NA	NA	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	NA	NA	<0.5 U	<0.5 U

Notes:

*	All concentrations in micrograms per liter
bgs	below ground surface
VOCs	volatile organic compounds

Table A2-8. Summary of Analytical Results for SVOCs*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0229P002	IR01MW367A	07/15/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	0.95 J	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0238S008	IR01MW367A	09/18/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	1.6 J	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
9202A009	IR02MW101A1	01/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202A010	IR02MW101A1	01/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0112D002	IR02MW101A1	03/27/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<3 U	<1 U	<1 U	<1 U	3 R7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	<1 U	<1 U	<3 U	<3 UJ7	<1 U	<1 U	<1 U
9228J155	IR02MW101A1	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0230E009	IR02MW101A1	07/25/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<24 UJ3	<4.8 U	<9.6 U	<4.8 U	<9.6 UJ3	<4.8 U	<9.6 UJ3	<24 U	<9.6 UJ3	<24 UJ3	<24 U	<24 UJ3	<9.6 U	<9.6 UJ3	<9.6 U
9235J219	IR02MW101A1	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0237G011	IR02MW101A1	09/11/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9202A012	IR02MW101A2	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<20 UJ1	<50 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9228J159	IR02MW101A2	07/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J224	IR02MW101A2	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9203X422	IR02MW114A1	01/16/1992	0	A	<16 U	<16 U	<16 U	<16 U	NA	NA	<82 U	<16 U	<16 U	<16 U	<82 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<82 U	<16 U	<33 U	<82 U	<82 U	<16 U	<16 U	<16 U
9228J146	IR02MW114A1	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J225	IR02MW114A1	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9203A026	IR02MW114A2	01/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<56 U	<11 U	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<56 U	<11 U	<22 U	<56 U	<56 U	<11 U	<11 U	<11 U
9228J166	IR02MW114A2	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J226	IR02MW114A2	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9203A084	IR02MW114A3	01/14/1992	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 UJ3	<10 UJ3	<10 UJ3	<10 UR2	<10 UJ3	<10 UR2	<50 UR2	<10 U	<20 UJ3	<50 UJ3	<50 UR2	<10 UJ3	<10 UR2	<10 UJ3
9228J153	IR02MW114A3	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J232	IR02MW114A3	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9202A002	IR02MW126A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0602T033	IR02MW126A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0808E010	IR02MW126A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709W026	IR02MW126A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0511G050	IR02MW126A	03/17/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0611J035	IR02MW126A	03/17/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817H036	IR02MW126A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720J051	IR02MW126A	05/14/2007	0	A	<10 U	<10 U	<10 U	1.1 J	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623D040	IR02MW126A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0424M014	IR02MW126A	06/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526G049	IR02MW126A	06/29/2005	0	A	<10 U	<10 U	<10 U	1.3 J	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9228J157	IR02MW126A	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228J158	IR02MW126A	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0732J005	IR02MW126A	08/10/2007	0	A	<10 U	<10 U	<10 U	1 J	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9235X717	IR02MW126A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0437P033	IR02MW126A	09/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0538A043	IR02MW126A	09/23/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740W013	IR02MW126A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0447C010	IR02MW126A	11/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649G043	IR02MW126A	12/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9205X468	IR02MW127B	01/28/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0511G048	IR02MW127B	03/15/2005	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425G031	IR02MW127B	06/15/2004	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9230J175	IR02MW127B	07/21/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J233	IR02MW127B	08/26/1992	0	B	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<20 UJ5	<50 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 U
0437P021	IR02MW127B	09/07/2004	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0447R010	IR02MW127B	11/19/2004	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0110P015	IR02MW141A	03/14/2001	0	A	<1 UJ3	0.2 J3	<1 UJ3	<1 UJ3	NA	NA	<3 U	<1 U	<1 U	<1 U	<3 UJ7	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ37	<1 UJ3	<3 U	<1 U	<1 UJ7	<3 UJ37	<3 U	<1 U	<1 U	<1 U
9218Z059	IR02MW141A	05/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9218Z060	IR02MW141A	05/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9230J177	IR02MW141A	07/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9230J178	IR02MW141A	07/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0231E002	IR02MW141A	07/29/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 UJ3	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9235X715	IR02MW141A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X716	IR02MW141A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0239J001	IR02MW141A	09/23/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
9205X478	IR02MW146A	01/30/1992	0	A	<10 U	3 J	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	53	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9205X479	IR02MW146A	01/30/1992	0	A	<10 U	2 J	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	41	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9613W194	IR02MW146A	03/26/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	22	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9622J162	IR02MW146A	05/29/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	4 J	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9622J163	IR02MW146A	05/29/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	25 J3	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9203X415	IR02MW147A	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9205X480	IR02MW210B	01/30/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9230J179	IR02MW210B	07/21/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J235	IR02MW210B	08/26/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J236	IR02MW210B	08/26/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0511Z021	IR02MW300A	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9612J943	IR02MW300A	03/20/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0112T012	IR02MW300A	03/28/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	2 R7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<2 U	<1 U	<1 U	<2 U	<2 UJ7	<1 U	<1 U	<1 U
0112T013	IR02MW300A	03/28/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<3 U	<1 U	<1 U	<1 U	3 R7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<3 U	<1 U	<1 U	<3 U	<3 UJ7	<1 U	<1 U	<1 U
0425H030	IR02MW300A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0229D006	IR02MW300A	07/16/2002	0	A	<11 U	NA	NA	NA	NA	NA	<11 U	<11 U	<11 U	<11 U	<27 U	<5.3 U	<11 U	<5.3 U	<11 U	<5.3 U	<11 U	<27 U	<11 U	<27 U	<27 U	<27 U	<11 U	<11 U	<11 U
9235X726	IR02MW300A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0438G050	IR02MW300A	09/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0238G007	IR02MW300A	09/20/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0238G008	IR02MW300A	09/20/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0449C031	IR02MW300A	11/30/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0808D007	IR02MW301A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817G023	IR02MW301A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720J061	IR02MW301A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0732D009	IR02MW301A	08/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740D007	IR02MW301A	10/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9610W140	IR02MW372A	03/07/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9619J106	IR02MW372A	05/10/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9547J609	IR02MW372A	11/22/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9610J904	IR02MW373A	03/04/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9619J107	IR02MW373A	05/10/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9547J608	IR02MW373A	11/21/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9202A001	IR02MW87A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9113X078	IR02MW87A	03/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X710	IR02MW87A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9204X444	IR02MW89A	01/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9230J176	IR02MW89A	07/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X711	IR02MW89A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202A003	IR02MW93A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9202A004	IR02MW93A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9112X070	IR02MW93A	03/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9112X071	IR02MW93A	03/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X712	IR02MW93A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9203A093	IR02MW97A	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9203A094	IR02MW97A	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
0109T007	IR02MW97A	03/06/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<2 U	<1 U	<1 U	<2 U	<2 UJ7	<1 U	<1 U	<1 U
9112X065	IR02MW97A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0230P016	IR02MW97A	07/26/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 UJ3	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9235J220	IR02MW97A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J221	IR02MW97A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
0238E003	IR02MW97A	09/16/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 UJ3	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
9203A028	IR02MWB-1	01/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9203A029	IR02MWB-1	01/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9228J148	IR02MWB-1	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228J149	IR02MWB-1	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J239	IR02MWB-1	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202A008	IR02MWB-2	01/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228J151	IR02MWB-2	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J240	IR02MWB-2	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9204X432	IR02MWB-3	01/20/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0110P020	IR02MWB-3	03/15/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	0.6 J3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2 UJ7	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ37	<1 UJ3	<2 U	<1 U	<1 U	<2 UJ3	<2 U	<1 U	<1 U	<1 U
0110P021	IR02MWB-3	03/15/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	0.6 J3	NA	NA	<3 U	<1 U	<1 U	<1 U	<3 UJ7	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ37	<1 UJ3	<3 U	<1 U	<1 U	<3 UJ3	<3 U	<1 U	<1 U	<1 U
0511G047	IR02MWB-3	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425S045	IR02MWB-3	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9228X671	IR02MWB-3	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0229P020	IR02MWB-3	07/19/2002	0	A	<10 U	NA	NA	NA	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<25 UJ3	<5 U	<10 U	<5 U	<10 UJ3	<5 U	<10 UJ3	<25 U	<10 UJ3	<25 U	<25 U	<25 UJ3	<10 U	<10 UJ3	<10 U
9235J241	IR02MWB-3	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J242	IR02MWB-3	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0438C055	IR02MWB-3	09/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0239J003	IR02MWB-3	09/23/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
0448C019	IR02MWB-3	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9204X441	IR02MWB-5	01/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9224X613	IR02MWB-5	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9224X614	IR02MWB-5	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J245	IR02MWB-5	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9204X456	IR03MW218A1	01/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	5 J	<50 U	<10 U	<10 U	<10 U	<10 U	7 J	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9204X457	IR03MW218A1	01/24/1992	0	A	<10 U	2 J	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	15	<50 U	<10 U	<10 U	<10 U	<10 U	21	10	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228X666	IR03MW218A1	07/09/1992	0	A	<10 U	4 J	<10 U	3 J	NA	NA	<50 U	<10 U	<10 U	10	<50 U	<10 U	<10 U	<10 U	<10 U	18	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0602H042	IR03MW218A2	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	4.2	<10 U	NA	<10 U	<10 U	110	<50 U	<10 U	<10 U	<10 U	<10 U	28	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9203A092	IR03MW218A2	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	80	<50 U	<10 U	<10 U	<10 U	<10 U	40	49	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0709L012	IR03MW218A2	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	2.7	<10 U	NA	<10 U	<10 U	90	<50 U	<10 U	<10 U	<10 U	<10 U	7.3 J	12	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0810D051	IR03MW218A2	03/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	<1 U	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0510G025	IR03MW218A2	03/10/2005	0	A	<10 U	<10 U	<10 U	<10 U	1.7	<10 U	NA	<10 U	<10 U	110	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0719G001	IR03MW218A2	05/10/2007	0	A	<10 U	<10 U	<10 U	1.1 J	2.1	NA	NA	<10 U	<10 U	120	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0823H060	IR03MW218A2	06/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	3.3	NA	NA	<10 U	<10 U	100	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	2.9 J	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623T023	IR03MW218A2	06/08/2006	0	A	<10 U	<10 U	<10 U	<10 U	2.5	<10 U	NA	<10 U	<10 U	70	<50 U	<10 U	<10 U	<10 U	<10 U	25	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425H025	IR03MW218A2	06/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	2.4	NA	NA	<10 U	<10 U	100	<50 U	<10 U	<10 U	<10 U	<10 U	12	14	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0526G039	IR03MW218A2	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	2.9	<10 U	NA	<10 U	<10 U	110	<50 U	<10 U	<10 U	<10 U	<10 U	7.8 J	15	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9228X664	IR03MW218A2	07/09/1992	0	A	<10 U	2 J	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	100	<50 U	<10 U	<10 U	<10 U	<10 U	7 J	16 J7	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0231D006	IR03MW218A2	07/30/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	0.7 J	120	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	47	58	<24 U	<9.6 U	<24 UJ3	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0734D035	IR03MW218A2	08/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	2.7	NA	NA	<10 U	<10 U	120	<50 U	<10 U	<10 U	<10 U	<10 U	26	42	NA	<10 U	<20 UJ	NA	<50 U	<10 U	<20 U	<10 U
9235X730	IR03MW218A2	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	180	<50 U	<10 U	<10 U	<10 U	<10 U	47	60	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0636D036	IR03MW218A2	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	2.8	<10 U	NA	<10 U	<10 U	140	<50 U	<10 U	<10 U	<10 U	<10 U	35	78	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0438J022	IR03MW218A2	09/14/2004	0	A	<50 U	<50 U	<50 U	<50 U	<1 U	NA	NA	<50 U	<50 U	100	<250 U	<50 U	<50 U	<50 U	<50 U	<50 U	15 J	NA	<50 U	<100 U	NA	<250 U	<50 U	<100 U	<50 U
0538A027	IR03MW218A2	09/21/2005	0	A	<10 U	<10 U	<10 U	<10 U	4.4	<10 U	NA	<10 U	<10 U	88	<50 U	<10 U	<10 U	<10 U	<10 U	32	20	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0239A002	IR03MW218A2	09/23/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	0.91 J	180	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	48	79	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0741D035	IR03MW218A2	10/08/2007	0	A	<10 U	<10 U	<10 U	1.1 J	2.4	NA	NA	<10 U	<10 U	110	<50 U	<10 U	<10 U	<10 U	<10 U	43	33	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0448C020	IR03MW218A2	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	3.2	NA	NA	<10 U	<10 U	80	<50 U	<10 U	<10 U	<10 U	<10 U	21	33	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0650B043	IR03MW218A2	12/12/2006	0	A	<500 U	<500 U	<500 U	<500 U	<50 U	<500 U	NA	<500 U	<500 U	<500 U	<2500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	NA	<500 U	<1000 U	NA	<2500 U	<500 U	<1000 U	<500 U
9203X416	IR03MW218A3	01/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228X665	IR03MW218A3	07/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0231E013	IR03MW218A3	08/01/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	2.5 J	<24 U	<4.8 U	<9.6 U	<4.8 U	0.34 J	<4.8 U	0.68 J	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9235X729	IR03MW218A3	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0239E007	IR03MW218A3	09/25/2002	0	A	<11 U	NA	NA	NA	NA	NA	<11 U	<11 U	<11 U	0.74 J	<26 U	<5.2 U	<11 U	<5.2 U	0.38 J	<5.2 U	<11 U	<26 U	<11 U	<26 U	<26 U	<26 U	<11 U	<11 U	<11 U
0602V032	IR03MW224A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9204X451	IR03MW224A	01/23/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	2 J	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0809E022	IR03MW224A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709G047	IR03MW224A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0109P003	IR03MW224A	03/06/2001	0	A	<1 U	<1 U	<1 U	0.5 J	NA	NA	<2 U	<1 U	<1 U	<1 U	<2 UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<2 U	<1 U	<1 UJ3	<2 UJ3	<2 UJ7	<1 U	<1 U	<1 U
0611S013	IR03MW224A	03/14/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0511Z018	IR03MW224A	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817E029	IR03MW224A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720W046	IR03MW224A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623P049	IR03MW224A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526G044	IR03MW224A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526G045	IR03MW224A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0230A007	IR03MW224A	07/23/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<24 UJ3	<4.8 U	<9.6 U	<4.8 U	<9.6 UJ3	<4.8 U	<9.6 UJ3	<24 U	<9.6 UJ3	<24 U	<24 U	<24 UJ3	<9.6 U	<9.6 UJ3	<9.6 U
9230J196	IR03MW224A	07/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0734H057	IR03MW224A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 UJ	NA	<50 U	<10 U	<20 U	<10 U
0634G007	IR03MW224A	08/25/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9235X734	IR03MW224A	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X735	IR03MW224A	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0237S010	IR03MW224A	09/11/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0438J023	IR03MW224A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0538T029	IR03MW224A	09/22/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740D024	IR03MW224A	10/04/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0449C025	IR03MW224A	11/29/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0449C026	IR03MW224A	11/29/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649B038	IR03MW224A	12/08/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9205X470	IR03MW225A	01/28/1992	0	A	<10 U	2 J	<10 U	17	NA	NA	<50 U	<10 U	<10 U	14	<50 U	<10 U	<10 U	<10 U	<10 U	7 J	5 J	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9205X471	IR03MW225A	01/28/1992	0	A	<10 U	2 J	<10 U	16	NA	NA	<50 U	<10 U	<10 U	27	<50 U	<10 U	<10 U	<10 U	<10 U	14	12	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9614Z024	IR03MW225A	04/03/1996	0	A	<10 U	<5 U	<5 U	8	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	11	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9625Z050	IR03MW225A	06/19/1996	0	A	<10 U	<5 U	<5 U	10	NA	NA	<25 U	<10 U	<10 U	5 J	<25 U	<10 U	<10 U	<10 U	<10 U	14	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9205X461	IR03MW226A	01/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	28	<50 U	<10 U	<10 U	<10 U	<10 U	30	4 J	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9205X462	IR03MW226A	01/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	30	<50 U	<10 U	<10 U	<10 U	<10 U	26	5 J	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9230J197	IR03MW226A	07/24/1992	0	A	<10 U	3 J	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	190	<50 U	<10 U	<10 U	<10 U	<10 U	10	21	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9230J198	IR03MW226A	07/24/1992	0	A	<10 U	3 J	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	180	<50 U	<10 U	<10 U	<10 U	<10 U	10	20	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X732	IR03MW226A	08/27/1992	0	A	<10 U	2 J	<10 U	2 J	NA	NA	<50 U	<10 U	<10 U	220	<50 U	<10 U	<10 U	<10 U	<10 U	4 J	21	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9203X417	IR03MW228B	01/16/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9119M013	IR03MW228B	05/06/1991	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9119M014	IR03MW228B	05/06/1991	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0231E018	IR03MW228B	08/02/2002	0	B	<10 U	NA	NA	NA	NA	NA	<10 U	<10 U	<10 U	<10 U	<25 U	<5 U	<10 U	<5 U	<10 U	<5 U	<10 U	<25 U	<10 U	<25 U	<25 U	<25 U	<10 U	<10 U	<10 U
9235J244	IR03MW228B	08/28/1992	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0237S014	IR03MW228B	09/12/2002	0	B	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<10 U
0602H043	IR03MW342A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0602H044	IR03MW342A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0708L005	IR03MW342A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809D031	IR03MW342A	02/28/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0510G026	IR03MW342A	03/10/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0611S012	IR03MW342A	03/14/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0110T017	IR03MW342A	03/15/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	0.5 J	<2 UJ7	<1 U	<1 U	<1 UJ3	<1 UJ3	0.1 J37	<1 UJ3	<2 U	<1 U	<1 UJ7	<2 UJ37	<2 U	<1 U	<1 U	<1 U
9612J944	IR03MW342A	03/21/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9612J945	IR03MW342A	03/21/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0817E034	IR03MW342A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720G016	IR03MW342A	05/15/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0622S011	IR03MW342A	06/01/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425S039	IR03MW342A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526G043	IR03MW342A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9228X647	IR03MW342A	07/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	9 J	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0230A013	IR03MW342A	07/25/2002	0	A	<9.6 UJ3	NA	NA	NA	NA	NA	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<24 UJ3	<4.8 UJ3	<9.6 UJ3	<4.8 UJ3	<9.6 UJ3	<4.8 UJ3	<9.6 UJ3	<24 UJ3	<9.6 UJ3	<24 UJ3	<24 UJ3	<24 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3
0735W059	IR03MW342A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9235X736	IR03MW342A	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	5 J	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0636D037	IR03MW342A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0636D038	IR03MW342A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0438G042	IR03MW342A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0238J004	IR03MW342A	09/16/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 UJ3	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
0538A028	IR03MW342A	09/21/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0741G024	IR03MW342A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0448C016	IR03MW342A	11/22/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0650W041	IR03MW342A	12/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9610J911	IR03MW369A	03/06/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	48	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9621J126	IR03MW369A	05/20/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 UJ1	<10 UJ1	<10 U	<10 U	<25 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 U	12	<10 U	<25 UJ1	<10 U	<10 UJ1	<25 UJ1	<25 UJ1	<10 UJ1	<10 U	<10 UJ1
9548J613	IR03MW369A	11/29/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	14	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9610J908	IR03MW370A	03/06/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 UJ1	<10 UJ1	<10 U	<10 U	<25 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 U	52 J	<10 U	<25 UJ1	<10 U	<10 UJ01	<25 UJ1	<25 UJ1	<10 UJ1	<10 U	<10 UJ1
9620J125	IR03MW370A	05/16/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	32 J	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9548J615	IR03MW370A	11/30/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	26	<10 U	<25 U	<10 U	<100 U	<25 U	<25 U	<10 U	<10 U	<10 U
9610J912	IR03MW371A	03/06/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9620J123	IR03MW371A	05/16/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9620J124	IR03MW371A	05/16/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9548J617	IR03MW371A	11/30/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9548J618	IR03MW371A	11/30/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
0229H002	IR03MW372A	07/17/2002	0	A	<9.4 U	<9.4 U	<9.4 U	<9.4 U	NA	NA	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<19 U	<19 U	<19 U	<19 U	<47 U	<9.4 U	<9.4 U	<9.4 U
0229H003	IR03MW372A	07/18/2002	0	A	<9.4 U	<9.4 U	<9.4 U	<9.4 U	NA	NA	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<19 U	<19 U	<19 U	<19 U	<47 U	<9.4 U	<9.4 U	<9.4 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0229H004	IR03MW372A	07/18/2002	0	A	<9.4 U	<9.4 U	<9.4 U	<9.4 U	NA	NA	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<19 U	<19 U	<19 U	<19 U	<47 U	<9.4 U	<9.4 U	<9.4 U
0602H041	IR03MW373B	01/09/2006	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E020	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E021	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709G048	IR03MW373B	02/28/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0510R032	IR03MW373B	03/10/2005	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0611S026	IR03MW373B	03/17/2006	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817E028	IR03MW373B	04/21/2008	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720A055	IR03MW373B	05/17/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623P056	IR03MW373B	06/08/2006	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425S037	IR03MW373B	06/15/2004	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526G046	IR03MW373B	06/28/2005	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0634G006	IR03MW373B	08/25/2006	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0735W060	IR03MW373B	08/27/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0438J024	IR03MW373B	09/14/2004	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0538A040	IR03MW373B	09/23/2005	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740D023	IR03MW373B	10/04/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0447C013	IR03MW373B	11/19/2004	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649G031	IR03MW373B	12/04/2006	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9204X452	IR03MWO-1	01/23/1992	0	A	<40 U	<40 U	20 J	57	NA	NA	<200 U	<40 U	<40 U	99	<200 U	<40 U	<40 U	<40 U	<40 U	39 J	<40 U	<200 U	<40 U	<80 U	<200 U	<200 U	<40 U	<40 U	<40 U
9204X453	IR03MWO-1	01/23/1992	0	A	<15 U	<15 U	19	49	NA	NA	<75 U	<15 U	<15 U	130	<75 U	<15 U	<15 U	<15 U	<15 U	14 J	17	<75 U	<15 U	<30 U	<75 U	<75 U	<15 U	<15 U	<15 U
9228X667	IR03MWO-1	07/09/1992	0	A	<10 U	<10 U	33	66	NA	NA	<50 U	<10 U	<10 U	74	<50 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X737	IR03MWO-1	08/28/1992	0	A	<10 U	<10 U	36	84	NA	NA	<50 U	<10 U	<10 U	120	<50 U	<10 U	<10 U	<10 U	<10 U	6 J	23	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9207X526	IR04MW09A	02/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<53 U	<11 U	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<53 U	<11 U	<21 U	<53 U	<53 U	<11 U	<11 U	<11 U
9225X620	IR04MW09A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9146X263	IR04MW09A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0602D039	IR04MW13A	01/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9207X518	IR04MW13A	02/12/1992	0	A	<12 U	<12 U	<12 U	<12 U	NA	NA	<60 U	<12 U	<12 U	<12 U	<60 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<60 U	<12 U	<24 U	<60 U	<60 U	<12 U	<12 U	<12 U
9207X519	IR04MW13A	02/12/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<56 U	<11 U	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<56 U	<11 U	<22 U	<56 U	<56 U	<11 U	<11 U	<11 U
0708G030	IR04MW13A	02/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809H025	IR04MW13A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0509G009	IR04MW13A	03/03/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0611J032	IR04MW13A	03/16/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0611J033	IR04MW13A	03/16/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0719W020	IR04MW13A	05/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0622T013	IR04MW13A	05/31/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9225X627	IR04MW13A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9225X628	IR04MW13A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0526T039	IR04MW13A	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0427S052	IR04MW13A	06/28/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734D031	IR04MW13A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 UJ	NA	<50 U	<10 U	<20 U	<10 U
0537T010	IR04MW13A	09/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0537T011	IR04MW13A	09/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0438G051	IR04MW13A	09/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0741D034	IR04MW13A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9146X259	IR04MW13A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0450G051	IR04MW13A	12/06/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649D036	IR04MW13A	12/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9207X517	IR04MW31A	02/12/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9225X629	IR04MW31A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9146X256	IR04MW31A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9207X520	IR04MW35A	02/12/1992	0	A	<12 U	<12 U	<12 U	<12 U	NA	NA	<58 U	<12 U	<12 U	<12 U	<58 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<58 U	<12 U	<23 U	<58 U	<58 U	<12 U	<12 U	<12 U
9225X623	IR04MW35A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9146X257	IR04MW35A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 U	<10 U	<10 U	<10 UJ3	<10 U	<10 UJ3	<50 UJ3	<10 U	<20 U	<50 U	<50 UJ3	<10 U	<10 UJ3	<10 U
0601T023	IR04MW36A	01/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9207X523	IR04MW36A	02/13/1992	0	A	<12 U	<12 U	<12 U	<12 U	NA	NA	<59 U	<12 U	<12 U	<12 U	<59 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<59 U	<12 U	<24 U	<59 U	<59 U	<12 U	<12 U	<12 U
9207X524	IR04MW36A	02/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<54 U	<11 U	<11 U	<11 U	<54 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<54 U	<11 U	<22 U	<54 U	<54 U	<11 U	<11 U	<11 U
0708G038	IR04MW36A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809D012	IR04MW36A	02/25/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0509G004	IR04MW36A	03/02/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0612H046	IR04MW36A	03/22/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0718J007	IR04MW36A	05/01/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0622T012	IR04MW36A	05/31/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0524T014	IR04MW36A	06/16/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9225X630	IR04MW36A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0425S044	IR04MW36A	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734H071	IR04MW36A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0536T003	IR04MW36A	09/08/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0438T014	IR04MW36A	09/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0741N003	IR04MW36A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9146X254	IR04MW36A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9146X255	IR04MW36A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0648G018	IR04MW36A	11/28/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0449P037	IR04MW36A	12/02/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9207X530	IR04MW37A	02/14/1992	0	A	<13 U	<13 U	<13 U	<13 U	NA	NA	<66 U	<13 U	<13 U	<13 U	<66 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<66 U	<13 U	<26 U	<66 U	<66 U	<13 U	<13 U	<13 U
9207X531	IR04MW37A	02/14/1992	0	A	<14 U	<14 U	<14 U	<14 U	NA	NA	<68 U	<14 U	<14 U	<14 U	<68 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<68 U	<14 U	<27 U	<68 U	<68 U	<14 U	<14 U	<14 U
9225X621	IR04MW37A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9225X622	IR04MW37A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X282	IR04MW37A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9207X529	IR04MW38A	02/14/1992	0	A	<12 U	<12 U	<12 U	<12 U	NA	NA	<60 U	<12 U	<12 U	<12 U	<60 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<60 U	<12 U	<24 U	<60 U	<60 U	<12 U	<12 U	<12 U
9225X632	IR04MW38A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9146X264	IR04MW38A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9207X527	IR04MW39A	02/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<51 U	<10 U	<10 U	<10 U	<51 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<51 U	<10 U	<20 U	<51 U	<51 U	<10 U	<10 U	<10 U
9225X625	IR04MW39A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X283	IR04MW39A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9207X525	IR04MW40A	02/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<53 U	<11 U	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<53 U	<11 U	<21 U	<53 U	<53 U	<11 U	<11 U	<11 U
9225X631	IR04MW40A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9146X261	IR04MW40A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9146X262	IR04MW40A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 U	<10 U	<10 U	<10 UJ3	<10 U	<10 UJ3	<50 UJ3	<10 U	<20 U	<50 U	<50 UJ3	<10 U	<10 UJ3	<10 U
9207A102	IR05MW73A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<55 U	<11 U	<11 U	<11 U	<55 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<55 U	<11 U	<22 U	<55 U	<55 U	<11 U	<11 U	<11 U
9225X644	IR05MW73A	06/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X278	IR05MW73A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 U	<10 U	<10 U	<10 UJ3	<10 U	<10 UJ3	<50 UJ3	<10 U	<20 U	<50 U	<50 UJ3	<10 U	<10 UJ3	<10 U
9147X279	IR05MW73A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 U	<10 U	<10 U	<10 UJ3	<10 U	<10 UJ3	<50 UJ3	<10 U	<20 U	<50 U	<50 UJ3	<10 U	<10 UJ3	<10 U
9207A101	IR05MW74A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<54 UR2	<11 UR2	<11 UR2	<11 UR2	<54 UR2	<11 U	<11 U	<11 U	<11 UR2	<11 U	<11 UR2	<54 UR2	<11 U	<22 U	<54 U	<54 UR2	<11 U	<11 UR2	<11 U
9225X640	IR05MW74A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9147X268	IR05MW74A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9147X269	IR05MW74A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9207A099	IR05MW76A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<54 U	<11 U	<11 U	<11 U	<54 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<54 U	<11 U	<22 U	<54 U	<54 U	<11 U	<11 U	<11 U
9207A100	IR05MW76A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<53 U	<11 U	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<53 U	<11 U	<21 U	<53 U	<53 U	<11 U	<11 U	<11 U
9225X642	IR05MW76A	06/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9225X643	IR05MW76A	06/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X281	IR05MW76A	11/21/1991	0	A	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<20 UJ5	<50 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5
9207A096	IR05MW77A	02/10/1992	0	A	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	NA	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<22 UJ5	<56 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5
9207A097	IR05MW77A	02/10/1992	0	A	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	NA	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<22 UJ5	<56 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5
9225X635	IR05MW77A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X270	IR05MW77A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9207A098	IR05MW82A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<56 U	<11 U	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<56 U	<11 U	<22 U	<56 U	<56 U	<11 U	<11 U	<11 U
9225X639	IR05MW82A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X267	IR05MW82A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0602D046	IR05MW85A	01/13/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0602D047	IR05MW85A	01/13/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809H026	IR05MW85A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709N003	IR05MW85A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0110T022	IR05MW85A	03/16/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2 UJ7	<1 U	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<2 U	<1 U	<1 U	<2 U	<2 U	<1 U	<1 U	<1 U
0511R050	IR05MW85A	03/17/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9612W183	IR05MW85A	03/21/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0612J048	IR05MW85A	03/23/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0816E025	IR05MW85A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0718J013	IR05MW85A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623M032	IR05MW85A	06/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425H026	IR05MW85A	06/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9225X636	IR05MW85A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	2 J	<50 U	<10 U	<10 U	<10 U	<10 U	6 J	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9225X637	IR05MW85A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	2 J	<50 U	<10 U	<10 U	<10 U	<10 U	2 J	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0525G030	IR05MW85A	06/22/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0525G031	IR05MW85A	06/22/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9230J194	IR05MW85A	07/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	36	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9230J195	IR05MW85A	07/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	30	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0232E002	IR05MW85A	08/06/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0734H075	IR05MW85A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0636E006	IR05MW85A	09/08/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0237G015	IR05MW85A	09/13/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0438C044	IR05MW85A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0538T033	IR05MW85A	09/23/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740W015	IR05MW85A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0449C035	IR05MW85A	12/01/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649B026	IR05MW85A	12/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9405N295	IR08MW37A	02/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9405N296	IR08MW37A	02/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9419X278	IR08MW37A	05/10/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9028H279	IR08MW37A	07/11/1990	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9028H280	IR08MW37A	07/11/1990	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UR2	<50 UJ3	<10 UR2	<20 UJ3	<50 UJ3	<50 UR2	<10 UJ3	<10 UR2	<10 UJ3
9434M578	IR08MW37A	08/26/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9344X052	IR08MW37A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<26 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<26 U	<26 U	<10 U	<10 U	<10 U
9405N298	IR08MW38A	02/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9419X277	IR08MW38A	05/10/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9028H273	IR08MW38A	07/10/1990	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UR2	<50 U	<10 UR2	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9434M579	IR08MW38A	08/26/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9344X050	IR08MW38A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9344X051	IR08MW38A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9028H274	IR08MW39A	07/10/1990	0	A	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ07	<10 UR2	<50 UJ0	<10 UR2	<20 UJ0	<50 UJ0	<50 UR2	<10 UJ0	<10 UR2	<10 UJ0
9435E158	IR08MW39A	09/01/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9406X183	IR08MW40A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9419X287	IR08MW40A	05/11/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 UJ7	<25 U	<10 U	<10 U	<10 U
9028H276	IR08MW40A	07/10/1990	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9028H277	IR08MW40A	07/10/1990	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9435E160	IR08MW40A	09/01/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9345X055	IR08MW40A	11/08/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9345X056	IR08MW40A	11/08/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9406X181	IR08MW41A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9406X182	IR08MW41A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9419X286	IR08MW41A	05/11/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9028H281	IR08MW41A	07/11/1990	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UR2	<50 UJ3	<10 UR2	<20 UJ3	<50 UJ3	<50 UR2	<10 UJ3	<10 UR2	<10 UJ3
9435E159	IR08MW41A	09/01/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9344X053	IR08MW41A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9406X185	IR08MW42A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9419X275	IR08MW42A	05/10/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9419X276	IR08MW42A	05/10/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9434M577	IR08MW42A	08/26/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9344X045	IR08MW42A	11/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9344X046	IR08MW42A	11/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9606W066	IR08MW43A	02/05/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9610J913	IR08MW43A	03/07/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9440X501	IR08MW43A	10/03/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UR7	<10 U	<10 U	<10 U
9440X502	IR08MW43A	10/03/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UR7	<10 U	<10 U	<10 U
9606W064	IR08MW44A	02/05/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9606W065	IR08MW44A	02/05/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9610J914	IR08MW44A	03/07/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9440X504	IR08MW44A	10/04/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UR7	<10 U	<10 U	<10 U
9440X505	IR08MW44A	10/04/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UR7	<10 U	<10 U	<10 U
8914W25	IR11MW25A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9035G315	IR11MW25A	08/30/1990	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9148X298	IR11MW25A	11/25/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
8914DUP2	IR11MW26A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
8914W26	IR11MW26A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9034G301	IR11MW26A	08/21/1990	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X756	IR11MW26A	09/15/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<28 U	<11 U	<11 U	<11 U	<28 UR7	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<28 U	<11 U	<11 U	<28 U	<28 UJ7	<11 U	<11 U	<11 U
9148X297	IR11MW26A	11/25/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
8914W27	IR11MW27A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9034G300	IR11MW27A	08/21/1990	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X755	IR11MW27A	09/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UJ7	<10 U	<10 U	<10 U
9148X296	IR11MW27A	11/25/1991	0	A	<22 U	<22 U	<22 U	<22 U	NA	NA	<110 U	<22 U	<22 U	<22 U	<110 U	<22 U	<22 U	<22 U	<22 U	<22 U	<22 U	<110 U	<22 U	<44 U	<110 U	<110 U	<22 U	<22 U	<22 U
9148H929	IR11MW27A	11/26/1991	0	A	<40 U	<40 U	<40 U	<40 U	NA	NA	<200 U	<40 U	<40 U	<40 U	<200 U	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	<200 U	<40 U	<80 U	<200 U	<200 U	<40 U	<40 U	<40 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9209X547	IR12MW11A	02/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9612W185	IR12MW11A	03/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9134X179	IR12MW11A	08/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X544	IR12MW12A	02/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X185	IR12MW12A	08/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X782	IR12MW12A	09/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9239X783	IR12MW12A	09/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9209X545	IR12MW13A	02/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X546	IR12MW13A	02/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X180	IR12MW13A	08/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9239X787	IR12MW13A	09/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9239X788	IR12MW13A	09/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9209X552	IR12MW14A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X181	IR12MW14A	08/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X182	IR12MW14A	08/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X789	IR12MW14A	09/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9209X553	IR12MW15A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0232E003	IR12MW15A	08/06/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9134X186	IR12MW15A	08/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0238A003	IR12MW15A	09/16/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 UJ3	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0238A004	IR12MW15A	09/16/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 UJ3	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9238X778	IR12MW15A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9209X555	IR12MW16A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X188	IR12MW16A	08/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X189	IR12MW16A	08/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X797	IR12MW16A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0509R005	IR12MW17A	03/02/2005	0	A	<10 U	<10 U	<10 U	2.9	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	2.7 J	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9612W186	IR12MW17A	03/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
0424M013	IR12MW17A	06/10/2004	0	A	<10 U	<10 U	<10 U	1.5 J	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0525T026	IR12MW17A	06/21/2005	0	A	<10 U	<10 U	<10 U	1.3 J	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9234X690	IR12MW17A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9234X691	IR12MW17A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	5 J	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0437P031	IR12MW17A	09/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9239X795	IR12MW17A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0447C009	IR12MW17A	11/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9613W189	IR12MW18A	03/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 UJ1	<10 UJ1	<10 U	<10 U	<25 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 U	<10 UJ1	<10 U	<25 UJ1	<10 U	<10 U	<25 UJ1	<25 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9613W190	IR12MW18A	03/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9234X692	IR12MW18A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X793	IR12MW18A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9239X794	IR12MW18A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9613W191	IR12MW19A	03/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9234X693	IR12MW19A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X800	IR12MW19A	09/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9239X801	IR12MW19A	09/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9613J971	IR12MW20A	03/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9234X694	IR12MW20A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X799	IR12MW20A	09/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9614Z022	IR12MW21A	04/02/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9618J076	IR12MW21A	05/02/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	13	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9234X695	IR12MW21A	08/19/1992	0	A	<75 U	<75 U	<75 U	<75 U	NA	NA	<380 U	<75 U	<75 U	<75 U	<380 U	<75 U	<75 U	<75 U	<75 U	140	<75 U	<380 U	<75 U	<150 U	<380 U	<380 U	<75 U	<75 U	<75 U
9239A459	IR12MW21A	09/23/1992	0	A	<1000 U	<1000 U	<1000 U	<1000 U	NA	NA	<2500 U	<1000 U	<1000 U	<1000 U	<2500 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	150.99 J	<1000 U	<2500 UJ7	<1000 U	<1000 U	<2500 U	<2500 U	<1000 U	<1000 U	<1000 U
9209X550	IR13MW10A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X551	IR13MW10A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X193	IR13MW10A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9238X777	IR13MW10A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9209X558	IR13MW11A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X190	IR13MW11A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9238X768	IR13MW11A	09/17/1992	0	A	<200 UR2	<200 UR2	<200 UR2	<200 UR2	NA	NA	<500 U	<200 U	<200 U	<200 U	<500 U	<200 UR2	<200 UR2	<200 UR2	<200 U	<200 UR2	<200 U	<500 UR2	<200 U	<200 UR2	<500 UR2	<500 U	<200 UR2	<200 U	<200 UR2
9238X769	IR13MW11A	09/17/1992	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 UJ3	<10 UJ3	<10 UJ3	<10 U	<10 UJ3	<10 U	<25 UJ3	<10 U	<10 UJ37	<25 UJ3	<25 U	<10 UJ3	<10 U	<10 UJ3
9209X557	IR13MW12A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X191	IR13MW12A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9134X192	IR13MW12A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9238X775	IR13MW12A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9238X776	IR13MW12A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 UJ7	<10 U	<10 U
9209X559	IR14MW09A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X560	IR14MW09A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X754	IR14MW09A	09/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UJ7	<10 U	<10 U	<10 U
9148X304	IR14MW09A	11/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9148X305	IR14MW09A	11/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X562	IR14MW10A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
0109T018	IR14MW10A	03/08/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<3 U	<1 U	<1 U	<1 U	<3 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 U	<3 U	<1 U	<1 U	<3 U	<3 U	<1 U	<1 U	<1 U
0229D002	IR14MW10A	07/15/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
9238X752	IR14MW10A	09/15/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<28 U	<11 U	<11 U	<11 U	<28 UR7	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<28 U	<11 U	<11 U	<28 U	<28 UJ7	<11 U	<11 U	<11 U
9238X753	IR14MW10A	09/15/1992	0	A	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	NA	NA	<28 UR2	<11 UR2	<11 UR2	<11 UR2	<28 UR27	<11 UJ3	<11 UJ3	<11 UJ3	<11 UR2	<11 UJ3	<11 UR2	<28 UR2	<11 U	<11 UJ3	<28 UJ3	<28 UR2	<11 UJ3	<11 UR2	<11 UJ3
0238E013	IR14MW10A	09/18/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9147X285	IR14MW10A	11/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X286	IR14MW10A	11/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X561	IR14MW12A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X763	IR14MW12A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9147X272	IR14MW12A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9614Z021	IR14MW13A	04/02/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	6 J	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9619J102	IR14MW13A	05/09/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9234X696	IR14MW13A	08/19/1992	0	A	<25 U	<25 U	<25 U	<25 U	NA	NA	<120 U	<25 U	<25 U	<25 U	<120 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	<120 U	<25 U	<50 U	<120 U	<120 U	<25 U	<25 U	<25 U
9239A457	IR14MW13A	09/23/1992	0	A	<1000 U	<1000 U	<1000 U	<1000 U	NA	NA	<2500 U	<1000 U	<1000 U	<1000 U	<2500 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<2500 U	<1000 U	<1000 U	<2500 U	<2500 U	<1000 U	<1000 U	<1000 U
9239A458	IR14MW13A	09/23/1992	0	A	<1000 U	<1000 U	<1000 U	<1000 U	NA	NA	<2500 U	<1000 U	<1000 U	<1000 U	<2500 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<2500 U	<1000 U	<1000 U	<2500 U	<2500 U	<1000 U	<1000 U	<1000 U
9209X564	IR15MW06A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X749	IR15MW06A	09/14/1992	0	A	<12 U	<12 U	<12 U	<12 U	NA	NA	<29 U	<12 U	<12 U	<12 U	<29 UR7	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<29 U	<12 U	<12 U	<29 U	<29 UJ7	<12 U	<12 U	<12 U
9238X750	IR15MW06A	09/14/1992	0	A	<11 U	<11 U	<11 U	<11 U	NA	NA	<28 U	<11 U	<11 U	<11 U	<28 UR7	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<28 U	<11 U	<11 U	<28 U	<28 UJ7	<11 U	<11 U	<11 U
9147X276	IR15MW06A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X565	IR15MW07A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9209X566	IR15MW07A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X762	IR15MW07A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9147X273	IR15MW07A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9147X274	IR15MW07A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0109P005	IR15MW08A	03/08/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<3 U	<1 U	<1 U	<1 U	<3 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 U	<3 U	<1 U	<1 U	<3 U	<3 U	<1 U	<1 U	<1 U
9613W201	IR15MW08A	03/28/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9613W202	IR15MW08A	03/28/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
0231E012	IR15MW08A	08/01/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
9233X675	IR15MW08A	08/13/1992	0	A	<25 U	<25 U	<25 U	<25 U	NA	NA	<120 U	<25 U	<25 U	<25 U	<120 U	<25 U	<25 U	<25 U	<25 U	34 J7	<25 U	<120 U	<25 U	<50 U	<120 U	<120 U	<25 U	<25 U	<25 U
9233X676	IR15MW08A	08/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	8 J7	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0237J019	IR15MW08A	09/12/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
0237J020	IR15MW08A	09/12/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
9239X792	IR15MW08A	09/24/1992	0	A	<100 U	<100 U	<100 U	<100 U	NA	NA	<250 U	<100 U	<100 U	<100 U	<250 UJ7	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<250 U	<100 U	<100 U	<250 U	<250 U	<100 U	<100 U	<100 U
9613W195	IR15MW09F	03/27/1996	0	F	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9233X679	IR15MW09F	08/14/1992	0	F	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X785	IR15MW09F	09/22/1992	0	F	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9613W198	IR15MW10F	03/27/1996	0	F	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9233X678	IR15MW10F	08/14/1992	0	F	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9239X786	IR15MW10F	09/22/1992	0	F	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9603J803	IR17MW11A	01/16/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9209X570	IR17MW11A	02/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X199	IR17MW11A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X760	IR17MW11A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9238X761	IR17MW11A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9209X568	IR17MW12A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X198	IR17MW12A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X770	IR17MW12A	09/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9209X571	IR17MW13A	02/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10 U
9209X572	IR17MW13A	02/28/1992	0	A	<10 UR2	<10 UR2	<10 UR2	<10 UR2	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<20 UR2	<50 UR2	<50 UR2	<10 UR2	<10 UR2	<10 UR2
9134X196	IR17MW13A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9134X197	IR17MW13A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9238X771	IR17MW13A	09/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9604W039	IR36MW09A	01/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J932	IR36MW09A	03/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9428E065	IR36MW09A	07/13/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9603W012	IR36MW11A	01/18/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9608J883	IR36MW11A	02/21/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9437X471	IR36MW11A	09/12/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 UJ7	<25 UJ7	<10 U	<10 U	<10 U
9437X472	IR36MW11A	09/12/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 UJ7	<25 UJ7	<10 U	<10 U	<10 U
9611J923	IR36MW120B	03/13/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9617J043	IR36MW120B	04/23/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9623J174	IR36MW120B	06/04/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J924	IR36MW121A	03/13/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9617J044	IR36MW121A	04/24/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9623J175	IR36MW121A	06/04/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9623J176	IR36MW121A	06/04/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611W157	IR36MW122A	03/13/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9617J055	IR36MW122A	04/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9623J172	IR36MW122A	06/03/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611W156	IR36MW123B	03/13/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9618J065	IR36MW123B	04/30/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 UJ7	<25 U	<10 U	<10 U	<10 U
9623J171	IR36MW123B	06/03/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W034	IR36MW125A	01/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611W165	IR36MW125A	03/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9618J061	IR36MW125A	04/29/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W027	IR36MW126A	01/24/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J931	IR36MW126A	03/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9618J066	IR36MW126A	04/30/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W037	IR36MW127A	01/25/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J930	IR36MW127A	03/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9618J062	IR36MW127A	04/29/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W029	IR36MW128A	01/24/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J929	IR36MW128A	03/14/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9617J037	IR36MW128A	04/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J927	IR36MW129B	03/14/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J928	IR36MW129B	03/14/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9617J041	IR36MW129B	04/23/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9617J042	IR36MW129B	04/23/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9622J168	IR36MW129B	05/31/1996	0	B	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0602V035	IR36MW12A	01/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0602V036	IR36MW12A	01/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9603W013	IR36MW12A	01/19/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9608J889	IR36MW12A	02/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
0709W023	IR36MW12A	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E034	IR36MW12A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0511R040	IR36MW12A	03/14/2005	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	<10 U	<10 U	<10 U	<50 U	<10 UJ3	<10 UJ3	<10 UJ3	<10 U	<10 UJ3	<10 U	NA	<10 U	<20 UJ3	NA	<50 U	<10 UJ3	<20 U	<10 UJ3
0817E041	IR36MW12A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720B004	IR36MW12A	05/17/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623S017	IR36MW12A	06/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623S018	IR36MW12A	06/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425C033	IR36MW12A	06/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526T040	IR36MW12A	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526T041	IR36MW12A	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734D045	IR36MW12A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0437P034	IR36MW12A	09/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9437X473	IR36MW12A	09/12/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UJ7	<10 U	<10 U	<10 U
0539A046	IR36MW12A	09/26/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0539A047	IR36MW12A	09/26/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740H021	IR36MW12A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0447R007	IR36MW12A	11/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649H018	IR36MW12A	12/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9602J783	IR36MW135A	01/09/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9607J865	IR36MW135A	02/12/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9611W164	IR36MW135A	03/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604Z011	IR36MW139A	01/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9608J888	IR36MW139A	02/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9613W199	IR36MW139A	03/28/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9603W011	IR36MW13A	01/18/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UJ1	<10 UJ1	<10 U	<10 U
9608J886	IR36MW13A	02/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9444X560	IR36MW13A	11/03/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9444X561	IR36MW13A	11/03/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9603W010	IR36MW14A	01/18/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
9608W116	IR36MW14A	02/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9443X538	IR36MW14A	10/25/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9443X539	IR36MW14A	10/25/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9605W060	IR36MW15A	02/01/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9610J903	IR36MW15A	03/04/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9438X484	IR36MW15A	09/20/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9438X485	IR36MW15A	09/20/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9605W054	IR36MW16A	01/31/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9610J906	IR36MW16A	03/05/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9610J907	IR36MW16A	03/05/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9439X498	IR36MW16A	09/27/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9439X499	IR36MW16A	09/27/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9603W016	IR36MW17A	01/19/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9603W017	IR36MW17A	01/19/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9608J887	IR36MW17A	02/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9442X532	IR36MW17A	10/18/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9442X533	IR36MW17A	10/18/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604Z012	IR38MW01A	01/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9608J885	IR38MW01A	02/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9441X521	IR38MW01A	10/12/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9441X522	IR38MW01A	10/12/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W021	IR38MW02A	01/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W022	IR38MW02A	01/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9608W121	IR38MW02A	02/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9443X535	IR38MW02A	10/24/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9443X536	IR38MW02A	10/24/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9604W025	IR39MW21A	01/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	6 J	<25 U	<10 U	<10 U	<10 U	<10 U	4 J	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9609J886	IR39MW21A	02/26/1996	0	A	<50 U	<25 U	<25 U	<25 U	NA	NA	<120 U	<50 U	<50 U	<50 U	<120 U	<50 U	<50 U	<50 U	<50 U	20 J	<50 U	<120 U	<50 U	<50 U	<120 U	<120 U	<50 U	<50 U	<50 U
0109T024	IR39MW21A	03/09/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 UJ3	<1 UJ3	<2 UJ3	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<2 U	<1 U	<1 U	<2 U	<2 U	<1 U	<1 UJ3	<1 U
0425C036	IR39MW21A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9425E029	IR39MW21A	06/22/1994	0	A	<83 U	<42 U	<42 U	<42 U	NA	NA	<210 U	<83 U	<83 U	45 J	<210 U	<83 U	<83 U	<83 U	<83 U	78 J	<83 U	<210 U	<83 U	<83 U	<210 U	<210 U	<83 U	<83 U	<83 U
0227P007	IR39MW21A	07/02/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0227P008	IR39MW21A	07/02/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0237S003	IR39MW21A	09/09/2002	0	A	<9.8 U	NA	NA	NA	NA	NA	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<25 U	<4.9 U	<9.8 U	<4.9 U	<9.8 U	0.27 J	<9.8 U	<25 U	<9.8 U	<25 U	<25 U	<25 U	<9.8 U	<9.8 U	<9.8 U
0449C027	IR39MW21A	11/29/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9605W045	IR39MW22A	01/29/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9609J897	IR39MW22A	02/29/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9437X480	IR39MW22A	09/14/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UR7	<10 U	<10 U	<10 U
9437X481	IR39MW22A	09/14/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UR7	<10 U	<10 U	<10 U
0602V030	IR39MW23A	01/09/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9604W040	IR39MW23A	01/26/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W041	IR39MW23A	01/26/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9609J884	IR39MW23A	02/26/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
0709Z026	IR39MW23A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E032	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E033	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0511S041	IR39MW23A	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0816N008	IR39MW23A	04/17/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0720A057	IR39MW23A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623S020	IR39MW23A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623S021	IR39MW23A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425G038	IR39MW23A	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425G039	IR39MW23A	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0525T037	IR39MW23A	06/24/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734W057	IR39MW23A	08/24/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0636D039	IR39MW23A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0636D040	IR39MW23A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9437K156	IR39MW23A	09/15/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UR7	<10 U	<10 U	<10 U
9437K157	IR39MW23A	09/15/1994	0	A	<10 UJ5	<5 UJ5	<5 UJ5	<5 UJ5	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 UR2	<10 UJ5	<10 UJ5	<10 U	<10 UJ5	<10 U	<25 UJ5	<10 U	<10 UJ5	<25 UJ5	<25 UJ5	<10 UJ5	<10 U	<10 UJ5
0438T015	IR39MW23A	09/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0538A044	IR39MW23A	09/23/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740H022	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740H023	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0448C022	IR39MW23A	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649H017	IR39MW23A	12/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9604W042	IR39MW24A	01/26/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9609J885	IR39MW24A	02/26/1996	0	A	<50 U	<25 U	<25 U	<25 U	NA	NA	<120 U	<50 U	<50 U	<50 U	<120 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<120 U	<50 U	<50 UJ7	<120 U	<120 U	<50 U	<50 U	<50 U
9438X490	IR39MW24A	09/21/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9438X491	IR39MW24A	09/21/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9604W024	IR39MW33A	01/23/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	16	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9609W123	IR39MW33A	02/26/1996	0	A	<50 U	<25 U	<25 U	<25 U	NA	NA	<120 U	<50 U	<50 U	<50 U	<120 U	<50 U	<50 U	<50 U	<50 U	19 J	<50 U	<120 U	<50 U	<50 U	<120 U	<120 U	<50 U	<50 U	<50 U
9613W204	IR39MW33A	03/29/1996	0	A	<100 U	<50 U	<50 U	<50 U	NA	NA	<250 U	<100 U	<100 U	<100 U	<250 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<250 U	<100 U	<100 U	<250 U	<250 U	<100 U	<100 U	<100 U
9602J790	IR39MW35A	01/10/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9607W096	IR39MW35A	02/14/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9607W097	IR39MW35A	02/14/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9612J934	IR39MW35A	03/18/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9602J787	IR39MW36A	01/10/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9602J789	IR39MW36A	01/10/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9607W098	IR39MW36A	02/14/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9612J935	IR39MW36A	03/18/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0602T030	IR56MW39A	01/09/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0708H027	IR56MW39A	02/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809P006	IR56MW39A	02/26/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9610W136	IR56MW39A	03/04/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	10	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
0511G046	IR56MW39A	03/15/2005	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	<10 U	<10 U	<10 U	<50 U	<10 UJ3	<10 UJ3	<10 UJ3	<10 U	<10 UJ3	<10 U	NA	<10 U	<20 UJ3	NA	<50 U	<10 UJ3	<20 U	<10 U
0612H050	IR56MW39A	03/23/2006	0	A	<10 UJ	<10 UJ	<10 UJ	<10 UJ	NA	<10 UJ	NA	<10 UJ	<10 UJ	<10 UJ	<50 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	NA	<10 UJ	<20 UJ	NA	<50 UJ	<10 UJ	<20 UJ	<10 UJ
0612H051	IR56MW39A	03/23/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817D043	IR56MW39A	04/23/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0718A005	IR56MW39A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9620J120	IR56MW39A	05/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0623S025	IR56MW39A	06/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0623S026	IR56MW39A	06/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0425X005	IR56MW39A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0526D036	IR56MW39A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0735H082	IR56MW39A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0438B046	IR56MW39A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0539T037	IR56MW39A	09/26/2005	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740W016	IR56MW39A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9444X557	IR56MW39A	11/02/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	15	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
9444X558	IR56MW39A	11/02/1994	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	15	<10 U	<25 U	<10 U	<10 UJ0	<25 U	<25 U	<10 U	<10 U	<10 U
0448C021	IR56MW39A	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0649W035	IR56MW39A	12/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9610J905	IR72MW32A	03/05/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
0110P027	IR72MW32A	03/16/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2 UJ7	<1 U	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<2 U	<1 U	<1 U	<2 U	<2 U	<1 U	<1 U	<1 U
9620J119	IR72MW32A	05/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0229P003	IR72MW32A	07/15/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
0238G004	IR72MW32A	09/18/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<24 UJ3	<4.8 U	<9.6 U	<4.8 U	<9.6 UJ3	<4.8 U	<9.6 UJ3	<24 U	<9.6 UJ3	<24 U	<24 U	<24 UJ3	<9.6 U	<9.6 UJ3	<9.6 U
0238G005	IR72MW32A	09/18/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9547W195	IR72MW32A	11/21/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9610W138	IR72MW33A	03/05/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9620J118	IR72MW33A	05/15/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9547W197	IR72MW33A	11/22/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9547W198	IR72MW33A	11/22/1995	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9305J230	PA36MW01A	02/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 UJ7	<25 U	<10 U	<10 U	<10 U
9606W074	PA36MW01A	02/07/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611W148	PA36MW01A	03/11/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9305J232	PA36MW02A	02/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 UJ7	<25 U	<10 U	<10 U	<10 U
9606W075	PA36MW02A	02/07/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611W149	PA36MW02A	03/11/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9606W076	PA36MW03A	02/07/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9306J248	PA36MW03A	02/11/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 UJ7	<25 U	<10 U	<10 U	<10 U
9306J249	PA36MW03A	02/11/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 UJ7	<25 U	<10 U	<10 U	<10 U
9611J920	PA36MW03A	03/11/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9305J234	PA36MW04A	02/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<26 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<26 UJ7	<26 U	<10 U	<10 U	<10 U
9606W077	PA36MW04A	02/07/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611J919	PA36MW04A	03/11/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9606W082	PA36MW05A	02/08/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9306J244	PA36MW05A	02/10/1993	0	A	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	NA	<26 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<26 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<26 UJ5	<11 UJ5	<11 UJ5	<26 UJ5	<26 UJ5	<11 UJ5	<11 UJ5	<11 UJ5
9306J245	PA36MW05A	02/10/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<26 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<26 U	<26 U	<10 U	<10 U	<10 U
9611J918	PA36MW05A	03/11/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9306J252	PA36MW06A	02/11/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9607W099	PA36MW06A	02/16/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9612W172	PA36MW06A	03/19/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9606W079	PA36MW07A	02/08/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9308J309	PA36MW07A	02/23/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<26 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<26 U	<10 U	<10 U	<26 U	<26 U	<10 U	<10 U	<10 U
9611J922	PA36MW07A	03/12/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
9606W080	PA36MW08A	02/08/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 UJ15	<10 UJ15	<10 U	<10 U
9606W081	PA36MW08A	02/08/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9307A590	PA36MW08A	02/16/1993	0	A	<100 U	<100 U	<100 U	<100 U	NA	NA	<250 U	<100 U	<100 U	<100 U	<250 UR7	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<250 U	<100 U	<100 U	<250 U	<250 UR7	<100 U	<100 U	<100 U
9307A591	PA36MW08A	02/16/1993	0	A	<100 U	<100 U	<100 U	<100 U	NA	NA	<250 U	<100 U	<100 U	<100 U	<250 UR7	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<250 U	<100 U	<100 U	<250 U	<250 UR7	<100 U	<100 U	<100 U
0109P008	PA36MW08A	03/08/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 U	<2 U	<1 U	<1 UJ1	<2 U	<2 UJ1	<1 UJ1	<1 U	<1 U
9611W151	PA36MW08A	03/12/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 UJ1	<10 UJ1	<10 U	<10 U
9611W152	PA36MW08A	03/12/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 UJ7	<25 U	<25 U	<10 U	<10 U	<10 U
0425H029	PA36MW08A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	11	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0234A012	PA36MW08A	08/21/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0234A013	PA36MW08A	08/21/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<4.8 U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
0237S002	PA36MW08A	09/09/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25 U	<4.9 U	<9.7 U	<4.9 U	<9.7 U	29	<9.7 U	<25 U	<9.7 U	<25 U	<25 U	<25 U	<9.7 U	<9.7 U	<9.7 U
9606W084	PA39MW01A	02/09/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9307A611	PA39MW01A	02/18/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9307A612	PA39MW01A	02/18/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 UR7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9611W159	PA39MW01A	03/14/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9606J860	PA39MW02A	02/09/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9307D024	PA39MW02A	02/19/1993	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
9307D025	PA39MW02A	02/19/1993	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 UJ3	<10 UJ3	<10 UJ3	<10 U	<10 UJ3	<10 U	<25 UJ3	<10 U	<10 UJ3	<25 UJ3	<25 U	<10 UJ3	<10 U	<10 UJ3
9611W158	PA39MW02A	03/14/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25 U	<10 U	<10 U	<25 U	<25 U	<10 U	<10 U	<10 U
0709W026	IR02MW126A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720J051	IR02MW126A	05/14/2007	0	A	<10 U	<10 U	<10 U	1.1J	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0732J005	IR02MW126A	08/10/2007	0	A	<10 U	<10 U	<10 U	1J	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740W013	IR02MW126A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0808E010	IR02MW126A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817H036	IR02MW126A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
9228J167	IR02MW147A	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U2	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10
9235X719	IR02MW147A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U2	<20 U	<50 U	<50 UR2	<10 U	<10 UR2	<10
0110T023	IR02MW147A	03/16/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2UJ7	<1 U	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<2 U	<1 U	<1 U	<2 U	<2 U	<1 U	<1 U	<1 U
0229A009	IR02MW147A	07/17/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24U	<4.8U	<9.6 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<24U	<9.6 U	<24 U	<24U	<24U	<9.6 U	<9.6 U	<9.6 U
0239E009	IR02MW147A	09/25/2002	0	A	<9.8 U	NA	NA	NA	NA	NA	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<25U	<4.9U	<9.8 U	<4.9U	<9.8 U	<4.9U	<9.8 U	<25U	<9.8 U	<25 U	<25U	<25U	<9.8 U	<9.8 U	<9.8 U
9112X067	IR02MW149A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202N019	IR02MW149A	01/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X718	IR02MW149A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9205X474	IR02MW173A	01/29/1992	0	A	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	74 J5	<10 UJ5	<50 UJ5	<10 UJ5	<20 UJ5	<50 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5
9205X475	IR02MW173A	01/29/1992	0	A	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	85 J5	<10 UJ5	<50 UJ5	<10 UJ5	<20 UJ6	<50 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5
9613W193	IR02MW173A	03/26/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25U	<10 U	<10 U	<10 U	<25U	<10 U	<10 U	<10 U	<10 U	44J	<10 U	<25U	<10 U	<10 U	<25U	<25U	<10 U	<10 U	<10 U
9622J166	IR02MW173A	05/30/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25U	<10 U	<10 U	<10 U	<25U	<10 U	<10 U	<10 U	<10 U	14J3	<10 U	<50 U	<10 U	<10 U	<25U	<25U	<10 U	<10 U	<10 U
9203A089	IR02MW175A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	3J	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228X669	IR02MW175A	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228X670	IR02MW175A	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J230	IR02MW175A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0110P002	IR02MW175A	03/12/2001	0	A	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<3 U	<1 U	<1 U	<1 U	<3UJ7	<1 U	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<3 U	<1 U	<1 UJ7	<3UJ37	<1 U	<1 U	<1 U	<1 U
0229P014	IR02MW175A	07/18/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24U	<4.8U	<9.6 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<24U	<9.6 U	<24 U	<24U	<24U	<9.6 U	<9.6 U	<9.6 U
0239G002	IR02MW175A	09/23/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24U	<4.8U	<9.6 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<24U	<9.6 U	<24 U	<24U	<24U	<9.6 U	<9.6 U	<9.6 U
9203A086	IR02MW179A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9224X616	IR02MW179A	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J231	IR02MW179A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0110P004	IR02MW179A	03/12/2001	0	A	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2UJ7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<2 U	<1 U	<1 UJ7	<2UJ37	<2 U	<1 U	<1 U	<1 U
0229D010	IR02MW179A	07/17/2002	0	A	<9.8 U	NA	NA	NA	NA	NA	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<25U	<4.9U	<9.8 U	<4.9U	<9.8 U	<4.9U	<9.8 U	<25U	<9.8 U	<25 U	<25U	<25U	<9.8 U	<9.8 U	<9.8 U
0229D011	IR02MW179A	07/17/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24U	<4.8U	<9.6 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<24U	<9.6 U	<24 U	<24U	<24U	<9.6 U	<9.6 U	<9.6 U
0238J020	IR02MW179A	09/20/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<24 U	<9.6 U	<24 U	<24 U	<24 U	<9.6 U	<9.6 U	<9.6 U
9203A087	IR02MW183A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	51	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	46	<10 U
9203A088	IR02MW183A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	50UR2	<10 U	10UR2	<10 U
9224X618	IR02MW183A	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J234	IR02MW183A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0110T024	IR02MW183A	03/16/2001	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	NA	NA	<2 U	<1 U	<1 U	<1 U	<2UJ7	<1 U	<1 U	<1 U	<1 U	<1 UJ7	<1 U	<2 U	<1 U	<1 U	<2 U	<2 U	<1 U	<1 U	<1 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0227E003	IR02MW183A	07/01/2002	0	A	<9.7 U	NA	NA	NA	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<25U	<4.9U	<9.7 U	<4.9U	<9.7 U	<4.9U	<9.7 U	<25U	<9.7 U	<25 U	<25U	<25U	<9.7 U	<9.7 U	<9.7 U
0227E004	IR02MW183A	07/01/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24U	<4.8U	<9.6 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<24U	<9.6 U	<24 U	<24U	<24U	<9.6 U	<9.6 U	<9.6 U
0237G010	IR02MW183A	09/11/2002	0	A	<9.6 U	NA	NA	NA	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<24U	<4.8U	<9.6 U	<4.8U	<9.6 U	<4.8U	<9.6 U	<24U	<9.6 U	<24 U	<24U	<24U	<9.6 U	<9.6 U	<9.6 U
9112X063	IR02MW196A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9112X064	IR02MW196A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202A017	IR02MW196A	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<20 UJ1	<50 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9235X722	IR02MW196A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202A015	IR02MW206A1	01/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9224X615	IR02MW206A1	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X720	IR02MW206A1	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202A016	IR02MW206A2	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<20 UJ1	<50 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9224X611	IR02MW206A2	06/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 U	<10 U	<10 U	<10 UR2	<10 U	<10 UR2	<50 UR2	<10 U	<20 U	<50 U	50UR2	<10 U	10UR2	<10 U
9235X723	IR02MW206A2	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9202A013	IR02MW209A	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA	<52 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<52 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<52 UJ1	<10 UJ1	<21 UJ1	<52 UJ1	<52 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9202A014	IR02MW209A	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<20 UJ1	<50 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9224X609	IR02MW209A	06/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9224X610	IR02MW209A	06/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X725	IR02MW209A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9228J152	IR02MW298A	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235X728	IR02MW298A	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9612W182	IR02MW298A	03/22/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25U	<10 U	<10 U	<10 U	<25U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25U	<10 U	<10 U	<25U	<25U	<10 U	<10 U	<10 U
9228X661	IR02MW299A	07/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9235J238	IR02MW299A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
9612J946	IR02MW299A	03/21/1996	0	A	<10 U	<5 U	<5 U	<5 U	NA	NA	<25U	<10 U	<10 U	<10 U	<25U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<25U	<10 U	<10 U	<25U	<25U	<10 U	<10 U	<10 U
9228X660	IR02MW300A	07/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	<50 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<20 U	<50 U	<50 U	<10 U	<10 U	<10 U
0720J061	IR02MW301A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0732D009	IR02MW301A	08/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740D007	IR02MW301A	10/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0808D007	IR02MW301A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817G023	IR02MW301A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709L012	IR03MW218A2	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	2.7	<10 U	NA	<10 U	<10 U	90	<50 U	<10 U	<10 U	<10 U	<10 U	7.3J	12	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0719G001	IR03MW218A2	05/10/2007	0	A	<10 U	<10 U	<10 U	1.1J	2.1	NA	NA	<10 U	<10 U	120	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734D035	IR03MW218A2	08/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	2.7	NA	NA	<10 U	<10 U	120	<50 U	<10 U	<10 U	<10 U	<10 U	26	42	NA	<10 U	<20 UJ	NA	<50 U	<10 U	<20U	<10 U
0741D035	IR03MW218A2	10/08/2007	0	A	<10 U	<10 U	<10 U	1.1J	2.4	NA	NA	<10 U	<10 U	110	<50 U	<10 U	<10 U	<10 U	<10 U	43	33	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0810D051	IR03MW218A2	03/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	<1 U	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0823H060	IR03MW218A2	06/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	3.3	NA	NA	<10 U	<10 U	100	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	2.9J	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709G047	IR03MW224A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720W046	IR03MW224A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734H057	IR03MW224A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 UJ	NA	<50 U	<10 U	<20U	<10 U
0740D024	IR03MW224A	10/04/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E022	IR03MW224A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817E029	IR03MW224A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0708L005	IR03MW342A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720G016	IR03MW342A	05/15/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0735W059	IR03MW342A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0741G024	IR03MW342A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809D031	IR03MW342A	02/28/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817E034	IR03MW342A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0817E035	IR03MW342A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709G048	IR03MW373B	02/28/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720A055	IR03MW373B	05/17/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0735W060	IR03MW373B	08/27/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740D023	IR03MW373B	10/04/2007	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E020	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E021	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817E028	IR03MW373B	04/21/2008	0	B	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0708G030	IR04MW13A	02/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0719W020	IR04MW13A	05/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734D031	IR04MW13A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 UJ	NA	<50 U	<10 U	<20U	<10 U
0741D034	IR04MW13A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809H025	IR04MW13A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0823H062	IR04MW13A	06/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0830H028	IR04MW13A	07/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0912N016	IR04MW13A	03/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0916P013	IR04MW13A	04/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0708G038	IR04MW36A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0718J007	IR04MW36A	05/01/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734H071	IR04MW36A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0741N003	IR04MW36A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809D012	IR04MW36A	02/25/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0816H017	IR04MW36A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0830H031	IR04MW36A	07/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0912W027	IR04MW36A	03/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709N003	IR05MW85A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0718J013	IR05MW85A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734H075	IR05MW85A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740W015	IR05MW85A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809H026	IR05MW85A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0816E025	IR05MW85A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0816E026	IR05MW85A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0839G034	IR12MW11A	09/23/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0912W037	IR12MW11A	03/17/2009	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0916P014	IR12MW11A	04/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709W023	IR36MW12A	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720B004	IR36MW12A	05/17/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734D045	IR36MW12A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740H021	IR36MW12A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E034	IR36MW12A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817E041	IR36MW12A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0709Z026	IR39MW23A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0720A057	IR39MW23A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0734W057	IR39MW23A	08/24/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740H022	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740H023	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E032	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809E033	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dioxane	2,2-Oxybis(1-Chloropropane)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-Methylphenol	4-Bromophenyl-Phenylether	4-Chloro-3-Methylphenol	4-Chlorophenyl-Phenylether
0816N008	IR39MW23A	04/17/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0708H027	IR56MW39A	02/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	<10 U	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0718A005	IR56MW39A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0735H082	IR56MW39A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0740W016	IR56MW39A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0809P006	IR56MW39A	02/26/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U
0817D043	IR56MW39A	04/23/2008	0	A	<10 U	<10 U	<10 U	<10 U	NA	NA	NA	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<20 U	NA	<50 U	<10 U	<20 U	<10 U

Notes:

*	All concentrations in micrograms per liter
bgs	below ground surface
SVOCs	semivolatile organic compounds

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0229P002	IR01MW367A	07/15/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	0.89 J	1.1 J	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 UJ3	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	<4.8 U
0238S008	IR01MW367A	09/18/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	0.75 J	1.1 J	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	<4.9 U
9202A009	IR02MW101A1	01/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9202A010	IR02MW101A1	01/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0112D002	IR02MW101A1	03/27/2001	0	A	<1 U	<3 U	<1 U	<3 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
9228J155	IR02MW101A1	07/08/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
0230E009	IR02MW101A1	07/25/2002	0	A	<9.6 U	<24 U	<9.6 UJ3	<24 UJ3	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9235J219	IR02MW101A1	08/24/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0237G011	IR02MW101A1	09/11/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 UJ37	<4.8 U	<9.6 U	<9.6 U	NA
9202A012	IR02MW101A2	01/08/1992	0	A	<10 UJ1	<50 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	NA	NA	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA
9228J159	IR02MW101A2	07/09/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J224	IR02MW101A2	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9203X422	IR02MW114A1	01/16/1992	0	A	<16 U	<82 U	<16 U	<82 U	<16 U	<16 U	NA	<16 U	NA	NA	<16 U	<16 U	<16 U	<16 U	<16 U	<82 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	NA	NA
9228J146	IR02MW114A1	07/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9235J225	IR02MW114A1	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U1	<10 U	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	<11 U	<56 U	<11 U	<56 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9228J166	IR02MW114A2	07/10/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J226	IR02MW114A2	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U1	<10 U	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	<10 UJ3	<50 UJ3	<10 UR2	<50 UR2	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA
9228J153	IR02MW114A3	07/08/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	NA	NA
9235J232	IR02MW114A3	08/26/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	<10 U	<50 U	<10 U	<50 U	8 J	<10 U	NA	<10 U	NA	NA	9 J	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
0602T033	IR02MW126A	01/10/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0808E010	IR02MW126A	02/21/2008	0	A	NA	NA	<10 U	<50 U	4.8 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709W026	IR02MW126A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0511G050	IR02MW126A	03/17/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0611J035	IR02MW126A	03/17/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0817H036	IR02MW126A	04/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0720J051	IR02MW126A	05/14/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0623D040	IR02MW126A	06/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0424M014	IR02MW126A	06/10/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0526G049	IR02MW126A	06/29/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9228J157	IR02MW126A	07/08/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	NA	NA
9228J158	IR02MW126A	07/08/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	NA	NA
0732J005	IR02MW126A	08/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9235X717	IR02MW126A	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	8 J	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U1	<10 U	NA	NA
0437P033	IR02MW126A	09/10/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0538A043	IR02MW126A	09/23/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0740W013	IR02MW126A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0447C010	IR02MW126A	11/17/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649G043	IR02MW126A	12/06/2006	0	A	NA	NA	<10 UJ	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9205X468	IR02MW127B	01/28/1992	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0511G048	IR02MW127B	03/15/2005	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425G031	IR02MW127B	06/15/2004	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9230J175	IR02MW127B	07/21/1992	0	B	<10 U	<50 UJ7	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J233	IR02MW127B	08/26/1992	0	B	<10 UJ5	<50 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	NA	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA
0437P021	IR02MW127B	09/07/2004	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0447R010	IR02MW127B	11/19/2004	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<7.4 U4	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0110P015	IR02MW141A	03/14/2001	0	A	<1 UJ3	<3 U	<1 U	<3 UJ7	<1 U	<1 UJ3	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
9218Z059	IR02MW141A	05/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9218Z060	IR02MW141A	05/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9230J177	IR02MW141A	07/21/1992	0	A	<10 U	<50 UJ7	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9230J178	IR02MW141A	07/21/1992	0	A	<10 U	<50 UJ7	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
0231E002	IR02MW141A	07/29/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9235X715	IR02MW141A	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<8 U1	<10 U	NA	NA
9235X716	IR02MW141A	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<7 U1	<10 U	NA	NA
0239J001	IR02MW141A	09/23/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
9205X478	IR02MW146A	01/30/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9205X479	IR02MW146A	01/30/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9613W194	IR02MW146A	03/26/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<100 U	<100 UJ0	<100 UJ0	<100 UJ0	<100 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9622J162	IR02MW146A	05/29/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9622J163	IR02MW146A	05/29/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9203X415	IR02MW147A	01/15/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9205X480	IR02MW210B	01/30/1992	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9230J179	IR02MW210B	07/21/1992	0	B	<10 U	<50 UJ7	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<11 U1	<10 U	NA	NA
9235J235	IR02MW210B	08/26/1992	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J236	IR02MW210B	08/26/1992	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0511Z021	IR02MW300A	03/15/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9612J943	IR02MW300A	03/20/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0112T012	IR02MW300A	03/28/2001	0	A	<1 U	<2 U	<1 U	<2 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0112T013	IR02MW300A	03/28/2001	0	A	<1 U	<3 U	<1 U	<3 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0425H030	IR02MW300A	06/16/2004	0	A	NA	NA	<10 U	<50 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0229D006	IR02MW300A	07/16/2002	0	A	<11 U	<27 U	<11 U	<27 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<53 UJ3	NA	<11 U	<11 U	<11 U	<5.3 U	<11 U	<11 U	NA
9235X726	IR02MW300A	08/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0438G050	IR02MW300A	09/15/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0238G007	IR02MW300A	09/20/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0238G008	IR02MW300A	09/20/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0449C031	IR02MW300A	11/30/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0808D007	IR02MW301A	02/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817G023	IR02MW301A	04/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0720J061	IR02MW301A	05/18/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0732D009	IR02MW301A	08/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740D007	IR02MW301A	10/02/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9610W140	IR02MW372A	03/07/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9619J106	IR02MW372A	05/10/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9547J609	IR02MW372A	11/22/1995	0	A	<10 U	NA	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9610J904	IR02MW373A	03/04/1996	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<50 U	<50 U	<50 U	<50 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9619J107	IR02MW373A	05/10/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 U4J0	<10 UJ0	<10 U	NA
9547J608	IR02MW373A	11/21/1995	0	A	<10 U	<25 U	<10 U	<25 U	6 J	<10 U	NA	<10 U	NA	NA	<10 UJ0	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9202A001	IR02MW87A	01/06/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9113X078	IR02MW87A	03/26/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9230J176	IR02MW89A	07/21/1992	0	A	<10 U	<50 UJ7	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9202A004	IR02MW93A	01/06/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9112X071	IR02MW93A	03/22/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	<1 UJ7	<2 U	<1 U	<2 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 UJ7	<1 U4	<1 U	<1 U	NA
9112X065	IR02MW97A	03/21/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
0230P016	IR02MW97A	07/26/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9235J220	IR02MW97A	08/24/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J221	IR02MW97A	08/24/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0238E003	IR02MW97A	09/16/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
9203A028	IR02MWB-1	01/13/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9228J148	IR02MWB-1	07/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9228J149	IR02MWB-1	07/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9235J239	IR02MWB-1	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<14 U1	<10 U	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9228J151	IR02MWB-2	07/07/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9235J240	IR02MWB-2	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	NA	NA
9204X432	IR02MWB-3	01/20/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U4	<10 U	NA	NA
0110P020	IR02MWB-3	03/15/2001	0	A	<1 UJ3	<2 U	<1 U	<2 UJ7	0.09 J	<1 UJ3	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0110P021	IR02MWB-3	03/15/2001	0	A	<1 UJ3	<3 U	<1 U	<3 UJ7	0.1 J	<1 UJ3	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0511G047	IR02MWB-3	03/15/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425S045	IR02MWB-3	06/17/2004	0	A	NA	NA	<10 U	<50 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	<10 U	<50 UJ7	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	2 J	2 J	4 J	2 J	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<14 U1	<10 U	NA	NA
0229P020	IR02MWB-3	07/19/2002	0	A	<10 U	<25 U	<10 UJ3	<25 UJ3	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	NA	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	NA
9235J241	IR02MWB-3	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	3 J	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<8 U1	<10 U	NA	NA
9235J242	IR02MWB-3	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	2 J	<10 U	3 J	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<15 U1	<10 U	NA	NA
0438C055	IR02MWB-3	09/17/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0239J003	IR02MWB-3	09/23/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
0448C019	IR02MWB-3	11/23/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J245	IR02MWB-5	08/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	<10 U	<50 U	<10 U	<50 U	4 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	8 J	<10 U	NA	5 J	NA	NA	3 J	<10 U	3 J	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<28 U1	<10 U	NA	NA
0602H042	IR03MW218A2	01/10/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9203A092	IR03MW218A2	01/15/1992	0	A	<10 U	<50 U	5 J	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0709L012	IR03MW218A2	02/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0810D051	IR03MW218A2	03/04/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0510G025	IR03MW218A2	03/10/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0719G001	IR03MW218A2	05/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0823H060	IR03MW218A2	06/04/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0623T023	IR03MW218A2	06/08/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425H025	IR03MW218A2	06/15/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0526G039	IR03MW218A2	06/27/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	10	NA	<10 U
9228X664	IR03MW218A2	07/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	NA	NA
0231D006	IR03MW218A2	07/30/2002	0	A	<9.6 U	<24 U	1.9 J	<24 U	1.7 J	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	5.1 J	NA
0734D035	IR03MW218A2	08/21/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9235X730	IR03MW218A2	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
0636D036	IR03MW218A2	09/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0438J022	IR03MW218A2	09/14/2004	0	A	NA	NA	<50 U	<250 U	<50 U	<50 U	NA	<50 U	NA	NA	<50 U	<50 U	<50 U	<50 U	<50 U	<250 U	<100 U	<50 U	<50 U	<50 U	<25 U	<50 U	NA	NA
0538A027	IR03MW218A2	09/21/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0239A002	IR03MW218A2	09/23/2002	0	A	<9.6 U	<24 U	2.4 J	<24 U	2.1 J	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	7.4 J	NA
0741D035	IR03MW218A2	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0448C020	IR03MW218A2	11/23/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0650B043	IR03MW218A2	12/12/2006	0	A	NA	NA	<500 U	<2500 U	<500 U	<500 U	NA	<500 U	NA	NA	<500 U	<500 U	<500 U	<500 U	<500 U	<2500 U	<1000 U	<500 U	<500 U	NA	<250 U	<500 U	NA	<500 U
9203X416	IR03MW218A3	01/16/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<15 U1	<10 U	NA	NA
0231E013	IR03MW218A3	08/01/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	2.5 J	NA
9235X729	IR03MW218A3	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
0239E007	IR03MW218A3	09/25/2002	0	A	<11 U	<26 U	<11 U	<26 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<52 UJ37	NA	<11 U	<11 U	<11 U	<5.2 U	<11 U	2.6 J	NA
0602V032	IR03MW224A	01/10/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9204X451	IR03MW224A	01/23/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0809E022	IR03MW224A	02/27/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709G047	IR03MW224A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0109P003	IR03MW224A	03/06/2001	0	A	<1 UJ37	<2 U	<1 U	<2 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 UJ7	<1 U4J3	<1 U	<1 U	NA
0611S013	IR03MW224A	03/14/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0511Z018	IR03MW224A	03/15/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ3	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	10	NA	<10 U
0817E029	IR03MW224A	04/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0720W046	IR03MW224A	05/18/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0623P049	IR03MW224A	06/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0526G044	IR03MW224A	06/28/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0526G045	IR03MW224A	06/28/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0230A007	IR03MW224A	07/23/2002	0	A	<9.6 U	<24 U	<9.6 UJ3	<24 UJ3	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9230J196	IR03MW224A	07/24/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U1	<10 U	NA	NA
0734H057	IR03MW224A	08/20/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0634G007	IR03MW224A	08/25/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9235X734	IR03MW224A	08/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
0237S010	IR03MW224A	09/11/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U1	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 UJ37	<4.8 U	<9.6 U	<9.6 U	NA
0438J023	IR03MW224A	09/14/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0538T029	IR03MW224A	09/22/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0740D024	IR03MW224A	10/04/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0449C025	IR03MW224A	11/29/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U4	<10 U	NA	NA
0449C026	IR03MW224A	11/29/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649B038	IR03MW224A	12/08/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 UJ	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9205X470	IR03MW225A	01/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	3 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9614Z024	IR03MW225A	04/03/1996	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9625Z050	IR03MW225A	06/19/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9205X461	IR03MW226A	01/27/1992	0	A	<10 U	<50 U	2 J	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9230J197	IR03MW226A	07/24/1992	0	A	<10 U	<50 U	4 J	<50 U	2 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	NA	NA
9230J198	IR03MW226A	07/24/1992	0	A	<10 U	<50 U	5 J	<50 U	3 J	<10 U	NA	2 J	NA	NA	2 J	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	2 J	<10 U	NA	2 J	NA	NA	3 J	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
0231E018	IR03MW228B	08/02/2002	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	NA	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	NA
9235J244	IR03MW228B	08/28/1992	0	B	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0237S014	IR03MW228B	09/12/2002	0	B	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 UJ37	<4.9 U	<9.7 U	<9.7 U	NA
0602H043	IR03MW342A	01/10/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0602H044	IR03MW342A	01/10/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0708L005	IR03MW342A	02/22/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809D031	IR03MW342A	02/28/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0510G026	IR03MW342A	03/10/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0611S012	IR03MW342A	03/14/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0110T017	IR03MW342A	03/15/2001	0	A	<1 UJ3	<2 U	<1 U	<2 UJ7	0.2 J	<1 UJ3	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 UJ1	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
9612J944	IR03MW342A	03/21/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9612J945	IR03MW342A	03/21/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UR0	<10 UR0	<10 UR0	<10 UR0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0817E034	IR03MW342A	04/22/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0720G016	IR03MW342A	05/15/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0622S011	IR03MW342A	06/01/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425S039	IR03MW342A	06/16/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0526G043	IR03MW342A	06/28/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9228X647	IR03MW342A	07/06/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
0230A013	IR03MW342A	07/25/2002	0	A	<9.6 UJ3	<24 UJ3	3.4 J3	<24 UJ3	<9.6 UJ3	<9.6 UJ3	NA	<9.6 UJ3	NA	NA	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<48 UJ3	NA	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<4.8 UJ3	<9.6 UJ3	<9.6 UJ3	NA
0735W059	IR03MW342A	08/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9235X736	IR03MW342A	08/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
0636D037	IR03MW342A	09/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0636D038	IR03MW342A	09/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0438G042	IR03MW342A	09/14/2004	0	A	NA	NA	15	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0238J004	IR03MW342A	09/16/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
0538A028	IR03MW342A	09/21/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0741G024	IR03MW342A	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0448C016	IR03MW342A	11/22/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0650W041	IR03MW342A	12/11/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 UJ	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9610J911	IR03MW369A	03/06/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9621J126	IR03MW369A	05/20/1996	0	A	<10 U	<25 UJ1	<10 U	<25 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	NA	NA	<10 UJ1	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ1	<10 UJ1	<10 UJ1	NA
9548J613	IR03MW369A	11/29/1995	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<50 U	<50 U	<50 U	<50 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 UJ7	NA
9610J908	IR03MW370A	03/06/1996	0	A	<10 U	<25 UJ1	<10 U	<25 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	NA	NA	<10 UJ01	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<40 UJ1	<10 UJ01	<10 UJ1	NA
9620J125	IR03MW370A	05/16/1996	0	A	<10 U	<25 U	<10 U	<25 U	2 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 UJ7	<4 U	<10 U	<10 U	NA
9548J615	IR03MW370A	11/30/1995	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	12	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<40 U	<100 U	<10 UJ7	NA
9610J912	IR03MW371A	03/06/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9620J123	IR03MW371A	05/16/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 UJ7	<4 U	<10 U	<10 U	NA
9620J124	IR03MW371A	05/16/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 UJ7	<4 U	<10 U	<10 U	NA
9548J617	IR03MW371A	11/30/1995	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<200 U	<200 U	<200 U	<200 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 UJ7	NA
9548J618	IR03MW371A	11/30/1995	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<200 U	<200 U	<200 U	<200 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 UJ7	NA
0229H002	IR03MW372A	07/17/2002	0	A	<9.4 U	<19 U	<9.4 U	<19 U	<9.4 UJ3	<9.4 U	NA	<9.4 U	<9.4 U	NA	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 UJ7	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U4	NA	NA
0229H003	IR03MW372A	07/18/2002	0	A	<9.4 U	<19 U	<9.4 U	<19 U	<9.4 UJ3	<9.4 U	NA	<9.4 U	<9.4 U	NA	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 UJ7	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0229H004	IR03MW372A	07/18/2002	0	A	<9.4 U	<19 U	<9.4 U	<19 U	<9.4 UJ3	<9.4 U	NA	<9.4 U	<9.4 U	NA	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 UJ7	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	NA	NA
0602H041	IR03MW373B	01/09/2006	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809E020	IR03MW373B	02/27/2008	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E021	IR03MW373B	02/27/2008	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709G048	IR03MW373B	02/28/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0510R032	IR03MW373B	03/10/2005	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0611S026	IR03MW373B	03/17/2006	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0817E028	IR03MW373B	04/21/2008	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0720A055	IR03MW373B	05/17/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0623P056	IR03MW373B	06/08/2006	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425S037	IR03MW373B	06/15/2004	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0526G046	IR03MW373B	06/28/2005	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0634G006	IR03MW373B	08/25/2006	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0735W060	IR03MW373B	08/27/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0438J024	IR03MW373B	09/14/2004	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0538A040	IR03MW373B	09/23/2005	0	B	NA	NA	<10 U	<50 U	<10 UJ	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0740D023	IR03MW373B	10/04/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0447C013	IR03MW373B	11/19/2004	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649G031	IR03MW373B	12/04/2006	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9204X452	IR03MWO-1	01/23/1992	0	A	<40 U	<200 U	<40 U	<200 U	22 J	<40 U	NA	13 J	NA	NA	<40 U	<40 U	<40 U	<40 U	<40 U	<200 U	<40 U	<40 U	<40 U	<40 U	<42 U4	<40 U	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	<15 U	<75 U	<15 U	<75 U	9 J	<15 U	NA	5 J	NA	NA	3 J	<15 U	<15 U	<15 U	<15 U	<75 U	<15 U	<15 U	<15 U	<15 U	<15 U4	<15 U	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	5 J	<10 U	NA	3 J	NA	NA	2 J	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<20 U1	<10 U	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	<11 U	<53 U	<11 U	<53 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9225X620	IR04MW09A	06/15/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0602D039	IR04MW13A	01/11/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9207X518	IR04MW13A	02/12/1992	0	A	<12 U	<60 U	<12 U	<60 U	<12 U	<12 U	NA	<12 U	NA	NA	<12 U	<12 U	<12 U	<12 U	<12 U	<60 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	NA
9207X519	IR04MW13A	02/12/1992	0	A	<11 U	<56 U	<11 U	<56 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
0708G030	IR04MW13A	02/21/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809H025	IR04MW13A	02/27/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0509G009	IR04MW13A	03/03/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0611J032	IR04MW13A	03/16/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0611J033	IR04MW13A	03/16/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0719W020	IR04MW13A	05/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0622T013	IR04MW13A	05/31/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9225X627	IR04MW13A	06/17/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9225X628	IR04MW13A	06/17/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0526T039	IR04MW13A	06/27/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0427S052	IR04MW13A	06/28/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0734D031	IR04MW13A	08/20/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0537T010	IR04MW13A	09/15/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0537T011	IR04MW13A	09/15/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0438G051	IR04MW13A	09/16/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0741D034	IR04MW13A	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9146X259	IR04MW13A	11/14/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0450G051	IR04MW13A	12/06/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649D036	IR04MW13A	12/07/2006	0	A	NA	NA	<10 UJ	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9207X517	IR04MW31A	02/12/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9225X629	IR04MW31A	06/17/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9146X256	IR04MW31A	11/14/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	<12 U	<58 U	<12 U	<58 U	<12 U	<12 U	NA	<12 U	NA	NA	<12 U	<12 U	<12 U	<12 U	<12 U	<58 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	NA
9225X623	IR04MW35A	06/15/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<70 U4	<10 U	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	<10 U	<50 U	<10 UJ3	<50 UJ3	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0601T023	IR04MW36A	01/05/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9207X523	IR04MW36A	02/13/1992	0	A	<12 U	<59 U	<12 U	<59 U	<12 U	<12 U	NA	<12 U	NA	NA	<12 U	<12 U	<12 U	<12 U	<12 U	<59 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	NA
9207X524	IR04MW36A	02/13/1992	0	A	<11 U	<54 U	<11 U	<54 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<54 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
0708G038	IR04MW36A	02/22/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809D012	IR04MW36A	02/25/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0509G004	IR04MW36A	03/02/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0612H046	IR04MW36A	03/22/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0718J007	IR04MW36A	05/01/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0622T012	IR04MW36A	05/31/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0524T014	IR04MW36A	06/16/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9225X630	IR04MW36A	06/17/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	NA	NA	<10 U	<50 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0734H071	IR04MW36A	08/23/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0536T003	IR04MW36A	09/08/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0438T014	IR04MW36A	09/16/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0741N003	IR04MW36A	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9146X254	IR04MW36A	11/14/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<20 U1	<10 U	NA	NA
9146X255	IR04MW36A	11/14/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<19 U1	<10 U	NA	NA
0648G018	IR04MW36A	11/28/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0449P037	IR04MW36A	12/02/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9207X530	IR04MW37A	02/14/1992	0	A	<13 U	<66 U	<13 U	<66 U	<13 U	<13 U	NA	<13 U	NA	NA	<13 U	<13 U	<13 U	<13 U	<13 U	<66 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	NA	NA
9207X531	IR04MW37A	02/14/1992	0	A	<14 U	<68 U	<14 U	<68 U	<14 U	<14 U	NA	<14 U	NA	NA	<14 U	<14 U	<14 U	<14 U	<14 U	<68 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	NA	NA
9225X621	IR04MW37A	06/15/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9225X622	IR04MW37A	06/15/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9147X282	IR04MW37A	11/21/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	<12 U	<60 U	<12 U	<60 U	<12 U	<12 U	NA	<12 U	NA	NA	<12 U	<12 U	<12 U	<12 U	<12 U	<60 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	NA
9225X632	IR04MW38A	06/17/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9146X264	IR04MW38A	11/15/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	<10 U	<51 U	<10 U	<51 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<51 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9225X625	IR04MW39A	06/15/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9147X283	IR04MW39A	11/21/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	<11 U	<53 U	<11 U	<53 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9225X631	IR04MW40A	06/17/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9146X261	IR04MW40A	11/15/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	<10 U	<50 U	<10 UJ3	<50 UJ3	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	<11 U	<55 U	<11 U	<55 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<55 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9225X644	IR05MW73A	06/19/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	<10 U	<50 U	<10 UJ3	<50 UJ3	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	<10 U	<50 U	<10 UJ3	<50 UJ3	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	<11 U	<54 U	<11 UR2	<54 UR2	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<54 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9225X640	IR05MW74A	06/18/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9147X269	IR05MW74A	11/18/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	<11 U	<54 U	<11 U	<54 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<54 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9207A100	IR05MW76A	02/11/1992	0	A	<11 U	<53 U	<11 U	<53 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9225X642	IR05MW76A	06/19/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9225X643	IR05MW76A	06/19/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	<10 UJ5	<50 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	NA	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA
9207A096	IR05MW77A	02/10/1992	0	A	<11 UJ5	<56 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	NA	<11 UJ5	NA	NA	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	NA
9207A097	IR05MW77A	02/10/1992	0	A	<11 UJ5	<56 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	NA	<11 UJ5	NA	NA	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	NA
9225X635	IR05MW77A	06/18/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	<11 U	<56 U	<11 U	<56 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA
9225X639	IR05MW82A	06/18/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0602D046	IR05MW85A	01/13/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0602D047	IR05MW85A	01/13/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809H026	IR05MW85A	02/27/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709N003	IR05MW85A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0110T022	IR05MW85A	03/16/2001	0	A	<1 U	<2 U	<1 U	<2 UJ7	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0511R050	IR05MW85A	03/17/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	10	NA	<10 U
9612W183	IR05MW85A	03/21/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0612J048	IR05MW85A	03/23/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0816E025	IR05MW85A	04/16/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0718J013	IR05MW85A	05/02/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0623M032	IR05MW85A	06/07/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425H026	IR05MW85A	06/15/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9225X636	IR05MW85A	06/18/1992	0	A	<10 U	<50 U	2 J	<50 U	42	<10 U	NA	5 J	NA	NA	2 J	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U1	<10 U	NA	NA
9225X637	IR05MW85A	06/18/1992	0	A	<10 U	<50 U	<10 U	<50 U	36	<10 U	NA	4 J	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
0525G030	IR05MW85A	06/22/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	10	NA	<10 U
0525G031	IR05MW85A	06/22/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	10	NA	<10 U
9230J194	IR05MW85A	07/24/1992	0	A	<10 U	<50 UJ7	<10 U	<50 U	30	<10 U	NA	4 J	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9230J195	IR05MW85A	07/24/1992	0	A	<10 U	<50 UJ7	<10 U	<50 U	33	<10 U	NA	5 J	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	NA	NA
0232E002	IR05MW85A	08/06/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0734H075	IR05MW85A	08/23/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0636E006	IR05MW85A	09/08/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0237G015	IR05MW85A	09/13/2002	0	A	<9.6 UJ3	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0438C044	IR05MW85A	09/14/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0538T033	IR05MW85A	09/23/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0740W015	IR05MW85A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0449C035	IR05MW85A	12/01/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649B026	IR05MW85A	12/05/2006	0	A	NA	NA	<10 UJ	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9405N295	IR08MW37A	02/01/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9405N296	IR08MW37A	02/01/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9419X278	IR08MW37A	05/10/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 U	NA
9028H279	IR08MW37A	07/11/1990	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9028H280	IR08MW37A	07/11/1990	0	A	<10 UJ3	<50 UJ3	<10 UR2	<50 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 UR2	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA
9434M578	IR08MW37A	08/26/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9344X052	IR08MW37A	11/05/1993	0	A	<10 U	<26 U	<10 U	<26 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9405N298	IR08MW38A	02/01/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<7 U2	<10 U	<10 U	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9419X277	IR08MW38A	05/10/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U1	<10 U	<10 U	NA
9028H273	IR08MW38A	07/10/1990	0	A	<10 U	<50 U	<10 UR2	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 UR2	<10 U	<10 U	<10 U	<6.8 U4	<10 U	NA	NA
9434M579	IR08MW38A	08/26/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9344X050	IR08MW38A	11/05/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<11 U4	<10 U	<10 U	NA
9344X051	IR08MW38A	11/05/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<19 U4	<10 U	<10 U	NA
9028H274	IR08MW39A	07/10/1990	0	A	<10 UJ0	<50 UJ0	<10 UR2	<50 UJ0	<10 UJ0	<10 UJ0	NA	<10 UJ0	NA	NA	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ07	<10 UJ0	<50 UJ0	<10 UR2	<10 UJ0	<10 UJ0	<10 UJ0	<6.4 U4	<10 UJ0	NA	NA
9435E158	IR08MW39A	09/01/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9406X183	IR08MW40A	02/07/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<7 U2	<10 U	<10 U	NA
9419X287	IR08MW40A	05/11/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 UJ7	NA
9028H276	IR08MW40A	07/10/1990	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9028H277	IR08MW40A	07/10/1990	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9435E160	IR08MW40A	09/01/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<5 U1	<10 U	<10 U	NA
9345X055	IR08MW40A	11/08/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<15 U4	<10 U	<10 U	NA
9345X056	IR08MW40A	11/08/1993	0	A	<10 U	<25 U	<10 U	20	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<11 U4	<10 U	<10 U	NA
9406X181	IR08MW41A	02/07/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<12 U2	<10 U	<10 U	NA
9406X182	IR08MW41A	02/07/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<6 U2	<10 U	<10 U	NA
9419X286	IR08MW41A	05/11/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 U	NA
9028H281	IR08MW41A	07/11/1990	0	A	<10 UJ3	<50 UJ3	<10 UR2	<50 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 UR2	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA
9435E159	IR08MW41A	09/01/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<5 U1	<10 U	<10 U	NA
9344X053	IR08MW41A	11/05/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9406X185	IR08MW42A	02/07/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U2J7	<10 U	<10 U	NA
9419X275	IR08MW42A	05/10/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<6 U1	<10 U	<10 U	NA
9419X276	IR08MW42A	05/10/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<12 U1	<10 U	<10 U	NA
9434M577	IR08MW42A	08/26/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9344X045	IR08MW42A	11/04/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<15 U1	<10 U	<10 U	NA
9344X046	IR08MW42A	11/04/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9606W066	IR08MW43A	02/05/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9610J913	IR08MW43A	03/07/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9440X501	IR08MW43A	10/03/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<21 U1	<10 U	<10 U	NA
9440X502	IR08MW43A	10/03/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U1	<10 U	<10 U	NA
9606W064	IR08MW44A	02/05/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9606W065	IR08MW44A	02/05/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9610J914	IR08MW44A	03/07/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9440X504	IR08MW44A	10/04/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<13 U1	<10 U	<10 U	NA
9440X505	IR08MW44A	10/04/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 U	NA
8914W25	IR11MW25A	03/10/1989	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U1	<10 U	NA	NA
9035G315	IR11MW25A	08/30/1990	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U4	<10 U	NA	NA
9148X298	IR11MW25A	11/25/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9034G301	IR11MW26A	08/21/1990	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X756	IR11MW26A	09/15/1992	0	A	<11 U	<28 U	<11 U	<28 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 UJ7	<11 UJ7	<11 U	NA
9148X297	IR11MW26A	11/25/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
8914W27	IR11MW27A	03/10/1989	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9034G300	IR11MW27A	08/21/1990	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9238X755	IR11MW27A	09/15/1992	0	A	<10 U	<25 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9148X296	IR11MW27A	11/25/1991	0	A	<22 U	<110 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9148H929	IR11MW27A	11/26/1991	0	A	<40 U	<200 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9209X547	IR12MW11A	02/24/1992	0	A	<10 U	<50 U	<10 UR2	<50 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 UR2	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA
9612W185	IR12MW11A	03/22/1996	0	A	<10 U	<25 U	<10 U	<26 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9134X179	IR12MW11A	08/26/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X544	IR12MW12A	02/24/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9134X185	IR12MW12A	08/27/1991	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9239X782	IR12MW12A	09/21/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 U	NA
9239X783	IR12MW12A	09/21/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9209X545	IR12MW13A	02/24/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<11 U4	<10 U	<10 U	NA
9209X546	IR12MW13A	02/24/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<19 U4	<10 U	<10 U	NA
9134X180	IR12MW13A	08/26/1991	0	A	<10 U	<50 U	<10 UR2	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 UR2	<10 U	<10 U	<10 U	<6.8 U4	<10 U	NA	NA
9239X787	IR12MW13A	09/22/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<7 U2	<10 U	<10 U	NA
9239X788	IR12MW13A	09/22/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U1	<10 U	<10 U	NA
9209X552	IR12MW14A	02/25/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9134X181	IR12MW14A	08/26/1991	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9134X182	IR12MW14A	08/26/1991	0	A	<10 U	<50 U	<10 UR2	<50 UJ0	<10 UJ0	<10 UJ0	NA	<10 UJ0	NA	NA	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ07	<10 UJ0	<50 UJ0	<10 UR2	<10 UJ0	<10 UJ0	<10 UJ0	<6.4 U4	<10 UJ0	NA	NA
9239X789	IR12MW14A	09/22/1992	0	A	<10 U	<25 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X553	IR12MW15A	02/25/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<15 U4	<10 U	<10 U	NA
0232E003	IR12MW15A	08/06/2002	0	A	<9.6 U	<24 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<7 U2	<10 U	<10 U	NA
9134X186	IR12MW15A	08/27/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0238A003	IR12MW15A	09/16/2002	0	A	<9.6 U	<24 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 UJ7	NA
0238A004	IR12MW15A	09/16/2002	0	A	<9.6 U	<24 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<5 U1	<10 U	<10 U	NA
9238X778	IR12MW15A	09/18/1992	0	A	<10 U	<25 U	<10 U	20	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<11 U4	<10 U	<10 U	NA
9209X555	IR12MW16A	02/25/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<12 U2	<10 U	<10 U	NA
9134X188	IR12MW16A	08/27/1991	0	A	<10 U	<50 U	<10 UR2	<50 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 UJ3	<10 UR2	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA
9134X189	IR12MW16A	08/27/1991	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9239X797	IR12MW16A	09/24/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<6 U2	<10 U	<10 U	NA
0509R005	IR12MW17A	03/02/2005	0	A	NA	NA	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9612W186	IR12MW17A	03/22/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
0424M013	IR12MW17A	06/10/2004	0	A	NA	NA	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U2J7	<10 U	<10 U	NA
0525T026	IR12MW17A	06/21/2005	0	A	NA	NA	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<21 U1	<10 U	<10 U	NA
9234X690	IR12MW17A	08/19/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 U	NA
9234X691	IR12MW17A	08/19/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<5 U1	<10 U	<10 U	NA
0437P031	IR12MW17A	09/10/2004	0	A	NA	NA	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<6 U1	<10 U	<10 U	NA
9239X795	IR12MW17A	09/24/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<15 U1	<10 U	<10 U	NA
0447C009	IR12MW17A	11/17/2004	0	A	NA	NA	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<12 U1	<10 U	<10 U	NA
9613W189	IR12MW18A	03/25/1996	0	A	<10 U	<25 UJ1	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<13 U1	<10 U	<10 U	NA
9613W190	IR12MW18A	03/25/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 U	NA
9234X692	IR12MW18A	08/19/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U1	<10 U	<10 U	NA
9239X793	IR12MW18A	09/24/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9239X794	IR12MW18A	09/24/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9613W191	IR12MW19A	03/25/1996	0	A	<10 U	<25 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U1	<10 U	NA	NA
9234X693	IR12MW19A	08/19/1992	0	A	<10 U	<50 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9239X800	IR12MW19A	09/25/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9239X801	IR12MW19A	09/25/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9613J971	IR12MW20A	03/25/1996	0	A	<10 U	<25 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9234X694	IR12MW20A	08/19/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U4	<10 U	NA	NA
9239X799	IR12MW20A	09/25/1992	0	A	<10 U	<25 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9614Z022	IR12MW21A	04/02/1996	0	A	<10 U	<25 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9618J076	IR12MW21A	05/02/1996	0	A	<10 U	<25 U	<11 U	<28 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 UJ7	<11 UJ7	<11 U	NA
9234X695	IR12MW21A	08/19/1992	0	A	<75 U	<380 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9239A459	IR12MW21A	09/23/1992	0	A	<1000 U	<2500 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X550	IR13MW10A	02/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X551	IR13MW10A	02/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9134X193	IR13MW10A	08/28/1991	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X777	IR13MW10A	09/18/1992	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9209X558	IR13MW11A	02/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9134X190	IR13MW11A	08/28/1991	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	NA	NA
9238X768	IR13MW11A	09/17/1992	0	A	<200 UR2	<500 UR2	<200 U	<500 UJ7	<200 UR2	<200 UR2	NA	<200 UR2	NA	NA	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	NA	NA	<200 UR2	<200 UR2	<200 UR2	<1375.96 U4J3	<200 UR2	<200 U	NA
9238X769	IR13MW11A	09/17/1992	0	A	<10 UJ3	<25 UJ3	<10 U	<25 U	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 U	NA
9209X557	IR13MW12A	02/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9134X191	IR13MW12A	08/28/1991	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9134X192	IR13MW12A	08/28/1991	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X775	IR13MW12A	09/18/1992	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9238X776	IR13MW12A	09/18/1992	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<22.18 U4	<10 U	<10 U	NA
9209X559	IR14MW09A	02/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X560	IR14MW09A	02/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X754	IR14MW09A	09/15/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	NA
9148X304	IR14MW09A	11/27/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9148X305	IR14MW09A	11/27/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X562	IR14MW10A	02/26/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0109T018	IR14MW10A	03/08/2001	0	A	<1 UJ3	<3 U	<1 U	<3 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0229D002	IR14MW10A	07/15/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 UJ3	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
9238X752	IR14MW10A	09/15/1992	0	A	<11 U	<28 U	<11 U	<28 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 UJ7	<11 UJ7	<11 U	NA
9238X753	IR14MW10A	09/15/1992	0	A	<11 UJ3	<28 UJ3	<11 UR2	<28 UR2	<11 UJ3	<11 UJ3	NA	<11 UJ3	NA	NA	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	NA	NA	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ37	<11 UJ37	<11 U	NA
0238E013	IR14MW10A	09/18/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9147X285	IR14MW10A	11/22/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9147X286	IR14MW10A	11/22/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<8 U4	<10 U	NA	NA
9209X561	IR14MW12A	02/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9147X272	IR14MW12A	11/20/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9614Z021	IR14MW13A	04/02/1996	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9619J102	IR14MW13A	05/09/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 UJ7	<4 U	<10 U	<10 UJ7	NA
9234X696	IR14MW13A	08/19/1992	0	A	<25 U	<120 U	<25 U	<120 U	13 J	<25 U	NA	8 J	NA	NA	<25 U	<25 U	<25 U	<25 U	<25 U	<120 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	NA	NA
9239A457	IR14MW13A	09/23/1992	0	A	<1000 U	<2500 U	<1000 U	<2500 UJ7	<1000 U	<1000 U	NA	<1000 U	NA	NA	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	NA	NA	<1000 U	<1000 U	<1000 U	<1000 U	<1000 UJ7	<1000 U	NA
9239A458	IR14MW13A	09/23/1992	0	A	<1000 U	<2500 U	<1000 U	<2500 UJ7	<1000 U	<1000 U	NA	<1000 U	NA	NA	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	NA	NA	<1000 U	<1000 U	<1000 U	<1000 U	<1000 UJ7	<1000 U	NA
9209X564	IR15MW06A	02/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	<12 U	<29 U	<12 U	<29 U	<12 U	<12 U	NA	<12 U	NA	NA	<12 U	<12 U	<12 U	<12 U	<12 U	NA	NA	<12 U	<12 U	<12 U	<12 UJ7	<12 UJ7	<12 U	NA
9238X750	IR15MW06A	09/14/1992	0	A	<11 U	<28 U	<11 U	<28 U	<11 U	<11 U	NA	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 U	<11 U	NA	NA	<11 U	<11 U	<11 U	<11 UJ7	<11 UJ7	<11 U	NA
9147X276	IR15MW06A	11/20/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X565	IR15MW07A	02/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X566	IR15MW07A	02/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9147X273	IR15MW07A	11/20/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9147X274	IR15MW07A	11/20/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0109P005	IR15MW08A	03/08/2001	0	A	<1 UJ3	<3 U	<1 U	<3 U	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
9613W201	IR15MW08A	03/28/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<10 UR0	<10 UR0	<10 UR0	<10 UR0	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9613W202	IR15MW08A	03/28/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
0231E012	IR15MW08A	08/01/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
9233X675	IR15MW08A	08/13/1992	0	A	<25 U	<120 U	<25 U	<120 U	12 J	<25 U	NA	8 J	NA	NA	<25 U	<25 U	<25 U	<25 U	<25 U	<120 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	NA	NA
9233X676	IR15MW08A	08/13/1992	0	A	<10 U	<50 U	<10 U	<50 U	5 J	<10 U	NA	3 J	NA	NA	3 J	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0237J019	IR15MW08A	09/12/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	NA
0237J020	IR15MW08A	09/12/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	NA
9239X792	IR15MW08A	09/24/1992	0	A	<100 U	<250 U	<100 U	<250 UJ7	<100 U	<100 U	NA	<100 U	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 UJ7	<100 U	NA
9613W195	IR15MW09F	03/27/1996	0	F	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9233X679	IR15MW09F	08/14/1992	0	F	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	110	<10 U	NA	NA
9239X785	IR15MW09F	09/22/1992	0	F	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ7	<10 U	NA	NA	<10 U	<10 U	<10 U	<3.27 U4	<10 U	<10 U	NA
9613W198	IR15MW10F	03/27/1996	0	F	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9233X678	IR15MW10F	08/14/1992	0	F	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<11 U1	<10 U	NA	NA
9239X786	IR15MW10F	09/22/1992	0	F	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 UJ7	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9603J803	IR17MW11A	01/16/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9209X570	IR17MW11A	02/28/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9134X199	IR17MW11A	08/29/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X760	IR17MW11A	09/16/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9238X761	IR17MW11A	09/16/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<24.5 U4	<10 U	<10 U	NA
9209X568	IR17MW12A	02/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9134X198	IR17MW12A	08/29/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X770	IR17MW12A	09/17/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9209X571	IR17MW13A	02/28/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9209X572	IR17MW13A	02/28/1992	0	A	<10 UR2	<50 UR2	<10 UR2	<50 UR2	<10 UR2	<10 UR2	NA	<10 UR2	NA	NA	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<50 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	NA	NA
9134X196	IR17MW13A	08/29/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9134X197	IR17MW13A	08/29/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9238X771	IR17MW13A	09/17/1992	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9604W039	IR36MW09A	01/25/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J932	IR36MW09A	03/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9428E065	IR36MW09A	07/13/1994	0	A	<10 U	<25 UJ7	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<20 U1	<10 U	<10 UJ7	NA
9603W012	IR36MW11A	01/18/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U1	<10 U	<10 U	NA
9608J883	IR36MW11A	02/21/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9437X471	IR36MW11A	09/12/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<2 U1	<10 U	<10 UJ7	NA
9437X472	IR36MW11A	09/12/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<2 U1	<10 U	<10 UJ7	NA
9611J923	IR36MW120B	03/13/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9617J043	IR36MW120B	04/23/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9623J174	IR36MW120B	06/04/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J924	IR36MW121A	03/13/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9617J044	IR36MW121A	04/24/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9623J175	IR36MW121A	06/04/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9623J176	IR36MW121A	06/04/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611W157	IR36MW122A	03/13/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9617J055	IR36MW122A	04/25/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9623J172	IR36MW122A	06/03/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611W156	IR36MW123B	03/13/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9618J065	IR36MW123B	04/30/1996	0	B	<10 U	<25 UJ7	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 UJ7	NA
9623J171	IR36MW123B	06/03/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W034	IR36MW125A	01/25/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611W165	IR36MW125A	03/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9618J061	IR36MW125A	04/29/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W027	IR36MW126A	01/24/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J931	IR36MW126A	03/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9618J066	IR36MW126A	04/30/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W037	IR36MW127A	01/25/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J930	IR36MW127A	03/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9618J062	IR36MW127A	04/29/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W029	IR36MW128A	01/24/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J929	IR36MW128A	03/14/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9617J037	IR36MW128A	04/22/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J927	IR36MW129B	03/14/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J928	IR36MW129B	03/14/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9617J041	IR36MW129B	04/23/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9617J042	IR36MW129B	04/23/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9622J168	IR36MW129B	05/31/1996	0	B	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0602V035	IR36MW12A	01/11/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0602V036	IR36MW12A	01/11/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9603W013	IR36MW12A	01/19/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9608J889	IR36MW12A	02/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0709W023	IR36MW12A	02/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809E034	IR36MW12A	02/29/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0511R040	IR36MW12A	03/14/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<50 U	<20 UJ3	<10 UJ3	<10 UJ3	NA	<5 UJ3	<10 UJ3	NA	<10 UJ3
0817E041	IR36MW12A	04/22/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0720B004	IR36MW12A	05/17/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0623S017	IR36MW12A	06/05/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0623S018	IR36MW12A	06/05/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425C033	IR36MW12A	06/15/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0526T040	IR36MW12A	06/27/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0526T041	IR36MW12A	06/27/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0734D045	IR36MW12A	08/23/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0437P034	IR36MW12A	09/10/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9437X473	IR36MW12A	09/12/1994	0	A	<10 U	<25 U	<10 U	<25 U	3 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<6 U1	<10 U	<10 U	NA
0539A046	IR36MW12A	09/26/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0539A047	IR36MW12A	09/26/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0740H021	IR36MW12A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0447R007	IR36MW12A	11/17/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649H018	IR36MW12A	12/05/2006	0	A	NA	NA	<10 UJ	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9602J783	IR36MW135A	01/09/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9607J865	IR36MW135A	02/12/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611W164	IR36MW135A	03/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604Z011	IR36MW139A	01/22/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9608J888	IR36MW139A	02/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9613W199	IR36MW139A	03/28/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9603W011	IR36MW13A	01/18/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 UJ1	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 UJ1	NA
9608J886	IR36MW13A	02/22/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9444X560	IR36MW13A	11/03/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<11 U1	<10 U	<10 U	NA
9444X561	IR36MW13A	11/03/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9603W010	IR36MW14A	01/18/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U1	<10 U	<10 U	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
9608W116	IR36MW14A	02/22/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9443X538	IR36MW14A	10/25/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ7	<10 UJ7	<10 U	NA
9443X539	IR36MW14A	10/25/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<3 U4J7	<10 U	<10 U	NA
9605W060	IR36MW15A	02/01/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<5 U4	<10 U	<10 U	NA
9610J903	IR36MW15A	03/04/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9438X484	IR36MW15A	09/20/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<5 U4	<10 U	<10 U	NA
9438X485	IR36MW15A	09/20/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U4	<10 U	<10 U	NA
9605W054	IR36MW16A	01/31/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9610J906	IR36MW16A	03/05/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9610J907	IR36MW16A	03/05/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9439X498	IR36MW16A	09/27/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9439X499	IR36MW16A	09/27/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9603W016	IR36MW17A	01/19/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9603W017	IR36MW17A	01/19/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9608J887	IR36MW17A	02/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9442X532	IR36MW17A	10/18/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9442X533	IR36MW17A	10/18/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604Z012	IR38MW01A	01/22/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9608J885	IR38MW01A	02/22/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9441X521	IR38MW01A	10/12/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9441X522	IR38MW01A	10/12/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W021	IR38MW02A	01/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W022	IR38MW02A	01/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9608W121	IR38MW02A	02/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9443X535	IR38MW02A	10/24/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ7	<10 UJ7	<10 U	NA
9443X536	IR38MW02A	10/24/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ7	<10 UJ7	<10 U	NA
9604W025	IR39MW21A	01/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	3 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9609J886	IR39MW21A	02/26/1996	0	A	<50 U	<120 U	<50 U	<120 U	<50 U	<50 U	NA	<50 U	NA	NA	<50 U	<50 U	<50 U	<50 U	<50 U	NA	NA	<50 U	<50 U	<50 U	<20 U	<50 U	<50 U	NA
0109T024	IR39MW21A	03/09/2001	0	A	<1 UJ3	<2 U	<1 U	<2 U	0.6 J	<1 UJ3	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA
0425C036	IR39MW21A	06/16/2004	0	A	NA	NA	<10 U	<50 U	3.7 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9425E029	IR39MW21A	06/22/1994	0	A	<83 U	<210 U	<83 U	<210 U	<83 U	<83 U	NA	<83 U	NA	NA	<83 U	<83 U	<83 U	<83 U	<83 U	NA	NA	<83 U	<83 U	<83 U	<13 U1	<83 U	<83 U	NA
0227P007	IR39MW21A	07/02/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	3 J	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0227P008	IR39MW21A	07/02/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	2.7 J	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0237S003	IR39MW21A	09/09/2002	0	A	<9.8 U	<25 U	<9.8 U	<25 U	2.1 J	<9.8 U	NA	<9.8 U	NA	NA	<9.8 U	<9.8 U	<9.8 U	0.9 J	<9.8 U	<49 U	NA	<9.8 U	<9.8 U	<9.8 UJ3	<4.9 U	<9.8 U	<9.8 U	NA
0449C027	IR39MW21A	11/29/2004	0	A	NA	NA	<10 U	<50 U	3.2 J	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
9605W045	IR39MW22A	01/29/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9609J897	IR39MW22A	02/29/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9437X480	IR39MW22A	09/14/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9437X481	IR39MW22A	09/14/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 UR2	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0602V030	IR39MW23A	01/09/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9604W040	IR39MW23A	01/26/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W041	IR39MW23A	01/26/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9609J884	IR39MW23A	02/26/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<7 U4	<10 U	<10 U	NA
0709Z026	IR39MW23A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809E032	IR39MW23A	02/29/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E033	IR39MW23A	02/29/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0511S041	IR39MW23A	03/15/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0816N008	IR39MW23A	04/17/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0720A057	IR39MW23A	05/18/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0623S020	IR39MW23A	06/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0623S021	IR39MW23A	06/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425G038	IR39MW23A	06/17/2004	0	A	NA	NA	<10 U	<50 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0425G039	IR39MW23A	06/17/2004	0	A	NA	NA	<10 U	<50 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0525T037	IR39MW23A	06/24/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734W057	IR39MW23A	08/24/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0636D039	IR39MW23A	09/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0636D040	IR39MW23A	09/06/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9437K156	IR39MW23A	09/15/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9437K157	IR39MW23A	09/15/1994	0	A	<10 UJ5	<25 UJ5	<10 U	<25 U	<10 UJ5	<10 UJ5	NA	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5	<10 UJ5	<5 U1J3	<10 UJ5	<10 UJ5	NA
0438T015	IR39MW23A	09/16/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0538A044	IR39MW23A	09/23/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0740H022	IR39MW23A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740H023	IR39MW23A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0448C022	IR39MW23A	11/23/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649H017	IR39MW23A	12/05/2006	0	A	NA	NA	<10 UJ	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9604W042	IR39MW24A	01/26/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9609J885	IR39MW24A	02/26/1996	0	A	<50 U	<120 U	<50 U	<120 U	<50 U	<50 U	NA	<50 U	NA	NA	<50 U	<50 U	<50 U	<50 U	<50 U	NA	NA	<50 U	<50 U	<50 U	<20 U	<50 U	<50 U	NA
9438X490	IR39MW24A	09/21/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	41	<6 U1	<10 U	<10 U	NA
9438X491	IR39MW24A	09/21/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9604W024	IR39MW33A	01/23/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9609W123	IR39MW33A	02/26/1996	0	A	<50 U	<120 U	<50 U	<120 U	<50 U	<50 U	NA	<50 U	NA	NA	<50 U	<50 U	<50 U	<50 U	<50 U	NA	NA	<50 U	<50 U	<50 U	<20 U	<50 U	<50 U	NA
9613W204	IR39MW33A	03/29/1996	0	A	<100 U	<250 U	<100 U	<250 U	<100 U	<100 U	NA	<100 U	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<100 U	<100 U	<100 U	<40 U	<100 U	<100 U	NA
9602J790	IR39MW35A	01/10/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9607W096	IR39MW35A	02/14/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9607W097	IR39MW35A	02/14/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9612J934	IR39MW35A	03/18/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9602J787	IR39MW36A	01/10/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9602J789	IR39MW36A	01/10/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9607W098	IR39MW36A	02/14/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9612J935	IR39MW36A	03/18/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0602T030	IR56MW39A	01/09/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0708H027	IR56MW39A	02/20/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0809P006	IR56MW39A	02/26/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9610W136	IR56MW39A	03/04/1996	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<7 U4	<10 U	<10 U	NA
0511G046	IR56MW39A	03/15/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	50	<20 UJ3	<10 UJ3	<10 UJ3	NA	<5 UJ3	<10 UJ3	NA	<10 UJ3
0612H050	IR56MW39A	03/23/2006	0	A	NA	NA	<10 UJ	<50 UJ	<10 UJ	<10 UJ	NA	<10 UJ	NA	NA	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<50 UJ	<20 UJ	<10 UJ	<10 UJ	NA	<5 UJ	<10 UJ	NA	<10 UJ
0612H051	IR56MW39A	03/23/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0817D043	IR56MW39A	04/23/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0718A005	IR56MW39A	05/02/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9620J120	IR56MW39A	05/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 UJ7	<4 U	<10 U	<10 U	NA
0623S025	IR56MW39A	06/07/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0623S026	IR56MW39A	06/07/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0425X005	IR56MW39A	06/16/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0526D036	IR56MW39A	06/28/2005	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0735H082	IR56MW39A	08/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0438B046	IR56MW39A	09/14/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0539T037	IR56MW39A	09/26/2005	0	A	NA	NA	<10 U	<50 U	<10 UJ	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0740W016	IR56MW39A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9444X557	IR56MW39A	11/02/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 UJ0	<10 UJ0	<10 U	NA
9444X558	IR56MW39A	11/02/1994	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<2 U1J0	<10 UJ0	<10 U	NA
0448C021	IR56MW39A	11/23/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA
0649W035	IR56MW39A	12/07/2006	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 UJ	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
9610J905	IR72MW32A	03/05/1996	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0110P027	IR72MW32A	03/16/2001	0	A	<1 U	<2 U	<1 U	<2 UJ7	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA
9620J119	IR72MW32A	05/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 UJ7	<4 U	<10 U	<10 U	NA
0229P003	IR72MW32A	07/15/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 UJ3	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
0238G004	IR72MW32A	09/18/2002	0	A	<9.6 U	<24 U	<9.6 UJ3	<24 UJ3	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U1	<9.6 U	<9.6 U	NA
0238G005	IR72MW32A	09/18/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9547W195	IR72MW32A	11/21/1995	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9610W138	IR72MW33A	03/05/1996	0	A	<10 U	<25 U	<10 U	<25 UJ7	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9620J118	IR72MW33A	05/15/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 UJ7	<4 U	<10 U	<10 U	NA
9547W197	IR72MW33A	11/22/1995	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<6 U1	<10 U	<10 U	NA
9547W198	IR72MW33A	11/22/1995	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9305J230	PA36MW01A	02/04/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9606W074	PA36MW01A	02/07/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611W148	PA36MW01A	03/11/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9305J232	PA36MW02A	02/04/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<5 U1	<10 U	<10 U	NA
9606W075	PA36MW02A	02/07/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611W149	PA36MW02A	03/11/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9606W076	PA36MW03A	02/07/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9306J248	PA36MW03A	02/11/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<8 U4	<10 U	<10 U	NA
9306J249	PA36MW03A	02/11/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9611J920	PA36MW03A	03/11/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9305J234	PA36MW04A	02/05/1993	0	A	<10 U	<26 U	<10 U	<26 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9606W077	PA36MW04A	02/07/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<50 U	<50 U	<50 U	<50 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9611J919	PA36MW04A	03/11/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9606W082	PA36MW05A	02/08/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9306J244	PA36MW05A	02/10/1993	0	A	<11 UJ5	<26 UJ5	<11 UJ5	<26 UJ5	<11 UJ5	<11 UJ5	NA	<11 UJ5	NA	NA	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	NA	<11 UJ5	<11 UJ5	<11 UJ5	<3 U4J5	<11 UJ5	<11 UJ5	NA
9306J245	PA36MW05A	02/10/1993	0	A	<10 U	<26 U	<10 U	<26 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9611J918	PA36MW05A	03/11/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9306J252	PA36MW06A	02/11/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<8 U4	<10 U	<10 U	NA
9607W099	PA36MW06A	02/16/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9612W172	PA36MW06A	03/19/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9606W079	PA36MW07A	02/08/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9308J309	PA36MW07A	02/23/1993	0	A	<10 U	<26 U	<10 U	<26 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<2 U4	<10 U	<10 U	NA
9611J922	PA36MW07A	03/12/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9606W080	PA36MW08A	02/08/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 UJ15	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 UJ15	NA
9606W081	PA36MW08A	02/08/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9307A590	PA36MW08A	02/16/1993	0	A	<100 U	<250 U	<100 U	<250 U	<100 U	<100 U	NA	<100 U	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	NA
9307A591	PA36MW08A	02/16/1993	0	A	<100 U	<250 U	<100 U	<250 U	<100 U	<100 U	NA	<100 U	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	NA
0109P008	PA36MW08A	03/08/2001	0	A	<1 UJ3	<2 U	<1 U	<2 U	<1 U	<1 U	NA	<1 UJ1	NA	NA	<1 UJ1	<1 UJ1	<1 UJ1	<1 UJ1	<1 UJ1	NA	NA	<1 U	<1 U	<1 U	<1 U41	<1 UJ1	<1 UJ1	NA
9611W151	PA36MW08A	03/12/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 UJ1	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 UJ1	NA
9611W152	PA36MW08A	03/12/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0425H029	PA36MW08A	06/16/2004	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0234A012	PA36MW08A	08/21/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0234A013	PA36MW08A	08/21/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0237S002	PA36MW08A	09/09/2002	0	A	<9.7 U	<25 U	<9.7 U	<25 U	1.5 J	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	0.86 J	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	NA
9606W084	PA39MW01A	02/09/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9307A611	PA39MW01A	02/18/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9307A612	PA39MW01A	02/18/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA
9611W159	PA39MW01A	03/14/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9606J860	PA39MW02A	02/09/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9307D024	PA39MW02A	02/19/1993	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<22.65 U4	<10 U	<10 U	NA
9307D025	PA39MW02A	02/19/1993	0	A	<10 UJ3	<25 UJ3	<10 U	<25 U	<10 UJ3	<10 UJ3	NA	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	NA	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA
9611W158	PA39MW02A	03/14/1996	0	A	<10 U	<25 U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
0709W026	IR02MW126A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0720J051	IR02MW126A	05/14/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0732J005	IR02MW126A	08/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740W013	IR02MW126A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0808E010	IR02MW126A	02/21/2008	0	A	NA	NA	<10 U	<50 U	4.8J	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817H036	IR02MW126A	04/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
9228J167	IR02MW147A	07/10/1992	0	A	<10	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9235X719	IR02MW147A	08/25/1992	0	A	<10	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<5 U4	<10 U	NA	NA
0110T023	IR02MW147A	03/16/2001	0	A	<1 U	<2 U	<1 U	<2 UJ7	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0229A009	IR02MW147A	07/17/2002	0	A	<9.6 U	<24U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 UJ3	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0239E009	IR02MW147A	09/25/2002	0	A	<9.8 U	<25U	<9.8 U	<25 U	<9.8 U	<9.8 U	NA	<9.8 U	NA	NA	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<49 UJ37	NA	<9.8 U	<9.8 U	<9.8 U	<4.9 U	<9.8 U	<9.8 U	NA
9112X067	IR02MW149A	03/21/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9202N019	IR02MW149A	01/10/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<3 U4	<10 U	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	<10 UJ5	<50 UJ5	<10 UJ5	<50 UJ5	3 J5	<10 UJ5	NA	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	<10 UJ5	<50 UJ6	<10 UJ5	<50 UJ5	3 J5	<10 UJ5	NA	<10 UJ5	NA	NA	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	<10 U	<25U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<100 UJ0	<100 UJ0	<100 UJ0	<100 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9622J166	IR02MW173A	05/30/1996	0	A	<10 U	<25U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<100 U	<100 U	<100 U	<100 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9203A089	IR02MW175A	01/14/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<7 U1	<10 U	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<11 U1	<10 U	NA	NA
9235J230	IR02MW175A	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
0110P002	IR02MW175A	03/12/2001	0	A	<1 UJ3	<3 U	<1 U	<3 UJ7	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0229P014	IR02MW175A	07/18/2002	0	A	<9.6 U	<24U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0239G002	IR02MW175A	09/23/2002	0	A	<9.6 U	<24U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9203A086	IR02MW179A	01/14/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J231	IR02MW179A	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U1	<10 U	NA	NA
0110P004	IR02MW179A	03/12/2001	0	A	<1 U	<2 U	<1 U	<2 UJ7	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA
0229D010	IR02MW179A	07/17/2002	0	A	<9.8 U	<25U	<9.8 U	<25 U	<9.8 U	<9.8 U	NA	<9.8 U	NA	NA	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<49 UJ3	NA	<9.8 U	<9.8 U	<9.8 U	<4.9 U	<9.8 U	<9.8 U	NA
0229D011	IR02MW179A	07/17/2002	0	A	<9.6 U	<24U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 UJ3	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0238J020	IR02MW179A	09/20/2002	0	A	<9.6 U	<24 U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
9203A087	IR02MW183A	01/14/1992	0	A	<10 U	<50 U	<10 U	21 J	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9235J234	IR02MW183A	08/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0110T024	IR02MW183A	03/16/2001	0	A	<1 U	<2 U	<1 U	<2 UJ7	<1 U	<1 U	NA	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	NA

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0227E003	IR02MW183A	07/01/2002	0	A	<9.7 U	<25U	<9.7 U	<25 U	<9.7 U	<9.7 U	NA	<9.7 U	NA	NA	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<49 U	NA	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	<9.7 U	NA
0227E004	IR02MW183A	07/01/2002	0	A	<9.6 U	<24U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	NA
0237G010	IR02MW183A	09/11/2002	0	A	<9.6 U	<24U	<9.6 U	<24 U	<9.6 U	<9.6 U	NA	<9.6 U	NA	NA	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<48 U	NA	<9.6 U	<9.6 U	<9.6 UJ37	<4.8 U	<9.6 U	<9.6 U	NA
9112X063	IR02MW196A	03/21/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3.6 U4	<10 U	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	<10 UJ1	<50 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	NA	NA	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ7	<10 U	<10 U	<10 U	<10 U	<2 U4	<10 U	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	<10 UJ1	<50 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	NA	NA	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	<10 U	<50 U	<10 UR2	<50 UR2	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<1 U4	<10 U	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	<10 UJ1	<52 UJ1	<10 UJ1	<52 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	NA	NA	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<52 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	<10 UJ1	<50 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	NA	NA	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9228J152	IR02MW298A	07/08/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<6 U1	<10 U	NA	NA
9235X728	IR02MW298A	08/27/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	NA	NA
9612W182	IR02MW298A	03/22/1996	0	A	<10 U	<25U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9228X661	IR02MW299A	07/06/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9235J238	IR02MW299A	08/26/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
9612J946	IR02MW299A	03/21/1996	0	A	<10 U	<25U	<10 U	<25 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA	<10 U	<10 U	<10 U	<4 U	<10 U	<10 U	NA
9228X660	IR02MW300A	07/06/1992	0	A	<10 U	<50 U	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	NA
0720J061	IR02MW301A	05/18/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0732D009	IR02MW301A	08/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740D007	IR02MW301A	10/02/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0808D007	IR02MW301A	02/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817G023	IR02MW301A	04/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709L012	IR03MW218A2	02/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0719G001	IR03MW218A2	05/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734D035	IR03MW218A2	08/21/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0741D035	IR03MW218A2	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0810D051	IR03MW218A2	03/04/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0823H060	IR03MW218A2	06/04/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709G047	IR03MW224A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0720W046	IR03MW224A	05/18/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734H057	IR03MW224A	08/20/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740D024	IR03MW224A	10/04/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E022	IR03MW224A	02/27/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817E029	IR03MW224A	04/21/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0708L005	IR03MW342A	02/22/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0720G016	IR03MW342A	05/15/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0735W059	IR03MW342A	08/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0741G024	IR03MW342A	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809D031	IR03MW342A	02/28/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817E034	IR03MW342A	04/22/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0817E035	IR03MW342A	04/22/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709G048	IR03MW373B	02/28/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0720A055	IR03MW373B	05/17/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0735W060	IR03MW373B	08/27/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740D023	IR03MW373B	10/04/2007	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E020	IR03MW373B	02/27/2008	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E021	IR03MW373B	02/27/2008	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817E028	IR03MW373B	04/21/2008	0	B	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0708G030	IR04MW13A	02/21/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0719W020	IR04MW13A	05/10/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734D031	IR04MW13A	08/20/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0741D034	IR04MW13A	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809H025	IR04MW13A	02/27/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0823H062	IR04MW13A	06/04/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0830H028	IR04MW13A	07/22/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0912N016	IR04MW13A	03/16/2009	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0916P013	IR04MW13A	04/16/2009	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0708G038	IR04MW36A	02/22/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0718J007	IR04MW36A	05/01/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734H071	IR04MW36A	08/23/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0741N003	IR04MW36A	10/08/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809D012	IR04MW36A	02/25/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0816H017	IR04MW36A	04/16/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0830H031	IR04MW36A	07/22/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0912W027	IR04MW36A	03/16/2009	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709N003	IR05MW85A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0718J013	IR05MW85A	05/02/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734H075	IR05MW85A	08/23/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740W015	IR05MW85A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809H026	IR05MW85A	02/27/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0816E025	IR05MW85A	04/16/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0816E026	IR05MW85A	04/16/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0839G034	IR12MW11A	09/23/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0912W037	IR12MW11A	03/17/2009	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0916P014	IR12MW11A	04/16/2009	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709W023	IR36MW12A	02/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0720B004	IR36MW12A	05/17/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734D045	IR36MW12A	08/23/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740H021	IR36MW12A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E034	IR36MW12A	02/29/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817E041	IR36MW12A	04/22/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0709Z026	IR39MW23A	02/28/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 UJ	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0720A057	IR39MW23A	05/18/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0734W057	IR39MW23A	08/24/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740H022	IR39MW23A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740H023	IR39MW23A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E032	IR39MW23A	02/29/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809E033	IR39MW23A	02/29/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4-Chloroaniline	4-Nitroaniline	4-Methylphenol	4-Nitrophenol	Acenaphthene	Acenaphthylene	Aniline	Anthracene	Azobenzene	Benzidine	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene
0816N008	IR39MW23A	04/17/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0708H027	IR56MW39A	02/20/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	NA	<5 U	<10 U	NA	<10 U
0718A005	IR56MW39A	05/02/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0735H082	IR56MW39A	08/27/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0740W016	IR56MW39A	10/03/2007	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0809P006	IR56MW39A	02/26/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U
0817D043	IR56MW39A	04/23/2008	0	A	NA	NA	<10 U	<50 U	<10 U	<10 U	NA	<10 U	NA	NA	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<20 U	<10 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U

Notes:

*	All concentrations in micrograms per liter
bgs	below ground surface
SVOCs	semivolatile organic compounds

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0229P002	IR01MW367A	07/15/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	0.59 J	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	8.7	<9.6 U
0238S008	IR01MW367A	09/18/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	0.34 J	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 UJ3	<9.7 U	<9.7 U	0.72 J	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	13	<9.7 U
9202A009	IR02MW101A1	01/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202A010	IR02MW101A1	01/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	3 J	<10 U	<10 U	<10 U
0112D002	IR02MW101A1	03/27/2001	0	A	<1 U	<1 U	<1 U4	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ37	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<3 U	<1 U	<1 U	<1 U
9228J155	IR02MW101A1	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0230E009	IR02MW101A1	07/25/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 UJ3	<4.8 U	<4.8 UJ3	<9.6 U
9235J219	IR02MW101A1	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0237G011	IR02MW101A1	09/11/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
9202A012	IR02MW101A2	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9228J159	IR02MW101A2	07/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J224	IR02MW101A2	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U4	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9203X422	IR02MW114A1	01/16/1992	0	A	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	<16 U	NA	<16 U	<16 U	<82 U	<16 U	<16 U	<16 U
9228J146	IR02MW114A1	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J225	IR02MW114A1	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9203A026	IR02MW114A2	01/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U
9228J166	IR02MW114A2	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J226	IR02MW114A2	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9203A084	IR02MW114A3	01/14/1992	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	<50 UR2	<10 UJ3	<10 UR2	<10 UJ3
9228J153	IR02MW114A3	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J232	IR02MW114A3	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9202A002	IR02MW126A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	9 J	<10 U	NA	<10 U	<10 U	<50 U	<10 U	4 J	3 J
0602T033	IR02MW126A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	22	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0808E010	IR02MW126A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0709W026	IR02MW126A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0511G050	IR02MW126A	03/17/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	9.7	<10 U
0611J035	IR02MW126A	03/17/2006	0	A	<10 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817H036	IR02MW126A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720J051	IR02MW126A	05/14/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623D040	IR02MW126A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0424M014	IR02MW126A	06/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	6.4 J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	6.7	<10 U
0526G049	IR02MW126A	06/29/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	8.9 J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9228J157	IR02MW126A	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	2 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9228J158	IR02MW126A	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0732J005	IR02MW126A	08/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9235X717	IR02MW126A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	12	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0437P033	IR02MW126A	09/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	2.4 J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0538A043	IR02MW126A	09/23/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	20	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	7.9	<10 U
0740W013	IR02MW126A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0447C010	IR02MW126A	11/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0649G043	IR02MW126A	12/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9205X468	IR02MW127B	01/28/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0511G048	IR02MW127B	03/15/2005	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425G031	IR02MW127B	06/15/2004	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9230J175	IR02MW127B	07/21/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J233	IR02MW127B	08/26/1992	0	B	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5
0437P021	IR02MW127B	09/07/2004	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0447R010	IR02MW127B	11/19/2004	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0110P015	IR02MW141A	03/14/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 UJ3	<1 U	NA	<1 UJ3	<1 U	<3 UJ7	<1 U	<1 UJ3	<1 U
9218Z059	IR02MW141A	05/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9218Z060	IR02MW141A	05/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9230J177	IR02MW141A	07/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9230J178	IR02MW141A	07/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0231E002	IR02MW141A	07/29/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
9235X715	IR02MW141A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X716	IR02MW141A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0239J001	IR02MW141A	09/23/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 UJ7	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U	<9.7 U
9205X478	IR02MW146A	01/30/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	40	<10 U	NA	<10 U	<10 U	<50 U	4 J	<10 U	<10 U
9205X479	IR02MW146A	01/30/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	33	<10 U	NA	<10 U	<10 U	<50 U	2 J	<10 U	<10 U
9613W194	IR02MW146A	03/26/1996	0	A	<100 UJ0	<10 U	<10 U	<10 U	<10 U	<100 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 UJ0	<10 U	12	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9622J162	IR02MW146A	05/29/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	18 J3	<10 U	NA	<10 U	<10 U	<25 U	2 J3	<10 U	<10 U
9622J163	IR02MW146A	05/29/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	16 J3	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9203X415	IR02MW147A	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	2 J3	<10 U	<10 UR2	<10 U
9205X480	IR02MW210B	01/30/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9230J179	IR02MW210B	07/21/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J235	IR02MW210B	08/26/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J236	IR02MW210B	08/26/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0511Z021	IR02MW300A	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9612J943	IR02MW300A	03/20/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0112T012	IR02MW300A	03/28/2001	0	A	<1 U	<1 U	<1 U4	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ37	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<2 U	<1 U	<1 U	<1 U
0112T013	IR02MW300A	03/28/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ37	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<3 U	<1 U	<1 U	<1 U
0425H030	IR02MW300A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0229D006	IR02MW300A	07/16/2002	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<5.3 U	<5.3 U	<11 U	<11 U	<11 UJ3	<5.3 U	<11 U	<11 U	<5.3 U	<11 U	NA	<11 U	<11 U	<5.3 U	<5.3 U	<5.3 U	<11 U
9235X726	IR02MW300A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0438G050	IR02MW300A	09/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0238G007	IR02MW300A	09/20/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ7	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	0.6 J	<9.6 U
0238G008	IR02MW300A	09/20/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ7	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	0.58 J	<9.6 U
0449C031	IR02MW300A	11/30/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0808D007	IR02MW301A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817G023	IR02MW301A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720J061	IR02MW301A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0732D009	IR02MW301A	08/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740D007	IR02MW301A	10/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9610W140	IR02MW372A	03/07/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9619J106	IR02MW372A	05/10/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	5 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9547J609	IR02MW372A	11/22/1995	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	8 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9610J904	IR02MW373A	03/04/1996	0	A	<50 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9619J107	IR02MW373A	05/10/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	7 J	<10 UJ0
9547J608	IR02MW373A	11/21/1995	0	A	<100 U	2 J	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	3 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	18	3 J
9202A001	IR02MW87A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9113X078	IR02MW87A	03/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X710	IR02MW87A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9204X444	IR02MW89A	01/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9230J176	IR02MW89A	07/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X711	IR02MW89A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202A003	IR02MW93A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9202A004	IR02MW93A	01/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9112X070	IR02MW93A	03/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9112X071	IR02MW93A	03/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X712	IR02MW93A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9203A093	IR02MW97A	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9203A094	IR02MW97A	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
0109T007	IR02MW97A	03/06/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ37	<1 UJ3	<1 U	<1 U	<1 UJ3	<1 U	NA	<1 UJ7	<1 U	<2 U	<1 U	<1 U	<1 U
9112X065	IR02MW97A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0230P016	IR02MW97A	07/26/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
9235J220	IR02MW97A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9235J221	IR02MW97A	08/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
0238E003	IR02MW97A	09/16/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 UJ3	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U2	<9.7 U
9203A028	IR02MWB-1	01/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9203A029	IR02MWB-1	01/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9228J148	IR02MWB-1	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9228J149	IR02MWB-1	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J239	IR02MWB-1	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202A008	IR02MWB-2	01/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9228J151	IR02MWB-2	07/07/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J240	IR02MWB-2	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9204X432	IR02MWB-3	01/20/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	6 J	<10 U	<10 U	4 J
0110P020	IR02MWB-3	03/15/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	0.1 J3	<1 U	NA	<1 UJ3	<1 U	<2 U	<1 U	0.4 J3	0.07 J
0110P021	IR02MWB-3	03/15/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	0.1 J3	<1 U	NA	<1 UJ3	<1 U	<3 U	<1 U	0.3 J3	0.07 J
0511G047	IR02MWB-3	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	3.5 J	<10 U
0425S045	IR02MWB-3	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9228X671	IR02MWB-3	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	<2 U4	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	2 J	<10 U	<10 U	<10 U	NA	<10 U	<10 U	3 J	<10 U	2 J	8 J
0229P020	IR02MWB-3	07/19/2002	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<5 U	<10 U	<10 U	<10 UJ37	<5 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U	<10 U	<5 UJ3	<5 U	0.72 J3	<10 U
9235J241	IR02MWB-3	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<3 U4	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	4 J
9235J242	IR02MWB-3	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<3 U4	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	4 J
0438C055	IR02MWB-3	09/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0239J003	IR02MWB-3	09/23/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 UJ7	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	0.84 J	<9.7 U
0448C019	IR02MWB-3	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9204X441	IR02MWB-5	01/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9224X613	IR02MWB-5	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9224X614	IR02MWB-5	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J245	IR02MWB-5	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9204X456	IR03MW218A1	01/24/1992	0	A	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	6 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	5 J	<10 U	NA	<10 U	<10 U	<50 U	8 J	<10 U	2 J
9204X457	IR03MW218A1	01/24/1992	0	A	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	8 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	19	<10 U	NA	<10 U	<10 U	<50 U	15	<10 U	3 J
9228X666	IR03MW218A1	07/09/1992	0	A	<10 U	5 J	<10 U	<10 U	<10 U	<10 U	5 J	16	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	19	<10 U	NA	<10 U	<10 U	<50 U	40	<10 U	8 J
0602H042	IR03MW218A2	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	48	<10 U	<10 U	<10 U	<10 U	<5 U	2.9 J	<5 U	<10 U
9203A092	IR03MW218A2	01/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	53	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0709L012	IR03MW218A2	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	20	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0810D051	IR03MW218A2	03/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0510G025	IR03MW218A2	03/10/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	8.2 J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0719G001	IR03MW218A2	05/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	2.9 J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0823H060	IR03MW218A2	06/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	1.8 J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	5.7	<10 U
0623T023	IR03MW218A2	06/08/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	36	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425H025	IR03MW218A2	06/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	38	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0526G039	IR03MW218A2	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	21	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9228X664	IR03MW218A2	07/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	7 J	<10 U	NA	<10 U	<10 U	<50 U	3 J	<10 U	<10 U
0231D006	IR03MW218A2	07/30/2002	0	A	<9.6 U	0.99 J	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	2.7 J	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	54	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	3 J	0.98 J	<9.6 U
0734D035	IR03MW218A2	08/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	43	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9235X730	IR03MW218A2	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	45	<10 U	NA	<10 U	<10 U	<50 U	3 J	<10 U	<10 U
0636D036	IR03MW218A2	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	51	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0438J022	IR03MW218A2	09/14/2004	0	A	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<25 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<25 U	<50 U	<25 U	<50 U
0538A027	IR03MW218A2	09/21/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	38	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0239A002	IR03MW218A2	09/23/2002	0	A	<9.6 U	1.1 J	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	3 J	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	64	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	2.8 J	1.5 J	<9.6 U
0741D035	IR03MW218A2	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	54	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0448C020	IR03MW218A2	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	24	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0650B043	IR03MW218A2	12/12/2006	0	A	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<250 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<500 U	<250 U	<500 U	<250 U	<500 U
9203X416	IR03MW218A3	01/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9228X665	IR03MW218A3	07/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0231E013	IR03MW218A3	08/01/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U1	<9.6 U
9235X729	IR03MW218A3	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0239E007	IR03MW218A3	09/25/2002	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<5.2 U	<5.2 U	<11 U	<11 U	<11 UJ3	<5.2 U	<11 U	<11 U	<5.2 U	<11 U	NA	<11 U	<11 U	<5.2 U	<5.2 U	0.68 J	<11 U
0602V032	IR03MW224A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9204X451	IR03MW224A	01/23/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	3 J
0809E022	IR03MW224A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0709G047	IR03MW224A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0109P003	IR03MW224A	03/06/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ37	<1 U	<1 U	<1 U	<1 U	<1 U	NA	<1 UJ7	<1 U	<2 U	<1 U	<1 U	<1 U
0611S013	IR03MW224A	03/14/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0511Z018	IR03MW224A	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817E029	IR03MW224A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720W046	IR03MW224A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623P049	IR03MW224A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0526G044	IR03MW224A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0526G045	IR03MW224A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0230A007	IR03MW224A	07/23/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ37	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 UJ3	<4.8 U	<4.8 UJ3	<9.6 U
9230J196	IR03MW224A	07/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0734H057	IR03MW224A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0634G007	IR03MW224A	08/25/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9235X734	IR03MW224A	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X735	IR03MW224A	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0237S010	IR03MW224A	09/11/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0438J023	IR03MW224A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0538T029	IR03MW224A	09/22/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740D024	IR03MW224A	10/04/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0449C025	IR03MW224A	11/29/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0449C026	IR03MW224A	11/29/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0649B038	IR03MW224A	12/08/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9205X470	IR03MW225A	01/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	4 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	6 J	<10 U	<10 U
9205X471	IR03MW225A	01/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	4 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	5 J	<10 U	NA	<10 U	<10 U	<50 U	7 J	<10 U	<10 U
9614Z024	IR03MW225A	04/03/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9625Z050	IR03MW225A	06/19/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	2 J	<10 U	NA	<10 U	<10 U	<25 U	2 J	<10 U	<10 U
9205X461	IR03MW226A	01/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	9 J	<10 U	NA	<10 U	<10 U	<50 U	7 J	<10 U	<10 U
9205X462	IR03MW226A	01/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	8 J	<10 U	NA	<10 U	<10 U	<50 U	6 J	<10 U	2 J

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9230J197	IR03MW226A	07/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	5 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	10	<10 U	NA	<10 U	<10 U	<50 U	12	<10 U	4 J
9230J198	IR03MW226A	07/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	6 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	11	<10 U	NA	<10 U	<10 U	<50 U	15	<10 U	5 J
9235X732	IR03MW226A	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	2 J	4 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	15	<10 U	5 J
9203X417	IR03MW228B	01/16/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9119M013	IR03MW228B	05/06/1991	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9119M014	IR03MW228B	05/06/1991	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0231E018	IR03MW228B	08/02/2002	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<5 U	<10 U	<10 U	<10 UJ3	<5 U	<10 U	<10 U	<5 U	<10 U	NA	<10 U	<10 U	<5 U	<5 U	<5 U	<10 U
9235J244	IR03MW228B	08/28/1992	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0237S014	IR03MW228B	09/12/2002	0	B	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7U	<4.9U	<4.9U	<9.7U	<9.7U	<9.7UJ3	<4.9U	<9.7U	<9.7U	<4.9U	<9.7U	NA	<9.7U	<9.7U	<4.9U	<4.9U	<4.9U	<9.7U
0602H043	IR03MW342A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0602H044	IR03MW342A	01/10/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0708L005	IR03MW342A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809D031	IR03MW342A	02/28/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0510G026	IR03MW342A	03/10/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	8.3	<10 U
0611S012	IR03MW342A	03/14/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0110T017	IR03MW342A	03/15/2001	0	A	<1 UJ1	<1 U	<1 U	<1 U	<1 U4	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ1	<1 U	1 J3	<1 U	NA	<1 UJ3	<1 U	<2 UJ7	<1 U	0.7 J3	<1 U
9612J944	IR03MW342A	03/21/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	4 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	8 J	<10 U
9612J945	IR03MW342A	03/21/1996	0	A	<10 UR0	<10 U	<10 U	<10 U	<10 U	<10 UR0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UR0	<10 U	4 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	8 J	<10 U
0817E034	IR03MW342A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720G016	IR03MW342A	05/15/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0622S011	IR03MW342A	06/01/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	23	<10 U
0425S039	IR03MW342A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0526G043	IR03MW342A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9228X647	IR03MW342A	07/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<4 U1	22	<10 U	NA	<10 U	<10 U	6 J	2 J	<10 U	<10 U
0230A013	IR03MW342A	07/25/2002	0	A	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<4.8 UJ3	<4.8 UJ3	<9.6 UJ3	<9.6 UJ3	<9.6 UJ3	<4.8 UJ3	<9.6 UJ3	<9.6 UJ3	<4.8 UJ3	<9.6 UJ3	NA	<9.6 UJ3	<9.6 UJ3	<4.8 UJ3	<4.8 UJ3	1.4 J3	<9.6 UJ3
0735W059	IR03MW342A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9235X736	IR03MW342A	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	14	<10 U	NA	<10 U	<10 U	<50 U	2 J	<10 U	<10 U
0636D037	IR03MW342A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	25	<10 U
0636D038	IR03MW342A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	22	<10 U
0438G042	IR03MW342A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	7.1 J	<5 U	<10 U	5.3	<10 U
0238J004	IR03MW342A	09/16/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 UJ3	<9.7 U	<9.7 U	0.88 J	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U2	<9.7 U
0538A028	IR03MW342A	09/21/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	7.5	<10 U
0741G024	IR03MW342A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0448C016	IR03MW342A	11/22/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0650W041	IR03MW342A	12/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9610J911	IR03MW369A	03/06/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	29	<10 U	NA	<10 U	<10 U	<25 U	7 J	<10 U	<10 UJ0
9621J126	IR03MW369A	05/20/1996	0	A	<10 U	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 U	<10 UJ1	<10 UJ1	<10 UJ1	<10 U	<10 UJ1	<10 U	<10 U	<10 U	8 J	<10 U	NA	<10 U	<10 UJ1	<25 UJ1	<10 UJ1	<10 U	<10 UJ1
9548J613	IR03MW369A	11/29/1995	0	A	<50 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	9 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9610J908	IR03MW370A	03/06/1996	0	A	<100 U	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<100 U	<10 UJ1	<10 UJ1	<10 UJ1	<10 U	<10 UJ1	<10 U	<100 U	<10 U	21	<10 U	NA	<10 U	<10 UJ1	<25 UJ1	8 J1	<10 U	6 J01
9620J125	IR03MW370A	05/16/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	15	<10 U	NA	<10 U	<10 U	<25 U	3 J	<10 U	<10 U
9548J615	IR03MW370A	11/30/1995	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	26	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	8 J0
9610J912	IR03MW371A	03/06/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9620J123	IR03MW371A	05/16/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9620J124	IR03MW371A	05/16/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9548J617	IR03MW371A	11/30/1995	0	A	<200 U	<10 U	<10 U	<10 U	<10 U	<200 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<200 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9548J618	IR03MW371A	11/30/1995	0	A	<200 U	<10 U	<10 U	<10 U	<10 U	<200 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<200 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
0229H002	IR03MW372A	07/17/2002	0	A	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<19 U	<9.4 U	<9.4 U	<9.4 U
0229H003	IR03MW372A	07/18/2002	0	A	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<19 U	<9.4 U	<9.4 U	<9.4 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0229H004	IR03MW372A	07/18/2002	0	A	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<47 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<19 U	<9.4 U	<9.4 U	<9.4 U
0602H041	IR03MW373B	01/09/2006	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E020	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E021	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0709G048	IR03MW373B	02/28/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0510R032	IR03MW373B	03/10/2005	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0611S026	IR03MW373B	03/17/2006	0	B	<10 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817E028	IR03MW373B	04/21/2008	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720A055	IR03MW373B	05/17/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623P056	IR03MW373B	06/08/2006	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425S037	IR03MW373B	06/15/2004	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0526G046	IR03MW373B	06/28/2005	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0634G006	IR03MW373B	08/25/2006	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0735W060	IR03MW373B	08/27/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0438J024	IR03MW373B	09/14/2004	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0538A040	IR03MW373B	09/23/2005	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740D023	IR03MW373B	10/04/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0447C013	IR03MW373B	11/19/2004	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0649G031	IR03MW373B	12/04/2006	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9204X452	IR03MWO-1	01/23/1992	0	A	<40 U	9 J	<40 U	<40 U	<40 U	<40 U	12 J	21 J	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	20 J	<40 U	NA	<40 U	<40 U	<200 U	69	<40 U	26 J
9204X453	IR03MWO-1	01/23/1992	0	A	<15 U	5 J	<15 U	<15 U	<15 U	<15 U	5 J	8 J	<15 U	<15 U	<15 U	<15 U	<15 U	<15 U	19	<15 U	NA	<15 U	<15 U	<75 U	25	<15 U	10 J
9228X667	IR03MWO-1	07/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	4 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	12	<10 U	5 J
9235X737	IR03MWO-1	08/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	23	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9207X526	IR04MW09A	02/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U
9225X620	IR04MW09A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9146X263	IR04MW09A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0602D039	IR04MW13A	01/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9207X518	IR04MW13A	02/12/1992	0	A	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	<12 U	<12 U	<60 U	<12 U	<12 U	<12 U
9207X519	IR04MW13A	02/12/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U
0708G030	IR04MW13A	02/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809H025	IR04MW13A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0509G009	IR04MW13A	03/03/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0611J032	IR04MW13A	03/16/2006	0	A	<10 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0611J033	IR04MW13A	03/16/2006	0	A	<10 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0719W020	IR04MW13A	05/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0622T013	IR04MW13A	05/31/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9225X627	IR04MW13A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9225X628	IR04MW13A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0526T039	IR04MW13A	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0427S052	IR04MW13A	06/28/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734D031	IR04MW13A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0537T010	IR04MW13A	09/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0537T011	IR04MW13A	09/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0438G051	IR04MW13A	09/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0741D034	IR04MW13A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9146X259	IR04MW13A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0450G051	IR04MW13A	12/06/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0649D036	IR04MW13A	12/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9207X517	IR04MW31A	02/12/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9225X629	IR04MW31A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9146X256	IR04MW31A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9207X520	IR04MW35A	02/12/1992	0	A	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	<12 U	<12 U	<58 U	<12 U	<12 U	<12 U
9225X623	IR04MW35A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9146X257	IR04MW35A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UJ3	<10 U	<10 UJ3	<10 U
0601T023	IR04MW36A	01/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9207X523	IR04MW36A	02/13/1992	0	A	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	<12 U	<12 U	<59 U	<12 U	<12 U	<12 U
9207X524	IR04MW36A	02/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<54 U	<11 U	<11 U	<11 U
0708G038	IR04MW36A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809D012	IR04MW36A	02/25/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0509G004	IR04MW36A	03/02/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0612H046	IR04MW36A	03/22/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0718J007	IR04MW36A	05/01/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0622T012	IR04MW36A	05/31/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0524T014	IR04MW36A	06/16/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9225X630	IR04MW36A	06/17/1992	0	A	<10 U	<10 U	<10 U4	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0425S044	IR04MW36A	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734H071	IR04MW36A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0536T003	IR04MW36A	09/08/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0438T014	IR04MW36A	09/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0741N003	IR04MW36A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9146X254	IR04MW36A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9146X255	IR04MW36A	11/14/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0648G018	IR04MW36A	11/28/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0449P037	IR04MW36A	12/02/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9207X530	IR04MW37A	02/14/1992	0	A	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	<13 U	NA	<13 U	<13 U	<66 U	<13 U	<13 U	<13 U
9207X531	IR04MW37A	02/14/1992	0	A	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	<14 U	NA	<14 U	<14 U	<68 U	<14 U	<14 U	<14 U
9225X621	IR04MW37A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9225X622	IR04MW37A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X282	IR04MW37A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9207X529	IR04MW38A	02/14/1992	0	A	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	<12 U	<12 U	<60 U	<12 U	<12 U	<12 U
9225X632	IR04MW38A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9146X264	IR04MW38A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9207X527	IR04MW39A	02/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<51 U	<10 U	<10 U	<10 U
9225X625	IR04MW39A	06/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X283	IR04MW39A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9207X525	IR04MW40A	02/13/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U
9225X631	IR04MW40A	06/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9146X261	IR04MW40A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9146X262	IR04MW40A	11/15/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UJ3	<10 U	<10 UJ3	<10 U
9207A102	IR05MW73A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<55 U	<11 U	<11 U	<11 U
9225X644	IR05MW73A	06/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X278	IR05MW73A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UJ3	<10 U	<10 UJ3	<10 U
9147X279	IR05MW73A	11/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UJ3	<10 U	<10 UJ3	<10 U
9207A101	IR05MW74A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<54 UR2	<11 U	<11 UR2	<11 U
9225X640	IR05MW74A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9147X268	IR05MW74A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9147X269	IR05MW74A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9207A099	IR05MW76A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<54 U	<11 U	<11 U	<11 U
9207A100	IR05MW76A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<53 U	<11 U	<11 U	<11 U
9225X642	IR05MW76A	06/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9225X643	IR05MW76A	06/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X281	IR05MW76A	11/21/1991	0	A	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	NA	<10 UJ5	<10 UJ5	<50 UJ5	<10 UJ5	<10 UJ5	<10 UJ5
9207A096	IR05MW77A	02/10/1992	0	A	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5
9207A097	IR05MW77A	02/10/1992	0	A	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	<11 UJ5	<11 UJ5	<56 UJ5	<11 UJ5	<11 UJ5	<11 UJ5
9225X635	IR05MW77A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X270	IR05MW77A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9207A098	IR05MW82A	02/11/1992	0	A	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<56 U	<11 U	<11 U	<11 U
9225X639	IR05MW82A	06/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X267	IR05MW82A	11/18/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0602D046	IR05MW85A	01/13/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0602D047	IR05MW85A	01/13/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809H026	IR05MW85A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0709N003	IR05MW85A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0110T022	IR05MW85A	03/16/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<2 U	<1 U	<1 U	0.1 J
0511R050	IR05MW85A	03/17/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9612W183	IR05MW85A	03/21/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0612J048	IR05MW85A	03/23/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0816E025	IR05MW85A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0718J013	IR05MW85A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623M032	IR05MW85A	06/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425H026	IR05MW85A	06/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9225X636	IR05MW85A	06/18/1992	0	A	<10 U	24	<10 U	<10 U	<10 U	<10 U	15	20	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	16	<10 U	NA	<10 U	<10 U	<50 U	48	<10 U	11
9225X637	IR05MW85A	06/18/1992	0	A	<10 U	14	<10 U	<10 U	<10 U	<10 U	12	15	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	9 J	<10 U	NA	<10 U	<10 U	<50 U	39	<10 U	9 J
0525G030	IR05MW85A	06/22/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0525G031	IR05MW85A	06/22/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9230J194	IR05MW85A	07/24/1992	0	A	<10 U	21	<10 U	<10 U	<10 U	<10 U	11	13	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	210	<10 U	NA	<10 U	<10 U	<50 U	43	<10 U	7 J
9230J195	IR05MW85A	07/24/1992	0	A	<10 U	23	<10 U	<10 U	<10 U	<10 U	14	15	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	170	<10 U	NA	<10 U	<10 U	<50 U	52	<10 U	9 J
0232E002	IR05MW85A	08/06/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0734H075	IR05MW85A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0636E006	IR05MW85A	09/08/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0237G015	IR05MW85A	09/13/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0438C044	IR05MW85A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0538T033	IR05MW85A	09/23/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740W015	IR05MW85A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0449C035	IR05MW85A	12/01/2004	0	A	<10 U	<10 U	<5 U4	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0649B026	IR05MW85A	12/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9405N295	IR08MW37A	02/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9405N296	IR08MW37A	02/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9419X278	IR08MW37A	05/10/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9028H279	IR08MW37A	07/11/1990	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9028H280	IR08MW37A	07/11/1990	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	<50 UR2	<10 UJ3	<10 UR2	<10 UJ3
9434M578	IR08MW37A	08/26/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9344X052	IR08MW37A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<26 U	<10 U	<10 U	<10 U
9405N298	IR08MW38A	02/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9419X277	IR08MW38A	05/10/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9028H273	IR08MW38A	07/10/1990	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9434M579	IR08MW38A	08/26/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9344X050	IR08MW38A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9344X051	IR08MW38A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9028H274	IR08MW39A	07/10/1990	0	A	<10 UJ07	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ07	<10 UJ0	<10 UJ0	<10 UJ0	NA	<10 UJ0	<10 UJ0	<50 UR2	<10 UJ0	<10 UR2	<10 UJ0
9435E158	IR08MW39A	09/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9406X183	IR08MW40A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9419X287	IR08MW40A	05/11/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9028H276	IR08MW40A	07/10/1990	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9028H277	IR08MW40A	07/10/1990	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9435E160	IR08MW40A	09/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9345X055	IR08MW40A	11/08/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9345X056	IR08MW40A	11/08/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9406X181	IR08MW41A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9406X182	IR08MW41A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9419X286	IR08MW41A	05/11/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9028H281	IR08MW41A	07/11/1990	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	<50 UR2	<10 UJ3	<10 UR2	<10 UJ3
9435E159	IR08MW41A	09/01/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9344X053	IR08MW41A	11/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9406X185	IR08MW42A	02/07/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9419X275	IR08MW42A	05/10/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9419X276	IR08MW42A	05/10/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9434M577	IR08MW42A	08/26/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9344X045	IR08MW42A	11/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9344X046	IR08MW42A	11/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W066	IR08MW43A	02/05/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9610J913	IR08MW43A	03/07/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9440X501	IR08MW43A	10/03/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9440X502	IR08MW43A	10/03/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W064	IR08MW44A	02/05/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W065	IR08MW44A	02/05/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9610J914	IR08MW44A	03/07/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9440X504	IR08MW44A	10/04/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9440X505	IR08MW44A	10/04/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
8914W25	IR11MW25A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9035G315	IR11MW25A	08/30/1990	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9148X298	IR11MW25A	11/25/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
8914DUP2	IR11MW26A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
8914W26	IR11MW26A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9034G301	IR11MW26A	08/21/1990	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X756	IR11MW26A	09/15/1992	0	A	<11 UJ7	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<28 U	<11 U	<11 U	<11 U
9148X297	IR11MW26A	11/25/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
8914W27	IR11MW27A	03/10/1989	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9034G300	IR11MW27A	08/21/1990	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X755	IR11MW27A	09/15/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9148X296	IR11MW27A	11/25/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<22 U	<22 U	<22 U	<22 U	<22 U	<22 U	<22 U	<22 U	<22 U	<22 U	<22 U	NA	<22 U	<22 U	<110 U	<22 U	<22 U	<22 U
9148H929	IR11MW27A	11/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	<40 U	NA	<40 U	<40 U	<200 U	<40 U	<40 U	<40 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9209X547	IR12MW11A	02/24/1992	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9612W185	IR12MW11A	03/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9134X179	IR12MW11A	08/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X544	IR12MW12A	02/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X185	IR12MW12A	08/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X782	IR12MW12A	09/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9239X783	IR12MW12A	09/21/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9209X545	IR12MW13A	02/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X546	IR12MW13A	02/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X180	IR12MW13A	08/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9239X787	IR12MW13A	09/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9239X788	IR12MW13A	09/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9209X552	IR12MW14A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X181	IR12MW14A	08/26/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X182	IR12MW14A	08/26/1991	0	A	<10 UJ07	<10 UJ0	<10 UJ0	<10 UJ0	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X789	IR12MW14A	09/22/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9209X553	IR12MW15A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0232E003	IR12MW15A	08/06/2002	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
9134X186	IR12MW15A	08/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0238A003	IR12MW15A	09/16/2002	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ3	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U2	<9.6 U
0238A004	IR12MW15A	09/16/2002	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ3	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U2	<9.6 U
9238X778	IR12MW15A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9209X555	IR12MW16A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X188	IR12MW16A	08/27/1991	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X189	IR12MW16A	08/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X797	IR12MW16A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0509R005	IR12MW17A	03/02/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	17	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9612W186	IR12MW17A	03/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	8 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
0424M013	IR12MW17A	06/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0525T026	IR12MW17A	06/21/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9234X690	IR12MW17A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9234X691	IR12MW17A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0437P031	IR12MW17A	09/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<23 U1	<5 U	<10 U	<5 U	<10 U
9239X795	IR12MW17A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0447C009	IR12MW17A	11/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9613W189	IR12MW18A	03/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 UJ1	<25 UJ1	<10 UJ1	<10 U	<10 U
9613W190	IR12MW18A	03/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9234X692	IR12MW18A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X793	IR12MW18A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9239X794	IR12MW18A	09/24/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9613W191	IR12MW19A	03/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9234X693	IR12MW19A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X800	IR12MW19A	09/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9239X801	IR12MW19A	09/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9613J971	IR12MW20A	03/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9234X694	IR12MW20A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X799	IR12MW20A	09/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9614Z022	IR12MW21A	04/02/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9618J076	IR12MW21A	05/02/1996	0	A	<11 UJ7	<11 U	<11 U	<11 U	<11 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9234X695	IR12MW21A	08/19/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<75 U	<75 U	100	<75 U	<75 U	<75 U	<75 U	<75 U	<75 U	<75 U	<75 U	NA	<75 U	<75 U	<380 U	210	<75 U	24 J
9239A459	IR12MW21A	09/23/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	NA	<1000 U	<1000 U	<2500 U	<1000 U	<1000 U	<1000 U
9209X550	IR13MW10A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X551	IR13MW10A	02/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X193	IR13MW10A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9238X777	IR13MW10A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9209X558	IR13MW11A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X190	IR13MW11A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9238X768	IR13MW11A	09/17/1992	0	A	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	<200 UR2	NA	<200 UR2	<200 UR2	<500 UJ7	<200 UR2	<200 U	<200 UR2
9238X769	IR13MW11A	09/17/1992	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ37	<10 UJ3	<10 UJ37	<10 UJ37	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	<25 U	<10 UJ3	<10 U	<10 UJ3
9209X557	IR13MW12A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X191	IR13MW12A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9134X192	IR13MW12A	08/28/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9238X775	IR13MW12A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9238X776	IR13MW12A	09/18/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 UJ7	<10 U	<10 U	<10 U
9209X559	IR14MW09A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X560	IR14MW09A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X754	IR14MW09A	09/15/1992	0	A	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9148X304	IR14MW09A	11/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9148X305	IR14MW09A	11/27/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X562	IR14MW10A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
0109T018	IR14MW10A	03/08/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<3 U	<1 U	<1 U	<1 U
0229D002	IR14MW10A	07/15/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U	<9.7 U
9238X752	IR14MW10A	09/15/1992	0	A	<11 UJ7	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<28 U	<11 U	<11 U	<11 U
9238X753	IR14MW10A	09/15/1992	0	A	<11 UJ37	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	<11 UJ3	NA	<11 UJ3	<11 UJ3	<28 UR2	<11 UJ3	<11 UR2	<11 UJ3
0238E013	IR14MW10A	09/18/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ3	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U1	<9.6 U
9147X285	IR14MW10A	11/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X286	IR14MW10A	11/22/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X561	IR14MW12A	02/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X763	IR14MW12A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9147X272	IR14MW12A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9614Z021	IR14MW13A	04/02/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9619J102	IR14MW13A	05/09/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9234X696	IR14MW13A	08/19/1992	0	A	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	35	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	NA	<25 U	<25 U	<120 U	35	<25 U	16 J
9239A457	IR14MW13A	09/23/1992	0	A	<1000 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	NA	<1000 U	<1000 U	<2500 U	<1000 U	<1000 U	<1000 U
9239A458	IR14MW13A	09/23/1992	0	A	<1000 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	<1000 UJ7	<1000 U	<1000 U	<1000 U	<1000 U	<1000 U	NA	<1000 U	<1000 U	<2500 U	<1000 U	<1000 U	<1000 U
9209X564	IR15MW06A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X749	IR15MW06A	09/14/1992	0	A	<12 UJ7	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	<12 U	NA	<12 U	<12 U	<29 U	<12 U	<12 U	<12 U
9238X750	IR15MW06A	09/14/1992	0	A	<11 UJ7	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	<11 U	NA	<11 U	<11 U	<28 U	<11 U	<11 U	<11 U
9147X276	IR15MW06A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X565	IR15MW07A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9209X566	IR15MW07A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X762	IR15MW07A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9147X273	IR15MW07A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9147X274	IR15MW07A	11/20/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0109P005	IR15MW08A	03/08/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<3 U	<1 U	<1 U	<1 U
9613W201	IR15MW08A	03/28/1996	0	A	<10 UR0	<10 U	<10 U	<10 U	<10 U	<10 UR0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UR0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9613W202	IR15MW08A	03/28/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
0231E012	IR15MW08A	08/01/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U	<9.7 U
9233X675	IR15MW08A	08/13/1992	0	A	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	12 J	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	<25 U	NA	<25 U	<25 U	<120 U	25	<25 U	17 J
9233X676	IR15MW08A	08/13/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	5 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	9 J	<10 U	8 J
0237J019	IR15MW08A	09/12/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U	<9.7 U
0237J020	IR15MW08A	09/12/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U	<9.7 U
9239X792	IR15MW08A	09/24/1992	0	A	<100 UJ7	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 UJ7	<100 U	<100 U	<100 U	<100 U	<100 U	NA	<100 U	<100 U	<250 U	<100 U	<100 U	<100 U
9613W195	IR15MW09F	03/27/1996	0	F	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9233X679	IR15MW09F	08/14/1992	0	F	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X785	IR15MW09F	09/22/1992	0	F	<10 UJ7	<10 U	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9613W198	IR15MW10F	03/27/1996	0	F	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9233X678	IR15MW10F	08/14/1992	0	F	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9239X786	IR15MW10F	09/22/1992	0	F	<10 UJ7	<10 U	<10 U	<10 U	<10 UJ7	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9603J803	IR17MW11A	01/16/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9209X570	IR17MW11A	02/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X199	IR17MW11A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X760	IR17MW11A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9238X761	IR17MW11A	09/16/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9209X568	IR17MW12A	02/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X198	IR17MW12A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X770	IR17MW12A	09/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9209X571	IR17MW13A	02/28/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9209X572	IR17MW13A	02/28/1992	0	A	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	<10 UR2	NA	<10 UR2	<10 UR2	<50 UR2	<10 UR2	<10 UR2	<10 UR2
9134X196	IR17MW13A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9134X197	IR17MW13A	08/29/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9238X771	IR17MW13A	09/17/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ7	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W039	IR36MW09A	01/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611J932	IR36MW09A	03/15/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9428E065	IR36MW09A	07/13/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9603W012	IR36MW11A	01/18/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9608J883	IR36MW11A	02/21/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9437X471	IR36MW11A	09/12/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 UJ7	<25 U	<10 U	<10 U	<10 U
9437X472	IR36MW11A	09/12/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 UJ7	<25 U	<10 U	<10 U	<10 U
9611J923	IR36MW120B	03/13/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9617J043	IR36MW120B	04/23/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9623J174	IR36MW120B	06/04/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9611J924	IR36MW121A	03/13/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9617J044	IR36MW121A	04/24/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9623J175	IR36MW121A	06/04/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9623J176	IR36MW121A	06/04/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611W157	IR36MW122A	03/13/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9617J055	IR36MW122A	04/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9623J172	IR36MW122A	06/03/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611W156	IR36MW123B	03/13/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9618J065	IR36MW123B	04/30/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9623J171	IR36MW123B	06/03/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9604W034	IR36MW125A	01/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611W165	IR36MW125A	03/15/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9618J061	IR36MW125A	04/29/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W027	IR36MW126A	01/24/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611J931	IR36MW126A	03/15/1996	0	A	<50 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9618J066	IR36MW126A	04/30/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W037	IR36MW127A	01/25/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611J930	IR36MW127A	03/15/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9618J062	IR36MW127A	04/29/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W029	IR36MW128A	01/24/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611J929	IR36MW128A	03/14/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9617J037	IR36MW128A	04/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611J927	IR36MW129B	03/14/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9611J928	IR36MW129B	03/14/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9617J041	IR36MW129B	04/23/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9617J042	IR36MW129B	04/23/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
9622J168	IR36MW129B	05/31/1996	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25U	<10 U	<10 U	<10 U
0602V035	IR36MW12A	01/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0602V036	IR36MW12A	01/11/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9603W013	IR36MW12A	01/19/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9608J889	IR36MW12A	02/23/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0709W023	IR36MW12A	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E034	IR36MW12A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0511R040	IR36MW12A	03/14/2005	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<5 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<5 U	<10 UJ3	<5 U	<10 UJ3
0817E041	IR36MW12A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720B004	IR36MW12A	05/17/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623S017	IR36MW12A	06/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623S018	IR36MW12A	06/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425C033	IR36MW12A	06/15/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0526T040	IR36MW12A	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0526T041	IR36MW12A	06/27/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734D045	IR36MW12A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0437P034	IR36MW12A	09/10/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9437X473	IR36MW12A	09/12/1994	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	5 J	<25 U	<10 U	<10 U	<10 U
0539A046	IR36MW12A	09/26/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0539A047	IR36MW12A	09/26/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740H021	IR36MW12A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0447R007	IR36MW12A	11/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0649H018	IR36MW12A	12/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9602J783	IR36MW135A	01/09/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9607J865	IR36MW135A	02/12/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611W164	IR36MW135A	03/15/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604Z011	IR36MW139A	01/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9608J888	IR36MW139A	02/23/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9613W199	IR36MW139A	03/28/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9603W011	IR36MW13A	01/18/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 UJ1	<10 U	<10 UJ1	<10 U	<10 UJ1	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 UJ1	<25 UJ1	<10 UJ1	<10 U	<10 U
9608J886	IR36MW13A	02/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9444X560	IR36MW13A	11/03/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9444X561	IR36MW13A	11/03/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9603W010	IR36MW14A	01/18/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
9608W116	IR36MW14A	02/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9443X538	IR36MW14A	10/25/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9443X539	IR36MW14A	10/25/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9605W060	IR36MW15A	02/01/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9610J903	IR36MW15A	03/04/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9438X484	IR36MW15A	09/20/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9438X485	IR36MW15A	09/20/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9605W054	IR36MW16A	01/31/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9610J906	IR36MW16A	03/05/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9610J907	IR36MW16A	03/05/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9439X498	IR36MW16A	09/27/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9439X499	IR36MW16A	09/27/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9603W016	IR36MW17A	01/19/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9603W017	IR36MW17A	01/19/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9608J887	IR36MW17A	02/23/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9442X532	IR36MW17A	10/18/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9442X533	IR36MW17A	10/18/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604Z012	IR38MW01A	01/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9608J885	IR38MW01A	02/22/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9441X521	IR38MW01A	10/12/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9441X522	IR38MW01A	10/12/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W021	IR38MW02A	01/23/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W022	IR38MW02A	01/23/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9608W121	IR38MW02A	02/23/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9443X535	IR38MW02A	10/24/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9443X536	IR38MW02A	10/24/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W025	IR39MW21A	01/23/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	NA	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9609J886	IR39MW21A	02/26/1996	0	A	<50 U	<50 U	<50 U	<50 U	<50 U	<50 UJ7	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	77	<50 U	NA	<50 U	<50 U	<120 U	<50 U	<50 U	<50 U
0109T024	IR39MW21A	03/09/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	0.3 J	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 UJ3	<1 UJ3	<1 U	NA	<1 U	<1 U	<2 U	<1 U	<1 U	0.4 J
0425C036	IR39MW21A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9425E029	IR39MW21A	06/22/1994	0	A	<83 U	<83 U	<83 U	<83 U	<83 U	<83 U	8 J	<83 U	<83 U	<83 U	<83 U	<83 U	<83 U	<83 U	220	<83 U	NA	<83 U	<83 U	<210 U	11 J	<83 U	10 J
0227P007	IR39MW21A	07/02/2002	0	A	<9.6 U	0.4 J	<9.6 U	<9.6 U	<9.6 U	<9.6 U	0.73 J	0.91 J	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	1.4 J	0.89 J
0227P008	IR39MW21A	07/02/2002	0	A	<9.6 U	0.38 J	<9.6 U	<9.6 U	<9.6 U	<9.6 U	0.72 J	0.86 J	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	0.81 J	<9.6 U
0237S003	IR39MW21A	09/09/2002	0	A	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U4	<4.9 U	0.63 J	<9.8 U	<9.8 U	<9.8 UJ3	<4.9 U	<9.8 U	<9.8 U	0.41 J	<9.8 U	NA	<9.8 U	<9.8 U	<4.9 U	<4.9 U	<4.9 U1	<9.8 U
0449C027	IR39MW21A	11/29/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9605W045	IR39MW22A	01/29/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9609J897	IR39MW22A	02/29/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9437X480	IR39MW22A	09/14/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9437X481	IR39MW22A	09/14/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0602V030	IR39MW23A	01/09/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9604W040	IR39MW23A	01/26/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W041	IR39MW23A	01/26/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9609J884	IR39MW23A	02/26/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0709Z026	IR39MW23A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E032	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E033	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0511S041	IR39MW23A	03/15/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0816N008	IR39MW23A	04/17/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0720A057	IR39MW23A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623S020	IR39MW23A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623S021	IR39MW23A	06/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425G038	IR39MW23A	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425G039	IR39MW23A	06/17/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0525T037	IR39MW23A	06/24/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734W057	IR39MW23A	08/24/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0636D039	IR39MW23A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0636D040	IR39MW23A	09/06/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9437K156	IR39MW23A	09/15/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9437K157	IR39MW23A	09/15/1994	0	A	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	0.9 J3	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ57	<10 UJ5	<10 UJ5	<10 UJ5	6 J3	<10 UJ5	NA	<10 UJ5	<10 UJ5	<25 U	2 J3	<10 U	1 J3
0438T015	IR39MW23A	09/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0538A044	IR39MW23A	09/23/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<5 U	<10 U
0740H022	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740H023	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0448C022	IR39MW23A	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	25	<10 U	<5 U	<10 U
0649H017	IR39MW23A	12/05/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9604W042	IR39MW24A	01/26/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9609J885	IR39MW24A	02/26/1996	0	A	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	NA	<50 U	<50 U	<120 U	<50 U	<50 U	<50 U
9438X490	IR39MW24A	09/21/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9438X491	IR39MW24A	09/21/1994	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ7	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9604W024	IR39MW33A	01/23/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	4 J	<10 U	NA	<10 U	<10 U	<25 U	3 J	<10 U	<10 U
9609W123	IR39MW33A	02/26/1996	0	A	<50 U	<50 U	<50 U	<50 U	<50 U	<50 UJ7	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	<50 U	NA	<50 U	<50 U	<120 U	<50 U	<50 U	<50 U
9613W204	IR39MW33A	03/29/1996	0	A	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	NA	<100 U	<100 U	<250 U	<100 U	<100 U	<100 U
9602J790	IR39MW35A	01/10/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9607W096	IR39MW35A	02/14/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9607W097	IR39MW35A	02/14/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9612J934	IR39MW35A	03/18/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9602J787	IR39MW36A	01/10/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9602J789	IR39MW36A	01/10/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9607W098	IR39MW36A	02/14/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9612J935	IR39MW36A	03/18/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0602T030	IR56MW39A	01/09/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0708H027	IR56MW39A	02/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809P006	IR56MW39A	02/26/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9610W136	IR56MW39A	03/04/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	15	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0511G046	IR56MW39A	03/15/2005	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<5 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<5 U	<10 UJ3	<5 U	<10 UJ3
0612H050	IR56MW39A	03/23/2006	0	A	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<5 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<10 UJ	<5 UJ	<10 UJ	<5 UJ	<10 UJ
0612H051	IR56MW39A	03/23/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817D043	IR56MW39A	04/23/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0718A005	IR56MW39A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9620J120	IR56MW39A	05/15/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0623S025	IR56MW39A	06/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0623S026	IR56MW39A	06/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0425X005	IR56MW39A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0526D036	IR56MW39A	06/28/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0735H082	IR56MW39A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0438B046	IR56MW39A	09/14/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0539T037	IR56MW39A	09/26/2005	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740W016	IR56MW39A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9444X557	IR56MW39A	11/02/1994	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	3 J	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	27	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
9444X558	IR56MW39A	11/02/1994	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	4 J	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	26	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 UJ0
0448C021	IR56MW39A	11/23/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0649W035	IR56MW39A	12/07/2006	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9610J905	IR72MW32A	03/05/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0110P027	IR72MW32A	03/16/2001	0	A	<1 U	<1 U	<1 U4	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<2 U	<1 U	<1 U	<1 U
9620J119	IR72MW32A	05/15/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0229P003	IR72MW32A	07/15/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U	<9.7 U
0238G004	IR72MW32A	09/18/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ3	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 UJ3	<4.8 U	<4.8 UJ3	<9.6 U
0238G005	IR72MW32A	09/18/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ3	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U1	<9.6 U
9547W195	IR72MW32A	11/21/1995	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9610W138	IR72MW33A	03/05/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9620J118	IR72MW33A	05/15/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9547W197	IR72MW33A	11/22/1995	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9547W198	IR72MW33A	11/22/1995	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9305J230	PA36MW01A	02/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<1 U1	<25 U	<10 U	<10 U	<10 U
9606W074	PA36MW01A	02/07/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611W148	PA36MW01A	03/11/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9305J232	PA36MW02A	02/04/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W075	PA36MW02A	02/07/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611W149	PA36MW02A	03/11/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W076	PA36MW03A	02/07/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9306J248	PA36MW03A	02/11/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<2 U1	<25 U	<10 U	<10 U	<10 U
9306J249	PA36MW03A	02/11/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611J920	PA36MW03A	03/11/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9305J234	PA36MW04A	02/05/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<1 U1	<26 U	<10 U	<10 U	<10 U
9606W077	PA36MW04A	02/07/1996	0	A	<50 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611J919	PA36MW04A	03/11/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W082	PA36MW05A	02/08/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9306J244	PA36MW05A	02/10/1993	0	A	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	<11 UJ5	NA	<11 UJ5	<11 UJ5	<26 UJ5	<11 UJ5	<11 UJ5	<11 UJ5
9306J245	PA36MW05A	02/10/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<26 U	<10 U	<10 U	<10 U
9611J918	PA36MW05A	03/11/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9306J252	PA36MW06A	02/11/1993	0	A	<10 U	<10 U	<10 U	<10 U	<0.8 U4	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<3 U1	<25 U	<10 U	<10 U	<10 U
9607W099	PA36MW06A	02/16/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9612W172	PA36MW06A	03/19/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W079	PA36MW07A	02/08/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9308J309	PA36MW07A	02/23/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<26 U	<10 U	<10 U	<10 U
9611J922	PA36MW07A	03/12/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606W080	PA36MW08A	02/08/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 UJ15	<10 U	<10 UJ15	<10 U	<10 UJ15	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 UJ15	<25 UJ15	<10 UJ15	<10 U	<10 U
9606W081	PA36MW08A	02/08/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9307A590	PA36MW08A	02/16/1993	0	A	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 UJ7	<100 U	<100 U	<100 U	<100 U	<100 U	NA	<100 U	<100 U	<250 U	<100 U	<100 U	<100 U
9307A591	PA36MW08A	02/16/1993	0	A	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<100 UJ7	<100 U	<100 U	<100 U	<100 U	<100 U	NA	<100 U	<100 U	<250 U	<100 U	<100 U	<100 U
0109P008	PA36MW08A	03/08/2001	0	A	<1 UJ1	<1 U	<1 U	<1 U	<1 UJ1	<1 UJ1	<1 UJ1	<1 U	<1 UJ1	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ1	<1 U	<1 U	<1 U	NA	<1 U	<1 UJ1	<2 UJ1	<1 UJ1	<1 U	<1 UJ1
9611W151	PA36MW08A	03/12/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 UJ1	<10 U	<10 UJ1	<10 U	<10 UJ1	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 UJ1	<25 UJ1	<10 UJ1	<10 U	<10 U
9611W152	PA36MW08A	03/12/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0425H029	PA36MW08A	06/16/2004	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0234A012	PA36MW08A	08/21/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0234A013	PA36MW08A	08/21/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0237S002	PA36MW08A	09/09/2002	0	A	<9.7 U	1 J	<9.7 U	<9.7 U	<9.7 U	<9.7 U4	<4.9 U	1.6 J	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	1.6 J	<4.9 U1	<9.7 U
9606W084	PA39MW01A	02/09/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9307A611	PA39MW01A	02/18/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9307A612	PA39MW01A	02/18/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9611W159	PA39MW01A	03/14/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9606J860	PA39MW02A	02/09/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9307D024	PA39MW02A	02/19/1993	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9307D025	PA39MW02A	02/19/1993	0	A	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	<10 UJ3	NA	<10 UJ3	<10 UJ3	<25 U	<10 UJ3	<10 U	<10 UJ3
9611W158	PA39MW02A	03/14/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
0709W026	IR02MW126A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720J051	IR02MW126A	05/14/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0732J005	IR02MW126A	08/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740W013	IR02MW126A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0808E010	IR02MW126A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817H036	IR02MW126A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
9228J167	IR02MW147A	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9235X719	IR02MW147A	08/25/1992	0	A	<10 UJ0	<10 U	<10 U	<10 U	<2 U4	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
0110T023	IR02MW147A	03/16/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<2 U	<1 U	<1 U	<1 U
0229A009	IR02MW147A	07/17/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0239E009	IR02MW147A	09/25/2002	0	A	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<4.9 U	<4.9 U	<9.8 U	<9.8 U	<9.8 UJ3	<4.9 U	<9.8 U	<9.8 U	<4.9 U	<9.8 U	NA	<9.8 U	<9.8 U	<4.9 U	<4.9 U	<4.9 U	<9.8 U
9112X067	IR02MW149A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202N019	IR02MW149A	01/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X718	IR02MW149A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9205X474	IR02MW173A	01/29/1992	0	A	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	6 J5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	47 J5	<10 UJ5	NA	<10 UJ5	<10 UJ5	<50 UJ5	11 J5	<10 UJ5	<10 UJ5
9205X475	IR02MW173A	01/29/1992	0	A	<10 UJ5	3 J5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	7 J5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	<10 UJ5	52 J5	<10 UJ5	NA	<10 UJ5	<10 UJ5	<50 UJ5	12 J5	<10 UJ5	2 J5
9613W193	IR02MW173A	03/26/1996	0	A	<100 UJ0	<10 U	<10 U	<10 U	<10 U	<100 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 UJ0	<10 U	47 J	<10 U	NA	<10 U	<10 U	<25 U	<10 U	6 J	<10 U
9622J166	IR02MW173A	05/30/1996	0	A	<100 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<100 U	<10 U	16 J3	<10 U	NA	<10 U	<10 U	<25 U	3 J3	5 J3	<10 U
9203A089	IR02MW175A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9228X669	IR02MW175A	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9228X670	IR02MW175A	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J230	IR02MW175A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<3 U1	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0110P002	IR02MW175A	03/12/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<3 UJ7	<1 U	<1 U	<1 U
0229P014	IR02MW175A	07/18/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ37	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0239G002	IR02MW175A	09/23/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ7	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
9203A086	IR02MW179A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9224X616	IR02MW179A	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J231	IR02MW179A	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0110P004	IR02MW179A	03/12/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<2 UJ7	<1 U	<1 U	<1 U
0229D010	IR02MW179A	07/17/2002	0	A	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<9.8 U	<4.9 U	<4.9 U	<9.8 U	<9.8 U	<9.8 U	<4.9 U	<9.8 U	<9.8 U	<4.9 U	<9.8 U	NA	<9.8 U	<9.8 U	<4.9 U	<4.9 U	<4.9 U	<9.8 U
0229D011	IR02MW179A	07/17/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0238J020	IR02MW179A	09/20/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 UJ7	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
9203A087	IR02MW183A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	33 J	<10 U	24	9 J
9203A088	IR02MW183A	01/14/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9224X618	IR02MW183A	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J234	IR02MW183A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0110T024	IR02MW183A	03/16/2001	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 UJ3	<1 UJ3	<1 UJ3	<1 U	<1 U	<1 U	<1 U	NA	<1 U	<1 U	<2 U	<1 U	<1 U	<1 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0227E003	IR02MW183A	07/01/2002	0	A	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<9.7 U	<9.7 U	<9.7 UJ3	<4.9 U	<9.7 U	<9.7 U	<4.9 U	<9.7 U	NA	<9.7 U	<9.7 U	<4.9 U	<4.9 U	<4.9 U	<9.7 U
0227E004	IR02MW183A	07/01/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
0237G010	IR02MW183A	09/11/2002	0	A	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<9.6 U	<9.6 U	<9.6 UJ3	<4.8 U	<9.6 U	<9.6 U	<4.8 U	<9.6 U	NA	<9.6 U	<9.6 U	<4.8 U	<4.8 U	<4.8 U	<9.6 U
9112X063	IR02MW196A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9112X064	IR02MW196A	03/21/1991	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202A017	IR02MW196A	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9235X722	IR02MW196A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202A015	IR02MW206A1	01/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9224X615	IR02MW206A1	06/09/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X720	IR02MW206A1	08/25/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202A016	IR02MW206A2	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9224X611	IR02MW206A2	06/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 UR2	<10 U	<10 UR2	<10 U
9235X723	IR02MW206A2	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9202A013	IR02MW209A	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	<10 UJ1	<52 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9202A014	IR02MW209A	01/08/1992	0	A	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	<10 UJ1	NA	<10 UJ1	<10 UJ1	<50 UJ1	<10 UJ1	<10 UJ1	<10 UJ1
9224X609	IR02MW209A	06/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9224X610	IR02MW209A	06/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X725	IR02MW209A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9228J152	IR02MW298A	07/08/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<2 U1	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235X728	IR02MW298A	08/27/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9612W182	IR02MW298A	03/22/1996	0	A	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ0	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9228X661	IR02MW299A	07/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<4 U1	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9235J238	IR02MW299A	08/26/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
9612J946	IR02MW299A	03/21/1996	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	NA	<10 U	<10 U	<25 U	<10 U	<10 U	<10 U
9228X660	IR02MW300A	07/06/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U1	<10 U	<10 U	NA	<10 U	<10 U	<50 U	<10 U	<10 U	<10 U
0720J061	IR02MW301A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0732D009	IR02MW301A	08/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740D007	IR02MW301A	10/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0808D007	IR02MW301A	02/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817G023	IR02MW301A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0709L012	IR03MW218A2	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	20	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0719G001	IR03MW218A2	05/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	2.9J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734D035	IR03MW218A2	08/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	43	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0741D035	IR03MW218A2	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	54	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0810D051	IR03MW218A2	03/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0823H060	IR03MW218A2	06/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	1.8J	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	5.7	<10 U
0709G047	IR03MW224A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720W046	IR03MW224A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734H057	IR03MW224A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740D024	IR03MW224A	10/04/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E022	IR03MW224A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817E029	IR03MW224A	04/21/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0708L005	IR03MW342A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720G016	IR03MW342A	05/15/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0735W059	IR03MW342A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0741G024	IR03MW342A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809D031	IR03MW342A	02/28/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817E034	IR03MW342A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0817E035	IR03MW342A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	24	<10 U
0709G048	IR03MW373B	02/28/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720A055	IR03MW373B	05/17/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0735W060	IR03MW373B	08/27/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740D023	IR03MW373B	10/04/2007	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E020	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E021	IR03MW373B	02/27/2008	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817E028	IR03MW373B	04/21/2008	0	B	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0708G030	IR04MW13A	02/21/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0719W020	IR04MW13A	05/10/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734D031	IR04MW13A	08/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0741D034	IR04MW13A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809H025	IR04MW13A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0823H062	IR04MW13A	06/04/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0830H028	IR04MW13A	07/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0912N016	IR04MW13A	03/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0916P013	IR04MW13A	04/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0708G038	IR04MW36A	02/22/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0718J007	IR04MW36A	05/01/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734H071	IR04MW36A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0741N003	IR04MW36A	10/08/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809D012	IR04MW36A	02/25/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0816H017	IR04MW36A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0830H031	IR04MW36A	07/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0912W027	IR04MW36A	03/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
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0718J013	IR05MW85A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734H075	IR05MW85A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
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0809H026	IR05MW85A	02/27/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0816E025	IR05MW85A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0816E026	IR05MW85A	04/16/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0839G034	IR12MW11A	09/23/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0912W037	IR12MW11A	03/17/2009	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0916P014	IR12MW11A	04/16/2009	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0709W023	IR36MW12A	02/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720B004	IR36MW12A	05/17/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734D045	IR36MW12A	08/23/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740H021	IR36MW12A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E034	IR36MW12A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817E041	IR36MW12A	04/22/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0709Z026	IR39MW23A	02/28/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0720A057	IR39MW23A	05/18/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0734W057	IR39MW23A	08/24/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740H022	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740H023	IR39MW23A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E032	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809E033	IR39MW23A	02/29/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Table A2-8. Summary of Analytical Results for SVOCs* *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethylphthalate	Di-N-Butylphthalate	Di-N-Octylphthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene	Nitrobenzene	n-Nitrosodimethylamine	n-Nitroso-Di-N-Propylamine	n-Nitrosodiphenylamine	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
0816N008	IR39MW23A	04/17/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0708H027	IR56MW39A	02/20/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0718A005	IR56MW39A	05/02/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0735H082	IR56MW39A	08/27/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0740W016	IR56MW39A	10/03/2007	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0809P006	IR56MW39A	02/26/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U
0817D043	IR56MW39A	04/23/2008	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<5 U	<10 U	<5 U	<10 U

Notes:

*	All concentrations in micrograms per liter
bgs	below ground surface
SVOCs	semivolatile organic compounds

Table A2-9. Summary of Analytical Results for Pesticides

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
0111P015	IR01MW367A	03/21/2001	0	A	<0.01 U	<0.01 U	<0.01 UJ9	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	NA
0229P002	IR01MW367A	07/15/2002	0	A	<0.94 UJ7	<0.94 U	<0.19 U	<0.47 U	<2 UJ3	<0.47 U	<0.47 U	<0.47 U	<1 UJ3	NA	<0.09 U	<0.094 U	<0.09 U	<1 UJ3	<2 UJ3	<0.47 U	NA	<1 UJ3
0238S008	IR01MW367A	09/18/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	<1.9 UJ3	<0.04 U	<0.04 U	<0.04 U	<0.96 UJ3	NA	<0.0094 U	<0.0094 U	<0.0094 U	<0.96 UJ3	<1.9 UJ3	<0.04 U	NA	<0.96 UJ3
9202A009	IR02MW101A1	01/07/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202A010	IR02MW101A1	01/07/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9228J155	IR02MW101A1	07/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J219	IR02MW101A1	08/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J224	IR02MW101A2	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9202A012	IR02MW101A2	01/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9228J159	IR02MW101A2	07/09/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9204X435	IR02MW114A1	01/20/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9228J146	IR02MW114A1	07/07/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J225	IR02MW114A1	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
9228J166	IR02MW114A2	07/10/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J226	IR02MW114A2	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9228J153	IR02MW114A3	07/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J232	IR02MW114A3	08/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0110P011	IR02MW126A	03/13/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9228J158	IR02MW126A	07/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9228J157	IR02MW126A	07/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9235X717	IR02MW126A	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
0425G031	IR02MW127B	06/15/2004	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9205X468	IR02MW127B	01/28/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0511G048	IR02MW127B	03/15/2005	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0112P005	IR02MW127B	03/26/2001	0	B	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9230J175	IR02MW127B	07/21/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0230P006	IR02MW127B	07/23/2002	0	B	<0.09 U	<0.09 U	<0.02 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.0099 U	NA	<0.0099 U	NA	NA	<0.05 U	NA	NA
9235J233	IR02MW127B	08/26/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0437P021	IR02MW127B	09/07/2004	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0237E025	IR02MW127B	09/13/2002	0	B	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
0237E026	IR02MW127B	09/13/2002	0	B	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0096 U	NA	<0.0096 U	NA	NA	<0.04 U	NA	NA
0447R010	IR02MW127B	11/19/2004	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0110P015	IR02MW141A	03/14/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
0110P016	IR02MW141A	03/14/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9218Z059	IR02MW141A	05/07/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9218Z060	IR02MW141A	05/07/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9230J177	IR02MW141A	07/21/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9230J178	IR02MW141A	07/21/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0231E002	IR02MW141A	07/29/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9235X715	IR02MW141A	08/25/1992	0	A	<0.1 U	<0.5 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<2.5 U	NA	NA	<0.05 U	NA	NA
9235X716	IR02MW141A	08/25/1992	0	A	<0.1 U	<0.5 U	<0.5 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0239J001	IR02MW141A	09/23/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0095 U	NA	<0.0095 U	NA	NA	<0.04 U	NA	NA
0239J002	IR02MW141A	09/23/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0095 U	NA	<0.0095 U	NA	NA	<0.04 U	NA	NA
9205X478	IR02MW146A	01/30/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9205X479	IR02MW146A	01/30/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9613W194	IR02MW146A	03/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9622J162	IR02MW146A	05/29/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9622J163	IR02MW146A	05/29/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9203X415	IR02MW147A	01/15/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9228J167	IR02MW147A	07/10/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X719	IR02MW147A	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202N019	IR02MW149A	01/10/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9112X067	IR02MW149A	03/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9622J166	IR02MW173A	05/30/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A089	IR02MW175A	01/14/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0110P002	IR02MW175A	03/12/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0229P014	IR02MW175A	07/18/2002	0	A	<0.94 U	<0.94 U	<0.19 U	<0.47 U	NA	<0.47 U	<0.47 U	<0.47 U	NA	NA	<0.09 U	NA	<0.09 U	NA	NA	<0.47 U	NA	NA
9235J230	IR02MW175A	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0239G002	IR02MW175A	09/23/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9203A086	IR02MW179A	01/14/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J231	IR02MW179A	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J234	IR02MW183A	08/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9112X063	IR02MW196A	03/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	<0.05 UJ3	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	<0.05 UJ3	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J235	IR02MW210B	08/26/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9205X480	IR02MW210B	01/30/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9230J179	IR02MW210B	07/21/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.25 U	<0.25 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J236	IR02MW210B	08/26/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9612W182	IR02MW298A	03/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9228J152	IR02MW298A	07/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9235X728	IR02MW298A	08/27/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9612J946	IR02MW299A	03/21/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J238	IR02MW299A	08/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X726	IR02MW300A	08/26/1992	0	A	<0.1 U	0.24	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0511Z021	IR02MW300A	03/15/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
9612J943	IR02MW300A	03/20/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0425H030	IR02MW300A	06/16/2004	0	A	<0.05 UJ7	<0.05 UJ7	<0.05 U	<0.05 UJ7	NA	<0.05 UJ7	<0.05 U	<0.05 UJ7	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 UJ7	NA	NA
9228X660	IR02MW300A	07/06/1992	0	A	<0.1 U	0.14	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0438G050	IR02MW300A	09/15/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0449C031	IR02MW300A	11/30/2004	0	A	0.01 J	0.01 J	0.01 J	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	0.01 J	NA	0.01 J	NA	NA	0.005 J	NA	NA
0808D007	IR02MW301A	02/21/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0817G023	IR02MW301A	04/21/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 UJ	<0.05 U	NA	<0.05 U	<0.05 U	NA	NA	NA	NA	<0.05 U	NA	NA
0732D009	IR02MW301A	08/10/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0740D007	IR02MW301A	10/02/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0112P003	IR02MW372A	03/26/2001	0	A	<0.01 U	0.03	0.04	<0.005 U	NA	<0.005 U	0.008 J9	0.01 J9	NA	NA	<0.0051 UJ9	NA	0.05 J9	NA	NA	<0.005 U	NA	NA
9619J106	IR02MW372A	05/10/1996	0	A	0.16	1.2	0.17	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	0.03 J	NA	0.32	NA	NA	<0.05 U	NA	NA
0229P009	IR02MW372A	07/17/2002	0	A	<0.09 UJ7	0.05 J	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.02 UJ9	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
0237E008	IR02MW372A	09/10/2002	0	A	<0.09 UJ7	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	0.0088 J9	NA	0.11	NA	NA	<0.04 U	NA	NA
0237E009	IR02MW372A	09/10/2002	0	A	<0.09 UJ7	0.05 J	<0.02 UJ9	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	0.0099 J9	NA	0.1	NA	NA	<0.04 U	NA	NA
9547J609	IR02MW372A	11/22/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J904	IR02MW373A	03/04/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0112T001	IR02MW373A	03/26/2001	0	A	<0.01 U	<0.01 U	<0.01 UJ9	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	0.004 J	NA	NA	<0.005 U	NA	NA
9619J107	IR02MW373A	05/10/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9547J608	IR02MW373A	11/21/1995	0	A	0.24	0.05 J	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9202A001	IR02MW87A	01/06/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9113X078	IR02MW87A	03/26/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9230J176	IR02MW89A	07/21/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9202A004	IR02MW93A	01/06/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9112X071	IR02MW93A	03/22/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J221	IR02MW97A	08/24/1992	0	A	0.02 J7	0.02 J7	0.05 J7	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	<0.1 U	<0.1 U	0.12	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	<0.1 U	<0.1 U	0.18	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0230P016	IR02MW97A	07/26/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9235J220	IR02MW97A	08/24/1992	0	A	0.06 J7	0.02 J7	0.06 J7	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0238E003	IR02MW97A	09/16/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9228J148	IR02MWB-1	07/07/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A028	IR02MWB-1	01/13/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9228J149	IR02MWB-1	07/07/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J239	IR02MWB-1	08/27/1992	0	A	<0.1 UR2	<0.1 UR2	<0.1 UR2	<0.05 UR2	NA	<0.05 UR2	<0.05 UR2	<0.05 UR2	NA	NA	<0.5 UR2	NA	<0.5 UR2	NA	NA	<0.05 UR2	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	<0.5 UJ3	NA	NA	<0.05 UJ3	NA	NA
9228J151	IR02MWB-2	07/07/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J240	IR02MWB-2	08/27/1992	0	A	<0.1 UR2	<0.1 UR2	<0.1 UR2	<0.05 UR2	NA	<0.05 UR2	<0.05 UR2	<0.05 UR2	NA	NA	<0.5 UR2	NA	<0.5 UR2	NA	NA	<0.05 UR2	NA	NA
9204X432A	IR02MWB-3	01/20/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
0110P020	IR02MWB-3	03/15/2001	0	A	<0.01 U	<0.01 U	0.008 J	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 UJ9	NA	NA	<0.005 U	NA	NA
0511G047	IR02MWB-3	03/15/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0425S045	IR02MWB-3	06/17/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	<2 U	<2 U	<2 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	<10 U	NA	<10 U	NA	NA	<1 U	NA	NA
0229P020	IR02MWB-3	07/19/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0095 U	NA	<0.0095 U	NA	NA	<0.04 U	NA	NA
9235J241	IR02MWB-3	08/27/1992	0	A	<0.5 U	<2.5 U	<0.5 U	<1.2 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<12 U	NA	NA	<0.25 U	NA	NA
9235J242	IR02MWB-3	08/27/1992	0	A	<0.5 U	<2.5 U	<0.5 U	<1.2 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<12 U	NA	NA	<0.25 U	NA	NA
0438C055	IR02MWB-3	09/17/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0239J003	IR02MWB-3	09/23/2002	0	A	<0.95 U	<0.95 U	<0.19 U	<0.48 U	NA	<0.48 U	<0.48 U	<0.48 U	NA	NA	<0.09 U	NA	<0.09 U	NA	NA	<0.48 U	NA	NA
0448C019	IR02MWB-3	11/23/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9204X441A	IR02MWB-5	01/21/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0110D004	IR02MWB-5	03/13/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J245	IR02MWB-5	08/28/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	<5 U	<5 U	<5 U	<2.5 U	NA	<2.5 U	<2.5 U	<2.5 U	NA	NA	<25 U	NA	<25 U	NA	NA	<2.5 U	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9228X664	IR03MW218A2	07/09/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<2.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9235X730	IR03MW218A2	08/27/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9203X416	IR03MW218A3	01/16/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9235X729	IR03MW218A3	08/27/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9230J196	IR03MW224A	07/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9204X451	IR03MW224A	01/23/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0109P003	IR03MW224A	03/06/2001	0	A	<0.01 U	<0.01 U	<0.01 UJ7	<0.005 U	NA	<0.005 UJ7	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 UJ7	NA	NA
9235X734	IR03MW224A	08/28/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9614Z024	IR03MW225A	04/03/1996	0	A	<0.1 U	<0.1 U	<0.1 UJ7	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9205X470	IR03MW225A	01/28/1992	0	A	<0.2 U	<0.2 U	<0.2 U	<0.1 U	NA	<0.1 U	<0.1 U	<0.1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<0.1 U	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9625Z050	IR03MW225A	06/19/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9205X461	IR03MW226A	01/27/1992	0	A	<0.2 U	<0.2 U	<0.2 U	<0.1 U	NA	<0.1 U	<0.1 U	<0.1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<0.1 U	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	<0.2 U	<0.2 U	<0.2 U	<0.1 U	NA	<0.1 U	<0.1 U	<0.1 U	NA	NA	<1 U	NA	<1 U	NA	NA	<0.1 U	NA	NA
9230J197	IR03MW226A	07/24/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9230J198	IR03MW226A	07/24/1992	0	A	<2 U	<2 U	<2 U	<1 U	NA	<1 U	<1 U	<1 U	NA	NA	<10 U	NA	<10 U	NA	NA	<1 U	NA	NA
0231E018'	IR03MW228B	08/02/2002	0	B	<0.09U	<0.09U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9235J244	IR03MW228B	08/28/1992	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0237S014	IR03MW228B	09/12/2002	0	B	<0.09 UJ7	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
0602H043	IR03MW342A	01/10/2006	0	A	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 UJ	NA	<0.05 UJ	<0.05 U	<0.05 UJ	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0602H044	IR03MW342A	01/10/2006	0	A	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 UJ	NA	<0.05 UJ	<0.05 U	<0.05 UJ	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0708L005	IR03MW342A	02/22/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0809D031	IR03MW342A	02/28/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0510G026	IR03MW342A	03/10/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0611S012	IR03MW342A	03/14/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0110T017	IR03MW342A	03/15/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	0.003 J	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9612J944	IR03MW342A	03/21/1996	0	A	<1 UR3	<1 UR3	<1 UR3	<0.5 UR3	NA	<0.5 UR3	<0.5 UR3	<0.5 UR3	NA	NA	<0.5 UR3	NA	<0.5 UR3	NA	NA	<0.5 UR3	NA	NA
9612J945	IR03MW342A	03/21/1996	0	A	<0.5 UR3	<0.5 UR3	<0.5 UR3	<0.25 UR3	NA	<0.25 UR3	<0.25 UR3	<0.25 UR3	NA	NA	<0.25 UR3	NA	<0.25 UR3	NA	NA	<0.25 UR3	NA	NA
0817E034	IR03MW342A	04/22/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	NA	NA	NA	NA	<0.05 U	NA	NA
0720G016	IR03MW342A	05/15/2007	0	A	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0622S011	IR03MW342A	06/01/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0425S039	IR03MW342A	06/16/2004	0	A	0.0061 J	<0.05 UJ7	<0.05 UJ7	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 UJ7	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 UJ7	NA	NA
0526G043	IR03MW342A	06/28/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9228X647	IR03MW342A	07/06/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0735W059	IR03MW342A	08/27/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
9235X736	IR03MW342A	08/28/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0636D037	IR03MW342A	09/06/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0636D038	IR03MW342A	09/06/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0438G042	IR03MW342A	09/14/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0538A028	IR03MW342A	09/21/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0741G024	IR03MW342A	10/08/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	NA	<0.05 UJ	<0.05 U	<0.05 UJ	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0448C016	IR03MW342A	11/22/2004	0	A	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0650W041	IR03MW342A	12/11/2006	0	A	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 UJ	NA	<0.05 UJ	<0.05 UJ	<0.05 UJ	NA	NA	<0.05 U	<0.05 UJ	NA	NA	NA	<0.05 UJ	NA	NA
9548J613	IR03MW369A	11/29/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J911	IR03MW369A	03/06/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9621J126	IR03MW369A	05/20/1996	0	A	<0.1 UJ5	<0.1 UJ5	<0.1 UJ5	<0.05 UJ5	NA	<0.05 UJ5	<0.05 UJ5	<0.05 UJ5	NA	NA	<0.05 UJ5	NA	<0.05 UJ5	NA	NA	<0.05 UJ5	NA	NA
9610J908	IR03MW370A	03/06/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	0.03 J	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9620J125	IR03MW370A	05/16/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9548J615	IR03MW370A	11/30/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9548J617	IR03MW371A	11/30/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J912	IR03MW371A	03/06/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9620J123	IR03MW371A	05/16/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9620J124	IR03MW371A	05/16/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9548J618	IR03MW371A	11/30/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0602H041	IR03MW373B	01/09/2006	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0809E020	IR03MW373B	02/27/2008	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0809E021	IR03MW373B	02/27/2008	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0709G048	IR03MW373B	02/28/2007	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0510R032	IR03MW373B	03/10/2005	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0611S026	IR03MW373B	03/17/2006	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0817E028	IR03MW373B	04/21/2008	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 UJ	<0.05 U	NA	<0.05 U	<0.05 U	NA	NA	NA	NA	<0.05 U	NA	NA
0720A055	IR03MW373B	05/17/2007	0	B	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0623P056	IR03MW373B	06/08/2006	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0425S037	IR03MW373B	06/15/2004	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0526G046	IR03MW373B	06/28/2005	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0634G006	IR03MW373B	08/25/2006	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0735W060	IR03MW373B	08/27/2007	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0438J024	IR03MW373B	09/14/2004	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0538A040	IR03MW373B	09/23/2005	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0740D023	IR03MW373B	10/04/2007	0	B	<0.05 U	<0.05 UJ	<0.05 U	<0.05 UJ	NA	<0.05 UJ	<0.05 U	<0.05 UJ	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0447C013	IR03MW373B	11/19/2004	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0649G031	IR03MW373B	12/04/2006	0	B	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	<10 U	<10 U	<10 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	<0.5 U	<5 U	<5 U	<0.25 U	NA	<0.25 U	<0.25 U	<2.5 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	<20 U	<20 U	<20 U	<10 U	NA	<10 U	<10 U	<10 U	NA	NA	<100 U	NA	<100 U	NA	NA	<10 U	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9225X620	IR04MW09A	06/15/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0602D039	IR04MW13A	01/11/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
9207X518	IR04MW13A	02/12/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
9207X519	IR04MW13A	02/12/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
0708G030	IR04MW13A	02/21/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 UJ	<0.05 U	<1 UJ	NA
0809H025	IR04MW13A	02/27/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 UJ	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 U	<0.05 UJ	<1 UJ	NA
0509G009	IR04MW13A	03/03/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ7	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<01 UJ7	NA
0611J032	IR04MW13A	03/16/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0611J033	IR04MW13A	03/16/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0719W020	IR04MW13A	05/10/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 UJ	<0.05 U	<1 UJ	NA
0622T013	IR04MW13A	05/31/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
9225X627	IR04MW13A	06/17/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9225X628	IR04MW13A	06/17/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0526T039	IR04MW13A	06/27/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	<5 UJ7	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
0427S052	IR04MW13A	06/28/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	NA	<0.05 U	<0.5 U	<01 U	<0.05 U	<01 U	NA
0734D031	IR04MW13A	08/20/2007	0	A	<0.05 UJ	<0.05 U	<0.05 U	<0.05 UJ	<5 UJ	<0.05 UJ	<0.05 U	<0.05 UJ	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 UJ	<0.05 UJ	<1 UJ	NA
0537T010	IR04MW13A	09/15/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0537T011	IR04MW13A	09/15/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0438G051	IR04MW13A	09/16/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	<5 UJ7	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	NA	<0.05 U	<0.5 U	<01 U	<0.05 U	<01 UJ7	NA
0741D034	IR04MW13A	10/08/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<5 UJ	<0.05 UJ	<0.05 U	<0.05 UJ	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 UJ	<0.05 UJ	<1 UJ	NA
9146X259	IR04MW13A	11/14/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0450G051	IR04MW13A	12/06/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	NA	<0.05 U	<0.5 U	<01 U	<0.05 U	<01 U	NA
0649D036	IR04MW13A	12/07/2006	0	A	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	<5 U	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.5 U	NA	<0.05 UJ	<0.05 UJ	NA	<0.5 U	<1 U	<0.05 UJ	<1 U	NA
9146X256	IR04MW31A	11/14/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9207X517	IR04MW31A	02/12/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
9225X629	IR04MW31A	06/17/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	<0.51 U	NA	NA	<0.05 U	NA	NA
9225X623	IR04MW35A	06/15/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9146X254	IR04MW36A	11/14/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
0438T014	IR04MW36A	09/16/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 J3	<5 UJ7	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	NA	<0.05 U	<0.5 U	<01 U	<0.05 U	<01 UJ7	NA
0601T023	IR04MW36A	01/05/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 U	<0.05 U	<1 UJ	NA
9207X523	IR04MW36A	02/13/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	<0.51 U	NA	NA	<0.05 U	NA	NA
9207X524	IR04MW36A	02/13/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
0708G038	IR04MW36A	02/22/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 UJ	<0.05 U	<1 UJ	NA
0809D012	IR04MW36A	02/25/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
0509G004	IR04MW36A	03/02/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ7	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<01 UJ7	NA
0612H046	IR04MW36A	03/22/2006	0	A	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 UJ	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
0718J007	IR04MW36A	05/01/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 UJ	<0.05 U	<1 UJ	NA
0622T012	IR04MW36A	05/31/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0524T014	IR04MW36A	06/16/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ7	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
9225X630	IR04MW36A	06/17/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	<0.05 UJ7	<0.05 UJ7	<0.05 U	<0.05 UJ7	<5 U	<0.05 UJ7	<0.05 U	<0.05 UJ7	<0.5 U	NA	<0.05 U	NA	<0.05 U	<0.5 U	<01 U	<0.05 UJ7	<01 U	NA
0734H071	IR04MW36A	08/23/2007	0	A	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	<5 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.5 UJ	NA	<0.05 UJ	<0.05 UJ	NA	<0.5 UJ	<1 UJ	<0.05 UJ	<1 UJ	NA
0536T003	IR04MW36A	09/08/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
0741N003	IR04MW36A	10/08/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<5 UJ	<0.05 UJ	<0.05 U	<0.05 UJ	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 UJ	<0.05 UJ	<1 UJ	NA
9146X255	IR04MW36A	11/14/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
0648G018	IR04MW36A	11/28/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0449P037	IR04MW36A	12/02/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 UJ7	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	NA	<0.05 U	<0.5 U	<01 U	<0.05 UJ7	<01 U	NA
9207X530	IR04MW37A	02/14/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
9207X531	IR04MW37A	02/14/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	<0.51 U	NA	NA	<0.05 U	NA	NA
9225X621	IR04MW37A	06/15/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9225X622	IR04MW37A	06/15/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X282	IR04MW37A	11/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	<0.12 U	<0.12 U	<0.12 U	<0.06 U	NA	<0.06 U	<0.06 U	<0.06 U	NA	NA	<0.62 U	NA	<0.62 U	NA	NA	<0.06 U	NA	NA
9225X632	IR04MW38A	06/17/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9146X264	IR04MW38A	11/15/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.1 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9225X625	IR04MW39A	06/15/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X283	IR04MW39A	11/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9146X261	IR04MW40A	11/15/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	<0.51 U	NA	NA	<0.05 U	NA	NA
9225X631	IR04MW40A	06/17/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
0111T002	IR05MW73A	03/19/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
0111T003	IR05MW73A	03/19/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9225X644	IR05MW73A	06/19/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
9225X640	IR05MW74A	06/18/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X269	IR05MW74A	11/18/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.56 U	NA	<0.56 U	NA	NA	<0.05 U	NA	NA
9207A100	IR05MW76A	02/11/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	<0.51 U	NA	NA	<0.05 U	NA	NA
9225X642	IR05MW76A	06/19/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9225X643	IR05MW76A	06/19/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207A096	IR05MW77A	02/10/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
9207A097	IR05MW77A	02/10/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.54 U	NA	<0.54 U	NA	NA	<0.05 U	NA	NA
9225X635	IR05MW77A	06/18/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	<0.53 U	NA	NA	<0.05 U	NA	NA
9225X639	IR05MW82A	06/18/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9612W183	IR05MW85A	03/21/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9225X636	IR05MW85A	06/18/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9225X637	IR05MW85A	06/18/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9230J194	IR05MW85A	07/24/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9230J195	IR05MW85A	07/24/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
0232E002	IR05MW85A	08/06/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0095 U	NA	<0.0095 U	NA	NA	<0.04 U	NA	NA
9405N295	IR08MW37A	02/01/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	<1 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9405N296	IR08MW37A	02/01/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	NA	NA	<1 UJ3	NA	NA	<0.05 UJ3	NA	NA
9419X278	IR08MW37A	05/10/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9128X091	IR08MW37A	07/10/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9128X092	IR08MW37A	07/10/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9434M578	IR08MW37A	08/26/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9344X052	IR08MW37A	11/05/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9151X352	IR08MW37A	12/19/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9128X094	IR08MW38A	07/10/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9434M579	IR08MW38A	08/26/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9405N298	IR08MW38A	02/01/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	<1 U	NA	NA	<0.05 U	NA	NA
9419X277	IR08MW38A	05/10/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9344X050	IR08MW38A	11/05/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9344X051	IR08MW38A	11/05/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9151X358	IR08MW38A	12/20/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9128X095	IR08MW39A	07/10/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9435E158	IR08MW39A	09/01/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9151X359	IR08MW39A	12/20/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9151X360	IR08MW39A	12/20/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9151X353	IR08MW40A	12/19/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9406X183	IR08MW40A	02/07/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	NA	NA	<1 UJ3	NA	NA	<0.05 UJ3	NA	NA
9419X287	IR08MW40A	05/11/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9128X093	IR08MW40A	07/10/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9435E160	IR08MW40A	09/01/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9345X055	IR08MW40A	11/08/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9345X056	IR08MW40A	11/08/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9151X354	IR08MW40A	12/19/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9406X181	IR08MW41A	02/07/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	<1 U	NA	NA	<0.05 U	NA	NA
9406X182	IR08MW41A	02/07/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	<1 U	NA	NA	<0.05 U	NA	NA
9419X286	IR08MW41A	05/11/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9128X098	IR08MW41A	07/11/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9435E159	IR08MW41A	09/01/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9344X053	IR08MW41A	11/05/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9151X355	IR08MW41A	12/19/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9406X185	IR08MW42A	02/07/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	<1 U	NA	NA	<0.05 U	NA	NA
9419X275	IR08MW42A	05/10/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9419X276	IR08MW42A	05/10/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9434M577	IR08MW42A	08/26/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9141X204	IR08MW42A	10/07/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9344X045	IR08MW42A	11/04/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9344X046	IR08MW42A	11/04/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9151X362	IR08MW42A	12/20/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9606W066	IR08MW43A	02/05/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J913	IR08MW43A	03/07/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9440X501	IR08MW43A	10/03/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9440X502	IR08MW43A	10/03/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9610J914	IR08MW44A	03/07/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606W064	IR08MW44A	02/05/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606W065	IR08MW44A	02/05/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9440X504	IR08MW44A	10/04/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9440X505	IR08MW44A	10/04/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
0109P014	IR11MW25A	03/09/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U2	<0.005 U	NA	NA	<0.005 U	NA	0.005	NA	NA	<0.005 U	NA	NA
8914W25	IR11MW25A	03/10/1989	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9034G314	IR11MW25A	08/22/1990	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9148X298	IR11MW25A	11/25/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9034G301	IR11MW26A	08/21/1990	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9238X756	IR11MW26A	09/15/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9148X297	IR11MW26A	11/25/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
8914W27	IR11MW27A	03/10/1989	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9034G300	IR11MW27A	08/21/1990	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9238X755	IR11MW27A	09/15/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9209X547	IR12MW11A	02/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9612W185	IR12MW11A	03/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9134X179	IR12MW11A	08/26/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X544	IR12MW12A	02/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X185	IR12MW12A	08/27/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X782	IR12MW12A	09/21/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9239X783	IR12MW12A	09/21/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9209X545	IR12MW13A	02/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X546	IR12MW13A	02/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X180	IR12MW13A	08/26/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X787	IR12MW13A	09/22/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9239X788	IR12MW13A	09/22/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9209X552	IR12MW14A	02/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X181	IR12MW14A	08/26/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X182	IR12MW14A	08/26/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X789	IR12MW14A	09/22/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0238A004	IR12MW15A	09/16/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA		<0.0098 U	NA	<0.0098 U	NA	NA	<0.04 U	NA	NA
9209X553	IR12MW15A	02/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0232E003	IR12MW15A	08/06/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9134X186	IR12MW15A	08/27/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0238A003	IR12MW15A	09/16/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9238X778	IR12MW15A	09/18/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9209X555	IR12MW16A	02/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X188	IR12MW16A	08/27/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X189	IR12MW16A	08/27/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X797	IR12MW16A	09/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0238A002	IR12MW17A	09/16/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	0.06 J9	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9234X691	IR12MW17A	08/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
0509R005	IR12MW17A	03/02/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0110T002	IR12MW17A	03/12/2001	0	A	<0.01 U	<0.01 U	0.008 J	<0.0052 UJ9	NA	<0.005 U	0.06 J9	<0.0052 UJ9	NA	NA	<0.005 U	NA	0.007 J9	NA	NA	0.008 J9	NA	NA
9612W186	IR12MW17A	03/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0424M013	IR12MW17A	06/10/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0525T026	IR12MW17A	06/21/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0229P018	IR12MW17A	07/19/2002	0	A	<0.95 U	<0.95 U	<0.19 U	<0.48 U	NA	<0.48 U	0.39 J	<0.48 U	NA	NA	<0.09 U	NA	<0.09 U	NA	NA	<0.48 U	NA	NA
0229P019	IR12MW17A	07/19/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	0.06 J9	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9234X690	IR12MW17A	08/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
0437P031	IR12MW17A	09/10/2004	0	A	0.07	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9239X795	IR12MW17A	09/24/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
0447C009	IR12MW17A	11/17/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613W189	IR12MW18A	03/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613W190	IR12MW18A	03/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9234X692	IR12MW18A	08/19/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X793	IR12MW18A	09/24/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9239X794	IR12MW18A	09/24/1992	0	A	<0.11 UJ3	<0.11 UJ3	<0.11 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9613W191	IR12MW19A	03/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9234X693	IR12MW19A	08/19/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X800	IR12MW19A	09/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9239X801	IR12MW19A	09/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613J971	IR12MW20A	03/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9234X694	IR12MW20A	08/19/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X799	IR12MW20A	09/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9614Z022	IR12MW21A	04/02/1996	0	A	<0.1 U	<0.1 U	<0.1 UJ7	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9618J076	IR12MW21A	05/02/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9234X695	IR12MW21A	08/19/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<1.2 U	NA	<1.2 U	<1.2 U	<1.2 U	NA	NA	<12 U	NA	<12 U	NA	NA	<1.2 U	NA	NA
9239A459	IR12MW21A	09/23/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
9238X777	IR13MW10A	09/18/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9209X550	IR13MW10A	02/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X551	IR13MW10A	02/25/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X193	IR13MW10A	08/28/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X558	IR13MW11A	02/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X190	IR13MW11A	08/28/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.25 U	NA	NA
9238X768	IR13MW11A	09/17/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9238X769	IR13MW11A	09/17/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9134X192	IR13MW12A	08/28/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X557	IR13MW12A	02/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X191	IR13MW12A	08/28/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9238X775	IR13MW12A	09/18/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9238X776	IR13MW12A	09/18/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9209X559	IR14MW09A	02/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X560	IR14MW09A	02/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0109T013	IR14MW09A	03/07/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
0230P003	IR14MW09A	07/22/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0096 U	NA	<0.0096 U	NA	NA	<0.04 U	NA	NA
9238X754	IR14MW09A	09/15/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
0238A006	IR14MW09A	09/17/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9148X304	IR14MW09A	11/27/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9148X305	IR14MW09A	11/27/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X562	IR14MW10A	02/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0109T018	IR14MW10A	03/08/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9238X752	IR14MW10A	09/15/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9238X753	IR14MW10A	09/15/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9147X285	IR14MW10A	11/22/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9147X286	IR14MW10A	11/22/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X561	IR14MW12A	02/26/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
0109P013	IR14MW12A	03/09/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
0230D010A	IR14MW12A	07/25/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
0238S009	IR14MW12A	09/19/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9147X272	IR14MW12A	11/20/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9614Z021	IR14MW13A	04/02/1996	0	A	<0.1 U	<0.1 U	<0.1 UJ7	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9619J102	IR14MW13A	05/09/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9234X696	IR14MW13A	08/19/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9239A457	IR14MW13A	09/23/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
9239A458	IR14MW13A	09/23/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.5 U	NA	NA
9209X564	IR15MW06A	02/27/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9238X750	IR15MW06A	09/14/1992	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9147X276	IR15MW06A	11/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9147X274	IR15MW07A	11/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9209X565	IR15MW07A	02/27/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9209X566	IR15MW07A	02/27/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9147X273	IR15MW07A	11/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<0.25 U	NA	NA
9239X792	IR15MW08A	09/24/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613W201	IR15MW08A	03/28/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613W202	IR15MW08A	03/28/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	<5 U	<5 U	<5 U	<2.5 U	NA	<2.5 U	<2.5 U	<2.5 U	NA	NA	<25 U	NA	<25 U	NA	NA	<2.5 U	NA	NA
9233X676	IR15MW08A	08/13/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9233X679	IR15MW09F	08/14/1992	00	F	<0.5 U	<0.5 U	<0.5 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<0.25 U	NA	<0.25 U	NA	NA	<0.25 U	NA	NA
9613W195	IR15MW09F	03/27/1996	0	F	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9239X785	IR15MW09F	09/22/1992	0	F	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613W198	IR15MW10F	03/27/1996	0	F	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9233X678	IR15MW10F	08/14/1992	0	F	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9239X786	IR15MW10F	09/22/1992	0	F	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9238X761	IR17MW11A	09/16/1992	0	A	<0.01UJ5	<0.01UJ5	<0.01UJ5	<0.05 U J5	NA	<0.05 U J5	<0.05 U J5	<0.05 U J5	NA	NA	<0.05 U J5	NA	<0.05 U J5	NA	NA	<0.05 U J5	NA	NA
9603J803	IR17MW11A	01/16/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9209X570	IR17MW11A	02/28/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X199	IR17MW11A	08/29/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9238X760	IR17MW11A	09/16/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9209X568	IR17MW12A	02/27/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X198	IR17MW12A	08/29/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9238X770	IR17MW12A	09/17/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9209X571	IR17MW13A	02/28/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9209X572	IR17MW13A	02/28/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X196	IR17MW13A	08/29/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9134X197	IR17MW13A	08/29/1991	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	<0.5 U	NA	NA	<0.05 U	NA	NA
9238X771	IR17MW13A	09/17/1992	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W039	IR36MW09A	01/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611J932	IR36MW09A	03/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9428E065	IR36MW09A	07/13/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9603W012	IR36MW11A	01/18/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9608J883	IR36MW11A	02/21/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0109D011	IR36MW11A	03/07/2001	0	A	<0.01 U	<0.01 U	<0.01 UJ7	<0.005 U	NA	<0.005 UJ7	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.0052 UJ97	NA	NA
0109D014	IR36MW11A	03/07/2001	0	A	<0.01 U	<0.01 U	<0.01 UJ7	<0.005 U	NA	<0.005 UJ7	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.0052 UJ97	NA	NA
0229E018	IR36MW11A	07/18/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9437X471	IR36MW11A	09/12/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9437X472	IR36MW11A	09/12/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0238G003	IR36MW11A	09/18/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9611J923	IR36MW120B	03/13/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9617J043	IR36MW120B	04/23/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9623J174	IR36MW120B	06/04/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611J924	IR36MW121A	03/13/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9617J044	IR36MW121A	04/24/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9623J175	IR36MW121A	06/04/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9623J176	IR36MW121A	06/04/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9611W157	IR36MW122A	03/13/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9617J055	IR36MW122A	04/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9623J172	IR36MW122A	06/03/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9623J17	IR36MW123B	06/03/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611W156	IR36MW123B	03/13/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9618J065	IR36MW123B	04/30/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W034	IR36MW125A	01/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611W165	IR36MW125A	03/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9618J061	IR36MW125A	04/29/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W033	IR36MW126A	01/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611J931	IR36MW126A	03/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9620J112	IR36MW126A	05/13/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W037	IR36MW127A	01/25/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611J930	IR36MW127A	03/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9618J062	IR36MW127A	04/29/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W029	IR36MW128A	1/24/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0109D008	IR36MW128A	03/06/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.0051 U29	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9611J929	IR36MW128A	03/14/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9617J037	IR36MW128A	04/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0229P017	IR36MW128A	07/19/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
0237E010	IR36MW128A	09/10/2002	0	A	<0.94 U	<0.94 U	<0.19 UJ7	<0.47 U	NA	<0.47 U	<0.47 U	<0.47 U	NA	NA	<0.09 U	NA	<0.09 U	NA	NA	<0.47 U	NA	NA
9611J927	IR36MW129B	03/14/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611J928	IR36MW129B	03/14/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9617J041	IR36MW129B	04/23/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9617J042	IR36MW129B	04/23/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9622J168	IR36MW129B	05/31/1996	0	B	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9603W013	IR36MW12A	01/19/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9608J889	IR36MW12A	02/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9437X473	IR36MW12A	09/12/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9602J783	IR36MW135A	01/09/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9607J865	IR36MW135A	02/12/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611W164	IR36MW135A	03/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604Z011	IR36MW139A	01/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9608J888	IR36MW139A	02/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613W199	IR36MW139A	03/28/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9603W011	IR36MW13A	01/18/1996	0	A	<0.1 UJ1	<0.1 UJ1	<0.1 UJ1	<0.05 UJ1	NA	<0.05 UJ1	<0.05 UJ1	<0.05 UJ1	NA	NA	<0.05 UJ1	NA	<0.05 UJ1	NA	NA	<0.05 UJ1	NA	NA
9608J886	IR36MW13A	02/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9444X560	IR36MW13A	11/03/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9444X561	IR36MW13A	11/03/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.02 U1J3	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9603W010	IR36MW14A	01/18/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9608W116	IR36MW14A	02/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9443X538	IR36MW14A	10/25/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9443X539	IR36MW14A	10/25/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9605W060	IR36MW15A	02/01/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J903	IR36MW15A	03/04/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9438X484	IR36MW15A	09/20/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	0.01 J3	NA	0.01 J3	NA	NA	<0.05 UJ3	NA	NA
9438X485	IR36MW15A	09/20/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	0.01 J3	NA	0.02 J3	NA	NA	<0.05 UJ3	NA	NA
9439X499	IR36MW16A	09/27/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9605W054	IR36MW16A	01/31/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J906	IR36MW16A	03/05/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J907	IR36MW16A	03/05/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9439X498	IR36MW16A	09/27/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9603W016	IR36MW17A	01/19/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0602H050	IR36MW17A	01/12/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
9603W017	IR36MW17A	01/19/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9608J887	IR36MW17A	02/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0809E018	IR36MW17A	02/27/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0809E019	IR36MW17A	02/27/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
0712D021	IR36MW17A	03/20/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0612M038	IR36MW17A	03/21/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0612M039	IR36MW17A	03/21/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0513Z028	IR36MW17A	03/29/2005	0	A	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0719W023	IR36MW17A	05/11/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0719W024	IR36MW17A	05/11/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0623M030	IR36MW17A	06/07/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0623M031	IR36MW17A	06/07/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0425R005	IR36MW17A	06/18/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0425R006	IR36MW17A	06/18/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0526D037	IR36MW17A	06/29/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
0734D050	IR36MW17A	08/23/2007	0	A	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	NA	<0.05 UJ	<0.05 UJ	<0.05 UJ	NA	NA	<0.05 UJ	<0.05 UJ	NA	NA	NA	<0.05 UJ	NA	NA
0438J025	IR36MW17A	09/14/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0538T030	IR36MW17A	09/22/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0740W028	IR36MW17A	10/05/2007	0	A	<0.05 U	<0.05 UJ	<0.05 U	<0.05 UJ	NA	<0.05 UJ	<0.05 U	<0.05 UJ	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 UJ	NA	NA
9442X532	IR36MW17A	10/18/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	0.05 J3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9442X533	IR36MW17A	10/18/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0450J055	IR36MW17A	12/06/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0649D035	IR36MW17A	12/06/2006	0	A	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	NA	<0.05 UJ	<0.05 UJ	<0.05 UJ	NA	NA	<0.05 UJ	<0.05 UJ	NA	NA	NA	<0.05 UJ	NA	NA
9604Z012	IR38MW01A	01/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9608J885	IR38MW01A	02/22/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9441X521	IR38MW01A	10/12/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9441X522	IR38MW01A	10/12/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9604W022	IR38MW02A	01/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W021	IR38MW02A	01/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9608W121	IR38MW02A	02/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9443X535	IR38MW02A	10/24/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9443X536	IR38MW02A	10/24/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0227P007	IR39MW21A	07/02/2002	0	A	<0.09 U	<0.09 U	<0.06U	<0.04U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094U	NA	<0.01UJ9	NA	NA	<0.04 U	NA	NA
9604W025	IR39MW21A	01/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9609J886	IR39MW21A	02/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0109T024	IR39MW21A	03/09/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 UJ9	NA	NA
0425C036	IR39MW21A	06/16/2004	0	A	<0.05 U	<0.05 UJ7	<0.05 UJ7	0.01 J	NA	<0.05 UJ7	<0.05 U	<0.05 UJ7	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	0.02 J7	NA	NA
9425E029	IR39MW21A	06/22/1994	0	A	<0.1 UJ5	<0.1 UJ5	<0.1 UJ5	<0.05 UJ5	NA	<0.05 UJ5	<0.05 UJ5	<0.05 UJ5	NA	NA	0.02 J35	NA	<0.05 UJ5	NA	NA	<0.05 UJ5	NA	NA
0227P008	IR39MW21A	07/02/2002	0	A	<0.09 U	<0.09 U	<0.02 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.0099 U	NA	<0.0099 U	NA	NA	<0.05 U	NA	NA
0237S003	IR39MW21A	09/09/2002	0	A	<0.09 U	<0.09 U	<0.01 UJ7	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.01 UJ9	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
0449C027	IR39MW21A	11/29/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9437X481	IR39MW22A	09/14/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9605W045	IR39MW22A	01/29/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9609J897	IR39MW22A	02/29/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9437X480	IR39MW22A	09/14/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9604W040	IR39MW23A	01/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W041	IR39MW23A	01/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9609J884	IR39MW23A	02/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9437K156	IR39MW23A	09/15/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9437K157	IR39MW23A	09/15/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9604W042	IR39MW24A	01/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9609J885	IR39MW24A	02/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9438X490	IR39MW24A	09/21/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9438X491	IR39MW24A	09/21/1994	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9604W024	IR39MW33A	01/23/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9609W123	IR39MW33A	02/26/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9613W204	IR39MW33A	03/29/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9602J790	IR39MW35A	01/10/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9607W096	IR39MW35A	02/14/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9607W097	IR39MW35A	02/14/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9612J934	IR39MW35A	03/18/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9602J787	IR39MW36A	01/10/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9602J789	IR39MW36A	01/10/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9607W098	IR39MW36A	02/14/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9612J935	IR39MW36A	03/18/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610W136	IR56MW39A	03/04/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9620J120	IR56MW39A	05/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9444X557	IR56MW39A	11/02/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9444X558	IR56MW39A	11/02/1994	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610J905	IR72MW32A	3/5/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0110P027	IR72MW32A	03/16/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
9620J119	IR72MW32A	05/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0229P003	IR72MW32A	07/15/2002	0	A	<0.09 U	<0.09 U	<0.01 UJ7	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
0238G004	IR72MW32A	09/18/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9547W195	IR72MW32A	11/21/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9610W138	IR72MW33A	03/05/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9620J118	IR72MW33A	05/15/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9547W197	IR72MW33A	11/22/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0602D042	PA36MW01A	01/11/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
9305J230	PA36MW01A	02/04/1993	0	A	<0.002 U1J3	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.02 U1J3	NA	NA
9606W074	PA36MW01A	02/07/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0708H030	PA36MW01A	02/21/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0708H031	PA36MW01A	02/21/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
9611W148	PA36MW01A	03/11/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
0511R044	PA36MW01A	03/15/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0612H042	PA36MW01A	03/21/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0623M027	PA36MW01A	06/06/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0623M028	PA36MW01A	06/06/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0525T035	PA36MW01A	06/24/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	NA	<0.05 U	<0.05 U	<0.05 UJ3	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0525T036	PA36MW01A	06/24/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ3	NA	<0.05 U	<0.05 U	<0.05 UJ3	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0438G046	PA36MW01A	09/14/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0538S047	PA36MW01A	09/23/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0538S048	PA36MW01A	09/23/2005	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0449C034	PA36MW01A	12/01/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0648D027	PA36MW01A	12/01/2006	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
0425X004	PA36MW01A	06/16/2004	0	A	<0.05 UJ7	<0.05 UJ7	<0.05 UJ7	<0.05 U	NA	<0.05 UJ7	<0.05 U	<0.05 UJ7	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9305J232	PA36MW02A	02/04/1993	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.008 U1J3	NA	NA
9606W075	PA36MW02A	02/07/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611W149	PA36MW02A	03/11/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606W076	PA36MW03A	02/07/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9306J248	PA36MW03A	02/11/1993	0	A	<0.1 UJ3	<0.1 UJ3	0.002 J3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	0.001 J3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9306J249	PA36MW03A	02/11/1993	0	A	<0.1 UJ3	<0.1 UJ3	0.002 J3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	0.001 J3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9611J920	PA36MW03A	03/11/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0231D010	PA36MW03A	07/31/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0096 U	NA	<0.0096 U	NA	NA	<0.04 U	NA	NA
0237G016	PA36MW03A	09/13/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 UJ3	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9606W077	PA36MW04A	02/07/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9305J234	PA36MW04A	02/05/1993	0	A	<0.006 U1J3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.004 U1J3	NA	<0.05 UJ3	NA	NA	<0.01 U1J3	NA	NA
9611J919	PA36MW04A	03/11/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0111T009	PA36MW04A	03/20/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
0230P012	PA36MW04A	07/24/2002	0	A	<0.09 U	<0.09 U	0.01 J	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0066 UJ9	NA	<0.0094 U	NA	NA	0.03 J9	NA	NA
0237J012	PA36MW04A	09/11/2002	0	A	<0.09 UJ7	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0075 UJ9	NA	0.01 J9	NA	NA	<0.04 U	NA	NA
9306J245	PA36MW05A	02/10/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606W082	PA36MW05A	02/08/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9306J244	PA36MW05A	02/10/1993	0	A	<0.11 U	<0.11 U	<0.11 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611J918	PA36MW05A	03/11/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9615Z045	PA36MW06A	04/09/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9306J252	PA36MW06A	02/11/1993	0	A	0.003 J3	0.002 J3	0.01 J3	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	0.002 J3	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9612W172	PA36MW06A	03/19/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9615Z044	PA36MW06A	04/09/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606W079	PA36MW07A	02/08/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9308J309	PA36MW07A	02/23/1993	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611J922	PA36MW07A	03/12/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0110T003	PA36MW07A	03/12/2001	0	A	<0.01 U	<0.01 U	<0.01 U	<0.005 U	NA	<0.005 U	<0.005 U	<0.005 U	NA	NA	<0.005 U	NA	<0.005 U	NA	NA	<0.005 U	NA	NA
0230A010	PA36MW07A	07/24/2002	0	A	<0.09 U	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 UJ7	NA	NA	<0.0096 U	NA	<0.0096 U	NA	NA	<0.04 U	NA	NA
0237E019	PA36MW07A	09/12/2002	0	A	<0.09 UJ7	<0.09 U	<0.01 U	<0.04 U	NA	<0.04 U	<0.04 U	<0.04 U	NA	NA	<0.0094 U	NA	<0.0094 U	NA	NA	<0.04 U	NA	NA
9606W080	PA36MW08A	02/08/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606W081	PA36MW08A	02/08/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9307A590	PA36MW08A	02/16/1993	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.25 UJ3	NA	<0.25 UJ3	<0.25 UJ3	<0.25 UJ3	NA	NA	<0.25 UJ3	NA	<0.25 UJ3	NA	NA	<0.25 UJ3	NA	NA
9307A591	PA36MW08A	02/16/1993	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.25 UJ3	NA	<0.25 UJ3	<0.25 UJ3	<0.25 UJ3	NA	NA	<0.25 UJ3	NA	<0.25 UJ3	NA	NA	<0.25 UJ3	NA	NA
9611W151	PA36MW08A	03/12/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9611W152	PA36MW08A	03/12/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606W084	PA39MW01A	02/09/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9307A611	PA39MW01A	02/18/1993	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9307A612	PA39MW01A	02/18/1993	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9611W159	PA39MW01A	03/14/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9606J860	PA39MW02A	02/09/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
9307D024	PA39MW02A	02/19/1993	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9307D025	PA39MW02A	02/19/1993	0	A	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.05 UJ3	NA	<0.05 UJ3	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	<0.05 UJ3	NA	NA	<0.05 UJ3	NA	NA
9611W158	PA39MW02A	03/14/1996	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA
0720J061	IR02MW301A	05/18/2007	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	<0.05 U	NA	NA	NA	<0.05 U	NA	NA
9610W140	IR02MW372A	03/07/1996	0	A	0.2	0.6	0.3	0.2	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	0.07	NA	NA	<0.05 U	NA	NA
9204X432	IR02MWB 3	01/20/1992	0	A	<1 U	<1 U	<1 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	NA	NA	<5 U	NA	<5 U	NA	NA	<0.5 U	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	<0.05 U	<0.05 U	<0.05 U	<0.25 U	NA	<0.25 U	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	<2.5 U	NA	NA	<2.5 U	NA	NA
0823H062	IR04MW13A	6/4/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 U	<0.05 U	<1 UJ	NA
0830H028	IR04MW13A	7/22/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 UJ	<0.05 U	<1 U	NA
0912N016	IR04MW13A	3/16/2009	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
0916P013	IR04MW13A	4/16/2009	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0830H031	IR04MW36A	7/22/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 UJ	<0.05 U	<1 U	NA
0912W027	IR04MW36A	3/16/2009	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 U	NA
0839G034	IR12MW11A	9/23/2008	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	NA	<0.05 U	<0.05 U	NA	<0.5 UJ	<1 UJ	<0.05 U	<1 UJ	NA
0912W037	IR12MW11A	3/17/2009	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<5 U	<0.05 UJ	<0.05 U	<0.05 UJ	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 UJ	<1 U	NA
0916P014	IR12MW11A	4/16/2009	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<5 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	NA	<0.05 U	<0.05 U	NA	<0.5 U	<1 U	<0.05 U	<1 UJ	NA
0438J026	IR36MW17A	9/14/2004	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	4,4-DDD (µg/L)	4,4-DDE (µg/L)	4,4-DDT (µg/L)	Aldrin (µg/L)	Azinphos methyl (µg/L)	alpha-BHC (µg/L)	beta-BHC (µg/L)	gamma BHC (lindane) (µg/L)	Bolstar (µg/L)	Chlordane (µg/L)	alpha-Chlordane (µg/L)	gamma-Chlordane (µg/L)	trans-Chlordane (µg/L)	Chlorpyrifos (µg/L)	Coumaphos (µg/L)	delta-BHC (µg/L)	Demeton (µg/L)	Demeton-o (µg/L)
9547W198	IR72MW33A	11/22/1995	0	A	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	<0.05 U	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	<0.05 U	NA	NA	<0.05 U	NA	NA

Notes:

µg/L	micrograms per liter
BHC	benzene hexachloride
bgs	below ground surface
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
0111P015	IR01MW367A	03/21/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0229P002	IR01MW367A	07/15/2002	0	A	<1 UJ3	<1 UJ3	<1 UJ3	<0.19 U	NA	<1 UJ3	<0.47 U	<0.19 U	<0.94 U	<0.19 U	<0.94 U	NA	NA	NA	<1 UJ3	NA	<1 UJ3	<1 UJ3
0238S008	IR01MW367A	09/18/2002	0	A	<0.96 UJ3	<0.96 UJ3	<0.96 UJ3	<0.01 U	NA	<0.96 UJ3	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	<0.96 UJ3	NA	<0.96 UJ3	<0.96 UJ3
9202A009	IR02MW101A1	01/07/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A010	IR02MW101A1	01/07/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9228J155	IR02MW101A1	07/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J219	IR02MW101A1	08/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J224	IR02MW101A2	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A012	IR02MW101A2	01/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9228J159	IR02MW101A2	07/09/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9204X435	IR02MW114A1	01/20/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9228J146	IR02MW114A1	07/07/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J225	IR02MW114A1	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9228J166	IR02MW114A2	07/10/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J226	IR02MW114A2	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9228J153	IR02MW114A3	07/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J232	IR02MW114A3	08/26/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0110P011	IR02MW126A	03/13/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9228J158	IR02MW126A	07/08/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9228J157	IR02MW126A	07/08/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9235X717	IR02MW126A	08/25/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
0425G031	IR02MW127B	06/15/2004	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9205X468	IR02MW127B	01/28/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0511G048	IR02MW127B	03/15/2005	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.1 U	NA	NA	NA	NA	NA	NA
0112P005	IR02MW127B	03/26/2001	0	B	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA	NA
9230J175	IR02MW127B	07/21/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0230P006	IR02MW127B	07/23/2002	0	B	NA	NA	NA	<0.02 U	NA	NA	<0.05 U	<0.02 U	<0.09 U	<0.02 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9235J233	IR02MW127B	08/26/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.01U	NA	NA	NA	NA	NA	NA
0437P021	IR02MW127B	09/07/2004	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0237E025	IR02MW127B	09/13/2002	0	B	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237E026	IR02MW127B	09/13/2002	0	B	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	<0.05 U	NA	NA	NA	NA	NA	NA
0447R010	IR02MW127B	11/19/2004	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0110P015	IR02MW141A	03/14/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0110P016	IR02MW141A	03/14/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9218Z059	IR02MW141A	05/07/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9218Z060	IR02MW141A	05/07/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9230J177	IR02MW141A	07/21/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9230J178	IR02MW141A	07/21/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0231E002	IR02MW141A	07/29/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9235X715	IR02MW141A	08/25/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.5 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X716	IR02MW141A	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.5 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0239J001	IR02MW141A	09/23/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0239J002	IR02MW141A	09/23/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9205X478	IR02MW146A	01/30/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9205X479	IR02MW146A	01/30/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9613W194	IR02MW146A	03/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9622J162	IR02MW146A	05/29/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9622J163	IR02MW146A	05/29/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9203X415	IR02MW147A	01/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9228J167	IR02MW147A	07/10/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X719	IR02MW147A	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202N019	IR02MW149A	01/10/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9112X067	IR02MW149A	03/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9622J166	IR02MW173A	05/30/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A089	IR02MW175A	01/14/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0110P002	IR02MW175A	03/12/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0229P014	IR02MW175A	07/18/2002	0	A	NA	NA	NA	<0.19 U	NA	NA	<0.47 U	<0.19 U	<0.94 U	<0.19 U	<0.94 U	NA	NA	NA	NA	NA	NA	NA
9235J230	IR02MW175A	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0239G002	IR02MW175A	09/23/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9203A086	IR02MW179A	01/14/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J231	IR02MW179A	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J234	IR02MW183A	08/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9112X063	IR02MW196A	03/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J235	IR02MW210B	08/26/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9205X480	IR02MW210B	01/30/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9230J179	IR02MW210B	07/21/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J236	IR02MW210B	08/26/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9612W182	IR02MW298A	03/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9228J152	IR02MW298A	07/08/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9235X728	IR02MW298A	08/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9612J946	IR02MW299A	03/21/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J238	IR02MW299A	08/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X726	IR02MW300A	08/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	U<0.1 U	NA	NA	NA	NA	NA	NA
0511Z021	IR02MW300A	03/15/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9612J943	IR02MW300A	03/20/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0425H030	IR02MW300A	06/16/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 UJ7	NA	NA	NA	NA	NA	NA
9228X660	IR02MW300A	07/06/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0438G050	IR02MW300A	09/15/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0449C031	IR02MW300A	11/30/2004	0	A	NA	NA	NA	0.01 J	NA	NA	0.01 J	0.01 J	0.01 J	0.01 J	<0.05 U	0.01 J	NA	NA	NA	NA	NA	NA
0808D007	IR02MW301A	02/21/2008	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0817G023	IR02MW301A	04/21/2008	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0732D009	IR02MW301A	08/10/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0740D007	IR02MW301A	10/02/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0112P003	IR02MW372A	03/26/2001	0	A	NA	NA	NA	0.02 J9	NA	NA	0.005 J9	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9619J106	IR02MW372A	05/10/1996	0	A	NA	NA	NA	0.69 J	NA	NA	<0.05 U	0.7 J	0.06 J	0.19	0.19	0.06 J	NA	NA	NA	NA	NA	NA
0229P009	IR02MW372A	07/17/2002	0	A	NA	NA	NA	0.01 J	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.03 UJ9	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237E008	IR02MW372A	09/10/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237E009	IR02MW372A	09/10/2002	0	A	NA	NA	NA	<0.01 UJ7	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9547J609	IR02MW372A	11/22/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9610J904	IR02MW373A	03/04/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0112T001	IR02MW373A	03/26/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	0.006 J	<0.01 U	<0.01 U	0.01	<0.01 U	NA	NA	NA	NA	NA	NA
9619J107	IR02MW373A	05/10/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9547J608	IR02MW373A	11/21/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9202A001	IR02MW87A	01/06/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9113X078	IR02MW87A	03/26/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9230J176	IR02MW89A	07/21/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9202A004	IR02MW93A	01/06/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9112X071	IR02MW93A	03/22/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J221	IR02MW97A	08/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	U<0.1 U	NA	NA	NA	NA	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0230P016	IR02MW97A	07/26/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9235J220	IR02MW97A	08/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0238E003	IR02MW97A	09/16/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9228J148	IR02MWB-1	07/07/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A028	IR02MWB-1	01/13/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9228J149	IR02MWB-1	07/07/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J239	IR02MWB-1	08/27/1992	0	A	NA	NA	NA	<0.1 UR2	NA	NA	<0.05 UR2	<0.1 UR2	<0.1 UR2	<0.1 UR2	NA	<0.1 UR2	NA	NA	NA	NA	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9228J151	IR02MWB-2	07/07/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J240	IR02MWB-2	08/27/1992	0	A	NA	NA	NA	<0.1 UR2	NA	NA	<0.05 UR2	<0.1 UR2	<0.1 UR2	<0.1 UR2	NA	<0.1 UR2	NA	NA	NA	NA	NA	NA
9204X432A	IR02MWB-3	01/20/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
0110P020	IR02MWB-3	03/15/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0511G047	IR02MWB-3	03/15/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0425S045	IR02MWB-3	06/17/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	NA	NA	NA	<2 U	NA	NA	<1 U	<2 U	<2 U	<2 U	NA	<2 U	NA	NA	NA	NA	NA	NA
0229P020	IR02MWB-3	07/19/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9235J241	IR02MWB-3	08/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<2.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9235J242	IR02MWB-3	08/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<2.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
0438C055	IR02MWB-3	09/17/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0239J003	IR02MWB-3	09/23/2002	0	A	NA	NA	NA	<0.19 U	NA	NA	<0.48 U	<0.19 U	<0.95 U	<0.19 U	<0.95 U	NA	NA	NA	NA	NA	NA	NA
0448C019	IR02MWB-3	11/23/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9204X441A	IR02MWB-5	01/21/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0110D004	IR02MWB-5	03/13/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J245	IR02MWB-5	08/28/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	NA	NA	NA	<5 U	NA	NA	<2.5 U	<5 U	<5 U	<5 U	NA	NA	NA	NA	NA	NA	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA	NA	NA
9228X664	IR03MW218A2	07/09/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA	NA	NA
9235X730	IR03MW218A2	08/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA
9203X416	IR03MW218A3	01/16/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA	NA	NA
9235X729	IR03MW218A3	08/27/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.5 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
9230J196	IR03MW224A	07/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
9204X451	IR03MW224A	01/23/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
0109P003	IR03MW224A	03/06/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA	NA
9235X734	IR03MW224A	08/28/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
9614Z024	IR03MW225A	04/03/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA
9205X470	IR03MW225A	01/28/1992	0	A	NA	NA	NA	<0.2 U	NA	NA	<0.1 U	<0.2 U	<0.2 U	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	NA	NA	NA	NA	NA	NA	NA
9625Z050	IR03MW225A	06/19/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA
9205X461	IR03MW226A	01/27/1992	0	A	NA	NA	NA	<0.2 U	NA	NA	<0.1 U	<0.2 U	<0.2 U	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	NA	NA	NA	<0.2 U	NA	NA	<0.1 U	<0.2 U	<0.5 U	<0.2 U	NA	NA	NA	NA	NA	NA	NA	NA
9230J197	IR03MW226A	07/24/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA	NA	NA
9230J198	IR03MW226A	07/24/1992	0	A	NA	NA	NA	<2 U	NA	NA	<1 U	<2 U	<2 U	<2 U	NA	NA	NA	NA	NA	NA	NA	NA
0231E018'	IR03MW228B	08/02/2002	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9235J244	IR03MW228B	08/28/1992	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
0237S014	IR03MW228B	09/12/2002	0	B	NA	NA	NA	<0.01 UJ7	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	<0.05 U	NA	NA	NA	NA	NA	NA
0602H043	IR03MW342A	01/10/2006	0	A	NA	NA	NA	<0.05 UJ	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<180U	NA	NA	NA	NA	NA	NA
0602H044	IR03MW342A	01/10/2006	0	A	NA	NA	NA	<0.05 UJ	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<180U	NA	NA	NA	NA	NA	NA
0708L005	IR03MW342A	02/22/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<190U	NA	NA	NA	NA	NA	NA
0809D031	IR03MW342A	02/28/2008	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<18UR2	NA	NA	NA	NA	NA	NA
0510G026	IR03MW342A	03/10/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	<230U	NA	NA	NA	NA	NA	NA
0611S012	IR03MW342A	03/14/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<25U	NA	NA	NA	NA	NA	NA
0110T017	IR03MW342A	03/15/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.1 U	NA	NA	NA	NA	NA	NA
9612J944	IR03MW342A	03/21/1996	0	A	NA	NA	NA	<1 UR3	NA	NA	<0.5 UR3	<1 UR3	<1 UR3	<1 UR3	<1 UR3	<0.1 U	NA	NA	NA	NA	NA	NA
9612J945	IR03MW342A	03/21/1996	0	A	NA	NA	NA	<0.5 UR3	NA	NA	<0.25 UR3	<0.5 UR3	<0.5 UR3	<0.5 UR3	<0.5 UR3	<1 UR3	NA	NA	NA	NA	NA	NA
0817E034	IR03MW342A	04/22/2008	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UR3	NA	NA	NA	NA	NA	NA
0720G016	IR03MW342A	05/15/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.01U	NA	NA	NA	NA	NA	NA
0622S011	IR03MW342A	06/01/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	0.0065J7	NA	NA	NA	NA	NA	NA
0425S039	IR03MW342A	06/16/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	0.0071 J	<0.05 U	<0.05 U	0.009 J	<0.05 U	NA	NA	NA	NA	NA	NA
0526G043	IR03MW342A	06/28/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9228X647	IR03MW342A	07/06/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.05 U	NA	NA	NA	NA	NA	NA
0735W059	IR03MW342A	08/27/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9235X736	IR03MW342A	08/28/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.05 U	NA	NA	NA	NA	NA	NA
0636D037	IR03MW342A	09/06/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0636D038	IR03MW342A	09/06/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0438G042	IR03MW342A	09/14/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0538A028	IR03MW342A	09/21/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0741G024	IR03MW342A	10/08/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0448C016	IR03MW342A	11/22/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0650W041	IR03MW342A	12/11/2006	0	A	NA	NA	NA	<0.05 UJ	NA	NA	<0.05 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9548J613	IR03MW369A	11/29/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	NA	NA	NA	NA	NA
9610J911	IR03MW369A	03/06/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	NA	NA	NA	NA	NA
9621J126	IR03MW369A	05/20/1996	0	A	NA	NA	NA	<0.1 UJ5	NA	NA	<0.05 UJ5	<0.1 UJ5	<0.1 UJ5	<0.1 UJ5	<0.1 UJ5	<0.05 U	NA	NA	NA	NA	NA	NA
9610J908	IR03MW370A	03/06/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	NA	NA	NA	NA	NA
9620J125	IR03MW370A	05/16/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	NA	NA	NA	NA	NA
9548J615	IR03MW370A	11/30/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.05 U/<0.05 U	NA	NA	NA	NA	NA	NA
9548J617	IR03MW371A	11/30/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.05 U	NA	NA	NA	NA	NA	NA
9610J912	IR03MW371A	03/06/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<17U	NA	NA	NA	NA	NA	NA
9620J123	IR03MW371A	05/16/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9620J124	IR03MW371A	05/16/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9548J618	IR03MW371A	11/30/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 UJ5	NA	NA	NA	NA	NA	NA
0602H041	IR03MW373B	01/09/2006	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0809E020	IR03MW373B	02/27/2008	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0809E021	IR03MW373B	02/27/2008	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0709G048	IR03MW373B	02/28/2007	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0510R032	IR03MW373B	03/10/2005	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0611S026	IR03MW373B	03/17/2006	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0817E028	IR03MW373B	04/21/2008	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.1 U	NA	NA	NA	NA	NA	NA
0720A055	IR03MW373B	05/17/2007	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	NA	NA	NA	NA	NA	NA
0623P056	IR03MW373B	06/08/2006	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0425S037	IR03MW373B	06/15/2004	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0526G046	IR03MW373B	06/28/2005	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0634G006	IR03MW373B	08/25/2006	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0735W060	IR03MW373B	08/27/2007	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 U	<0.05 UJ	NA	NA	NA	NA	NA	NA
0438J024	IR03MW373B	09/14/2004	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0538A040	IR03MW373B	09/23/2005	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0740D023	IR03MW373B	10/04/2007	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	NA	NA	NA	NA	NA	NA
0447C013	IR03MW373B	11/19/2004	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0649G031	IR03MW373B	12/04/2006	0	B	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	NA	NA	NA	<10 U	NA	NA	<0.5 U	<10 U	<1 U	<10 U	NA	<5 U	NA	NA	NA	NA	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	NA	NA	NA	<5 U	NA	NA	<0.25 U	<5 U	<5 U	<5 U	NA	<1 U	NA	NA	NA	NA	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	NA	NA	NA	<20 U	NA	NA	<10 U	<20 U	<20 U	<20 U	NA	<20U	NA	NA	NA	NA	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9225X620	IR04MW09A	06/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0602D039	IR04MW13A	01/11/2006	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<170U	NA	NA	NA	NA	NA	NA
9207X518	IR04MW13A	02/12/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<17U	NA	NA	NA	NA	NA	NA
9207X519	IR04MW13A	02/12/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<19U	NA	NA	NA	NA	NA	NA
0708G030	IR04MW13A	02/21/2007	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5 U	<2.5 UJ	<0.5 U
0809H025	IR04MW13A	02/27/2008	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 U	<3.5 U	<2.5 UJ	<0.5 UJ
0509G009	IR04MW13A	03/03/2005	0	A	NA	<0.5 U	<01 UJ7	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<3.5 U	<2.5 UJ	<0.5 UJ
0611J032	IR04MW13A	03/16/2006	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 U	<3.5 UJ	<2.5 U	<0.5 U
0611J033	IR04MW13A	03/16/2006	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 U	<3.5 UJ	<2.5 U	<0.5 U
0719W020	IR04MW13A	05/10/2007	0	A	NA	<0.5 UJ	<1 UJ	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.5 U	<0.5 U	<0.5 UJ	<3.5 UJ	<2.5 U	<0.5 UJ
0622T013	IR04MW13A	05/31/2006	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 U	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U
9225X627	IR04MW13A	06/17/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
9225X628	IR04MW13A	06/17/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
0526T039	IR04MW13A	06/27/2005	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<3.5 U	<2.5 UJ	<0.5 UJ
0427S052	IR04MW13A	06/28/2004	0	A	NA	<0.5 U	<01 U	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA	NA
0734D031	IR04MW13A	08/20/2007	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5 U	<2.5 UJ	<0.5 UJ
0537T010	IR04MW13A	09/15/2005	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA	NA
0537T011	IR04MW13A	09/15/2005	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA	NA
0438G051	IR04MW13A	09/16/2004	0	A	NA	<0.5 U	<01 U	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA	NA
0741D034	IR04MW13A	10/08/2007	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 UJ
9146X259	IR04MW13A	11/14/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA	NA	NA
0450G051	IR04MW13A	12/06/2004	0	A	NA	<0.5 U	<01 U	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA	NA
0649D036	IR04MW13A	12/07/2006	0	A	NA	<0.5 U	<1 U	<0.05 UJ	<0.5 U	<0.5 U	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 U	<0.05 UJ	<0.05 UJ	<0.5 U	<0.5 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U
9146X256	IR04MW31A	11/14/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9207X517	IR04MW31A	02/12/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
9225X629	IR04MW31A	06/17/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9225X623	IR04MW35A	06/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9146X254	IR04MW36A	11/14/1991	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
0438T014	IR04MW36A	09/16/2004	0	A	NA	<0.5 U	<01 U	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<03.5 U	<02.5 UJ7	<0.5 U
0601T023	IR04MW36A	01/05/2006	0	A	NA	<0.5 UJ	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 UJ	<3.5 U	<2.5 U	<0.5 U
9207X523	IR04MW36A	02/13/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207X524	IR04MW36A	02/13/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0708G038	IR04MW36A	02/22/2007	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5 U	<2.5 UJ	<0.5 U
0809D012	IR04MW36A	02/25/2008	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 U	<3.5 U	<2.5 UJ	<0.5 U
0509G004	IR04MW36A	03/02/2005	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 UJ7	<0.5 U	<3.5 U	<02.5 UJ7	<0.5 U
0612H046	IR04MW36A	03/22/2006	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	<0.05 UJ	<0.05 UJ	<0.5 U	<0.5 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U
0718J007	IR04MW36A	05/01/2007	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.5 U	<0.5 U	<0.5 UJ	<3.5 U	<2.5 U	<0.5 UJ
0622T012	IR04MW36A	05/31/2006	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 U	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U
0524T014	IR04MW36A	06/16/2005	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 UJ7	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<3.5 U	<02.5 UJ7	<0.5 U
9225X630	IR04MW36A	06/17/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	NA	<0.5 U	<01 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 UJ7	<0.5 U	<0.5 U	<0.5 U	<03.5 U	<02.5 U	<0.5 U
0734H071	IR04MW36A	08/23/2007	0	A	NA	<0.5 U	<1 U	<0.05 UJ	<0.5 UJ	<0.5 U	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5 U	<2.5 UJ	<0.5 UJ
0536T003	IR04MW36A	09/08/2005	0	A	NA	0.024 J	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<3.5 U	<2.5 UJ	<0.5 U
0741N003	IR04MW36A	10/08/2007	0	A	NA	<0.5 U	<1 UJ	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 UJ
9146X255	IR04MW36A	11/14/1991	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
0648G018	IR04MW36A	11/28/2006	0	A	NA	<0.5 U	<1 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U
0449P037	IR04MW36A	12/02/2004	0	A	NA	<0.5 U	<01 U	<0.05 U	<0.5 UJ7	<0.5 UJ5	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<03.5 U	<02.5 UJ7	<0.5 U
9207X530	IR04MW37A	02/14/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
9207X531	IR04MW37A	02/14/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9225X621	IR04MW37A	06/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9225X622	IR04MW37A	06/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X282	IR04MW37A	11/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	NA	NA	NA	<0.12 U	NA	NA	<0.06 U	<0.12 U	<0.12 U	<0.12 U	NA	<0.12 U	NA	NA	NA	NA	NA	NA
9225X632	IR04MW38A	06/17/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9146X264	IR04MW38A	11/15/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.05 U	NA	NA	NA	NA	NA	NA
9225X625	IR04MW39A	06/15/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X283	IR04MW39A	11/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9146X261	IR04MW40A	11/15/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9225X631	IR04MW40A	06/17/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
0111T002	IR05MW73A	03/19/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0111T003	IR05MW73A	03/19/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9225X644	IR05MW73A	06/19/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
9225X640	IR05MW74A	06/18/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X269	IR05MW74A	11/18/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
9207A100	IR05MW76A	02/11/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9225X642	IR05MW76A	06/19/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9225X643	IR05MW76A	06/19/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207A096	IR05MW77A	02/10/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
9207A097	IR05MW77A	02/10/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
9225X635	IR05MW77A	06/18/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	NA	<0.11 U	NA	NA	NA	NA	NA	NA
9225X639	IR05MW82A	06/18/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9612W183	IR05MW85A	03/21/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9225X636	IR05MW85A	06/18/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9225X637	IR05MW85A	06/18/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9230J194	IR05MW85A	07/24/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
9230J195	IR05MW85A	07/24/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
0232E002	IR05MW85A	08/06/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9405N295	IR08MW37A	02/01/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9405N296	IR08MW37A	02/01/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9419X278	IR08MW37A	05/10/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9128X091	IR08MW37A	07/10/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9128X092	IR08MW37A	07/10/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9434M578	IR08MW37A	08/26/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9344X052	IR08MW37A	11/05/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9151X352	IR08MW37A	12/19/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9128X094	IR08MW38A	07/10/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9434M579	IR08MW38A	08/26/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9405N298	IR08MW38A	02/01/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9419X277	IR08MW38A	05/10/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9344X050	IR08MW38A	11/05/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9344X051	IR08MW38A	11/05/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9151X358	IR08MW38A	12/20/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9128X095	IR08MW39A	07/10/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9435E158	IR08MW39A	09/01/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9151X359	IR08MW39A	12/20/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9151X360	IR08MW39A	12/20/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9151X353	IR08MW40A	12/19/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9406X183	IR08MW40A	02/07/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9419X287	IR08MW40A	05/11/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9128X093	IR08MW40A	07/10/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9435E160	IR08MW40A	09/01/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9345X055	IR08MW40A	11/08/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9345X056	IR08MW40A	11/08/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9151X354	IR08MW40A	12/19/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9406X181	IR08MW41A	02/07/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9406X182	IR08MW41A	02/07/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9419X286	IR08MW41A	05/11/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9128X098	IR08MW41A	07/11/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9435E159	IR08MW41A	09/01/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9344X053	IR08MW41A	11/05/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9151X355	IR08MW41A	12/19/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9406X185	IR08MW42A	02/07/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9419X275	IR08MW42A	05/10/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9419X276	IR08MW42A	05/10/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9434M577	IR08MW42A	08/26/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9141X204	IR08MW42A	10/07/1991	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9344X045	IR08MW42A	11/04/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9344X046	IR08MW42A	11/04/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9151X362	IR08MW42A	12/20/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9606W066	IR08MW43A	02/05/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	U<0.1 U	NA	NA	NA	NA	NA	NA
9610J913	IR08MW43A	03/07/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9440X501	IR08MW43A	10/03/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9440X502	IR08MW43A	10/03/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9610J914	IR08MW44A	03/07/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W064	IR08MW44A	02/05/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W065	IR08MW44A	02/05/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9440X504	IR08MW44A	10/04/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9440X505	IR08MW44A	10/04/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
0109P014	IR11MW25A	03/09/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
8914W25	IR11MW25A	03/10/1989	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9034G314	IR11MW25A	08/22/1990	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9148X298	IR11MW25A	11/25/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9034G301	IR11MW26A	08/21/1990	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9238X756	IR11MW26A	09/15/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9148X297	IR11MW26A	11/25/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
8914W27	IR11MW27A	03/10/1989	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9034G300	IR11MW27A	08/21/1990	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9238X755	IR11MW27A	09/15/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9209X547	IR12MW11A	02/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9612W185	IR12MW11A	03/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9134X179	IR12MW11A	08/26/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X544	IR12MW12A	02/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X185	IR12MW12A	08/27/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X782	IR12MW12A	09/21/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9239X783	IR12MW12A	09/21/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9209X545	IR12MW13A	02/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X546	IR12MW13A	02/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X180	IR12MW13A	08/26/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X787	IR12MW13A	09/22/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9239X788	IR12MW13A	09/22/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9209X552	IR12MW14A	02/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X181	IR12MW14A	08/26/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X182	IR12MW14A	08/26/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X789	IR12MW14A	09/22/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0238A004	IR12MW15A	09/16/2002	0	A	NA	NA	NA	<0.02U	NA	NA	<0.04U	<0.02U	<0.09 U	<0.02U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9209X553	IR12MW15A	02/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0232E003	IR12MW15A	08/06/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9134X186	IR12MW15A	08/27/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0238A003	IR12MW15A	09/16/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9238X778	IR12MW15A	09/18/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9209X555	IR12MW16A	02/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X188	IR12MW16A	08/27/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X189	IR12MW16A	08/27/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X797	IR12MW16A	09/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0238A002	IR12MW17A	09/16/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9234X691	IR12MW17A	08/19/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
0509R005	IR12MW17A	03/02/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0 J	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0110T002	IR12MW17A	03/12/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	0.01 J9	NA	NA	NA	NA	NA	NA
9612W186	IR12MW17A	03/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0424M013	IR12MW17A	06/10/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	0.02 J	<0.05 U	NA	NA	NA	NA	NA	NA
0525T026	IR12MW17A	06/21/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0229P018	IR12MW17A	07/19/2002	0	A	NA	NA	NA	<0.19 U	NA	NA	<0.48 U	<0.19 U	<0.95 U	<0.19 U	<0.95 U	NA	NA	NA	NA	NA	NA	NA
0229P019	IR12MW17A	07/19/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9234X690	IR12MW17A	08/19/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
0437P031	IR12MW17A	09/10/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	0.02 J	<0.05 U	NA	NA	NA	NA	NA	NA
9239X795	IR12MW17A	09/24/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
0447C009	IR12MW17A	11/17/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9613W189	IR12MW18A	03/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9613W190	IR12MW18A	03/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9234X692	IR12MW18A	08/19/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X793	IR12MW18A	09/24/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9239X794	IR12MW18A	09/24/1992	0	A	NA	NA	NA	<0.11 UJ3	NA	NA	<0.05 UJ3	<0.11 UJ3	<0.11 UJ3	<0.11 UJ3	<0.11 UJ3	<0.11 UJ3	NA	NA	NA	NA	NA	NA
9613W191	IR12MW19A	03/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9234X693	IR12MW19A	08/19/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X800	IR12MW19A	09/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9239X801	IR12MW19A	09/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9613J971	IR12MW20A	03/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9234X694	IR12MW20A	08/19/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X799	IR12MW20A	09/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9614Z022	IR12MW21A	04/02/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9618J076	IR12MW21A	05/02/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9234X695	IR12MW21A	08/19/1992	0	A	NA	NA	NA	<2.5 U	NA	NA	<1.2 U	<2.5 U	<2.5 U	<2.5 U	NA	<2.5 U	NA	NA	NA	NA	NA	NA
9239A459	IR12MW21A	09/23/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA
9238X777	IR13MW10A	09/18/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9209X550	IR13MW10A	02/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X551	IR13MW10A	02/25/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X193	IR13MW10A	08/28/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X558	IR13MW11A	02/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X190	IR13MW11A	08/28/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9238X768	IR13MW11A	09/17/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9238X769	IR13MW11A	09/17/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9134X192	IR13MW12A	08/28/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X557	IR13MW12A	02/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X191	IR13MW12A	08/28/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9238X775	IR13MW12A	09/18/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9238X776	IR13MW12A	09/18/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9209X559	IR14MW09A	02/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X560	IR14MW09A	02/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0109T013	IR14MW09A	03/07/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0230P003	IR14MW09A	07/22/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9238X754	IR14MW09A	09/15/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
0238A006	IR14MW09A	09/17/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9148X304	IR14MW09A	11/27/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9148X305	IR14MW09A	11/27/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X562	IR14MW10A	02/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0109T018	IR14MW10A	03/08/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9238X752	IR14MW10A	09/15/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9238X753	IR14MW10A	09/15/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9147X285	IR14MW10A	11/22/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9147X286	IR14MW10A	11/22/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X561	IR14MW12A	02/26/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
0109P013	IR14MW12A	03/09/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0230D010A	IR14MW12A	07/25/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
0238S009	IR14MW12A	09/19/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9147X272	IR14MW12A	11/20/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9614Z021	IR14MW13A	04/02/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9619J102	IR14MW13A	05/09/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9234X696	IR14MW13A	08/19/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
9239A457	IR14MW13A	09/23/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA
9239A458	IR14MW13A	09/23/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	<1 U	<1 U	NA	NA	NA	NA	NA	NA
9209X564	IR15MW06A	02/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9238X750	IR15MW06A	09/14/1992	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9147X276	IR15MW06A	11/20/1991	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9147X274	IR15MW07A	11/20/1991	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	U<0.5 U	NA	NA	NA	NA	NA	NA
9209X565	IR15MW07A	02/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9209X566	IR15MW07A	02/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9147X273	IR15MW07A	11/20/1991	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9239X792	IR15MW08A	09/24/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9613W201	IR15MW08A	03/28/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9613W202	IR15MW08A	03/28/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	NA	NA	NA	<5 U	NA	NA	<2.5 U	<5 U	<5 U	<5 U	NA	<5 U	NA	NA	NA	NA	NA	NA
9233X676	IR15MW08A	08/13/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
9233X679	IR15MW09F	08/14/1992	00	F	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	NA	NA	NA	NA	NA
9613W195	IR15MW09F	03/27/1996	0	F	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9239X785	IR15MW09F	09/22/1992	0	F	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9613W198	IR15MW10F	03/27/1996	0	F	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9233X678	IR15MW10F	08/14/1992	0	F	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9239X786	IR15MW10F	09/22/1992	0	F	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9238X761	IR17MW11A	09/16/1992	0	A	NA	NA	NA	<0.01UJ5	NA	NA	<0 05 UJ5 <0.05	<0.01UJ5	<0.01UJ5	<0.01UJ5	<0.01UJ5	<0.1 UJ5	NA	NA	NA	NA	NA	NA
9603J803	IR17MW11A	01/16/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9209X570	IR17MW11A	02/28/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X199	IR17MW11A	08/29/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9238X760	IR17MW11A	09/16/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9209X568	IR17MW12A	02/27/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X198	IR17MW12A	08/29/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9238X770	IR17MW12A	09/17/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9209X571	IR17MW13A	02/28/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9209X572	IR17MW13A	02/28/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X196	IR17MW13A	08/29/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9134X197	IR17MW13A	08/29/1991	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	NA	<0.1 U	NA	NA	NA	NA	NA	NA
9238X771	IR17MW13A	09/17/1992	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604W039	IR36MW09A	01/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611J932	IR36MW09A	03/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9428E065	IR36MW09A	07/13/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9603W012	IR36MW11A	01/18/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9608J883	IR36MW11A	02/21/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0109D011	IR36MW11A	03/07/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0109D014	IR36MW11A	03/07/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0229E018	IR36MW11A	07/18/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9437X471	IR36MW11A	09/12/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9437X472	IR36MW11A	09/12/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0238G003	IR36MW11A	09/18/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9611J923	IR36MW120B	03/13/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9617J043	IR36MW120B	04/23/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9623J174	IR36MW120B	06/04/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611J924	IR36MW121A	03/13/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9617J044	IR36MW121A	04/24/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9623J175	IR36MW121A	06/04/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9623J176	IR36MW121A	06/04/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9611W157	IR36MW122A	03/13/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9617J055	IR36MW122A	04/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9623J172	IR36MW122A	06/03/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9623J17	IR36MW123B	06/03/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611W156	IR36MW123B	03/13/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9618J065	IR36MW123B	04/30/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604W034	IR36MW125A	01/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611W165	IR36MW125A	03/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9618J061	IR36MW125A	04/29/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604W033	IR36MW126A	01/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611J931	IR36MW126A	03/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9620J112	IR36MW126A	05/13/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604W037	IR36MW127A	01/25/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611J930	IR36MW127A	03/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9618J062	IR36MW127A	04/29/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604W029	IR36MW128A	1/24/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0109D008	IR36MW128A	03/06/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9611J929	IR36MW128A	03/14/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9617J037	IR36MW128A	04/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0229P017	IR36MW128A	07/19/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237E010	IR36MW128A	09/10/2002	0	A	NA	NA	NA	<0.19 U	NA	NA	<0.47 U	<0.19 U	<0.94 U	<0.19 U	<0.94 U	NA	NA	NA	NA	NA	NA	NA
9611J927	IR36MW129B	03/14/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611J928	IR36MW129B	03/14/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9617J041	IR36MW129B	04/23/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9617J042	IR36MW129B	04/23/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9622J168	IR36MW129B	05/31/1996	0	B	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9603W013	IR36MW12A	01/19/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9608J889	IR36MW12A	02/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9437X473	IR36MW12A	09/12/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9602J783	IR36MW135A	01/09/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9607J865	IR36MW135A	02/12/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611W164	IR36MW135A	03/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604Z011	IR36MW139A	01/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9608J888	IR36MW139A	02/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9613W199	IR36MW139A	03/28/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9603W011	IR36MW13A	01/18/1996	0	A	NA	NA	NA	<0.1 UJ1	NA	NA	<0.05 UJ1	<0.1 UJ1	<0.1 UJ1	<0.1 UJ1	<0.1 UJ1	<0.1 UJ1	NA	NA	NA	NA	NA	NA
9608J886	IR36MW13A	02/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9444X560	IR36MW13A	11/03/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9444X561	IR36MW13A	11/03/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9603W010	IR36MW14A	01/18/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9608W116	IR36MW14A	02/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9443X538	IR36MW14A	10/25/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9443X539	IR36MW14A	10/25/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9605W060	IR36MW15A	02/01/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9610J903	IR36MW15A	03/04/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9438X484	IR36MW15A	09/20/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9438X485	IR36MW15A	09/20/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9439X499	IR36MW16A	09/27/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9605W054	IR36MW16A	01/31/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9610J906	IR36MW16A	03/05/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9610J907	IR36MW16A	03/05/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9439X498	IR36MW16A	09/27/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9603W016	IR36MW17A	01/19/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0602H050	IR36MW17A	01/12/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9603W017	IR36MW17A	01/19/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9608J887	IR36MW17A	02/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0809E018	IR36MW17A	02/27/2008	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0809E019	IR36MW17A	02/27/2008	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0712D021	IR36MW17A	03/20/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	NA	NA	NA	NA	NA	NA
0612M038	IR36MW17A	03/21/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0612M039	IR36MW17A	03/21/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0513Z028	IR36MW17A	03/29/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0719W023	IR36MW17A	05/11/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	NA	NA	NA	NA	NA	NA
0719W024	IR36MW17A	05/11/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	NA	NA	NA	NA	NA	NA
0623M030	IR36MW17A	06/07/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0623M031	IR36MW17A	06/07/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0425R005	IR36MW17A	06/18/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0425R006	IR36MW17A	06/18/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0526D037	IR36MW17A	06/29/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
0734D050	IR36MW17A	08/23/2007	0	A	NA	NA	NA	<0.05 UJ	NA	NA	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 UJ	<0.05 U	NA	NA	NA	NA	NA	NA
0438J025	IR36MW17A	09/14/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0538T030	IR36MW17A	09/22/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0740W028	IR36MW17A	10/05/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 UJ	NA	NA	NA	NA	NA	NA
9442X532	IR36MW17A	10/18/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9442X533	IR36MW17A	10/18/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0450J055	IR36MW17A	12/06/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0649D035	IR36MW17A	12/06/2006	0	A	NA	NA	NA	<0.05 UJ	NA	NA	<0.05 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9604Z012	IR38MW01A	01/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9608J885	IR38MW01A	02/22/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9441X521	IR38MW01A	10/12/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9441X522	IR38MW01A	10/12/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9604W022	IR38MW02A	01/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	U<0.1 U	NA	NA	NA	NA	NA	NA
9604W021	IR38MW02A	01/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9608W121	IR38MW02A	02/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9443X535	IR38MW02A	10/24/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9443X536	IR38MW02A	10/24/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0227P007	IR39MW21A	07/02/2002	0	A	NA	NA	NA	<0.04U	NA	NA	<0.04 U	<0.01 U	<0.09 U	0.01 J9	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9604W025	IR39MW21A	01/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9609J886	IR39MW21A	02/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0109T024	IR39MW21A	03/09/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0425C036	IR39MW21A	06/16/2004	0	A	NA	NA	NA	0.01 J	NA	NA	0.0095 J	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 UJ7	NA	NA	NA	NA	NA	NA
9425E029	IR39MW21A	06/22/1994	0	A	NA	NA	NA	<0.1 UJ5	NA	NA	<0.05 UJ5	<0.1 UJ5	<0.1 UJ5	<0.1 UJ5	<0.1 UJ5	<0.1 UJ5	NA	NA	NA	NA	NA	NA
0227P008	IR39MW21A	07/02/2002	0	A	NA	NA	NA	0.05	NA	NA	<0.05 U	<0.02 U	<0.09 U	<0.02 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237S003	IR39MW21A	09/09/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	0.01 J9	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0449C027	IR39MW21A	11/29/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9437X481	IR39MW22A	09/14/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9605W045	IR39MW22A	01/29/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9609J897	IR39MW22A	02/29/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9437X480	IR39MW22A	09/14/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9604W040	IR39MW23A	01/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604W041	IR39MW23A	01/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9609J884	IR39MW23A	02/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9437K156	IR39MW23A	09/15/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9437K157	IR39MW23A	09/15/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9604W042	IR39MW24A	01/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9609J885	IR39MW24A	02/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9438X490	IR39MW24A	09/21/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9438X491	IR39MW24A	09/21/1994	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9604W024	IR39MW33A	01/23/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9609W123	IR39MW33A	02/26/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9613W204	IR39MW33A	03/29/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9602J790	IR39MW35A	01/10/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9607W096	IR39MW35A	02/14/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9607W097	IR39MW35A	02/14/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9612J934	IR39MW35A	03/18/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9602J787	IR39MW36A	01/10/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9602J789	IR39MW36A	01/10/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9607W098	IR39MW36A	02/14/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9612J935	IR39MW36A	03/18/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9610W136	IR56MW39A	03/04/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9620J120	IR56MW39A	05/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9444X557	IR56MW39A	11/02/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9444X558	IR56MW39A	11/02/1994	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9610J905	IR72MW32A	3/5/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	U<0.1 U	NA	NA	NA	NA	NA	NA
0110P027	IR72MW32A	03/16/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
9620J119	IR72MW32A	05/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0229P003	IR72MW32A	07/15/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0238G004	IR72MW32A	09/18/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9547W195	IR72MW32A	11/21/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9610W138	IR72MW33A	03/05/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9620J118	IR72MW33A	05/15/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9547W197	IR72MW33A	11/22/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0602D042	PA36MW01A	01/11/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9305J230	PA36MW01A	02/04/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	0.002 J3	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W074	PA36MW01A	02/07/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0708H030	PA36MW01A	02/21/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0708H031	PA36MW01A	02/21/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9611W148	PA36MW01A	03/11/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
0511R044	PA36MW01A	03/15/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 UJ7	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0612H042	PA36MW01A	03/21/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0623M027	PA36MW01A	06/06/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0623M028	PA36MW01A	06/06/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0525T035	PA36MW01A	06/24/2005	0	A	NA	NA	NA	<0.05 UJ3	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0525T036	PA36MW01A	06/24/2005	0	A	NA	NA	NA	<0.05 UJ3	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0438G046	PA36MW01A	09/14/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0538S047	PA36MW01A	09/23/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0538S048	PA36MW01A	09/23/2005	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0449C034	PA36MW01A	12/01/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0648D027	PA36MW01A	12/01/2006	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
0425X004	PA36MW01A	06/16/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9305J232	PA36MW02A	02/04/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9606W075	PA36MW02A	02/07/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611W149	PA36MW02A	03/11/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W076	PA36MW03A	02/07/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9306J248	PA36MW03A	02/11/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9306J249	PA36MW03A	02/11/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9611J920	PA36MW03A	03/11/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0231D010	PA36MW03A	07/31/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237G016	PA36MW03A	09/13/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9606W077	PA36MW04A	02/07/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	U<0.1 U	NA	NA	NA	NA	NA	NA
9305J234	PA36MW04A	02/05/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	0.002 J3	0.004 J3	0.001 J3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9611J919	PA36MW04A	03/11/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0111T009	PA36MW04A	03/20/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0230P012	PA36MW04A	07/24/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	0.01 J	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237J012	PA36MW04A	09/11/2002	0	A	NA	NA	NA	<0.01 UJ7	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9306J245	PA36MW05A	02/10/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W082	PA36MW05A	02/08/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9306J244	PA36MW05A	02/10/1993	0	A	NA	NA	NA	<0.11 U	NA	NA	<0.05 U	<0.11 U	<0.11 U	<0.11 U	<0.11 U	<0.11 U	NA	NA	NA	NA	NA	NA
9611J918	PA36MW05A	03/11/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9615Z045	PA36MW06A	04/09/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9306J252	PA36MW06A	02/11/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9612W172	PA36MW06A	03/19/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9615Z044	PA36MW06A	04/09/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W079	PA36MW07A	02/08/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9308J309	PA36MW07A	02/23/1993	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611J922	PA36MW07A	03/12/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0110T003	PA36MW07A	03/12/2001	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.005 U	<0.01 U	<0.01 UJ3	<0.01 U	<0.01 U	<0.01 U	NA	NA	NA	NA	NA	NA
0230A010	PA36MW07A	07/24/2002	0	A	NA	NA	NA	<0.01 U	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
0237E019	PA36MW07A	09/12/2002	0	A	NA	NA	NA	<0.01 UJ7	NA	NA	<0.04 U	<0.01 U	<0.09 U	<0.01 U	<0.09 U	NA	NA	NA	NA	NA	NA	NA
9606W080	PA36MW08A	02/08/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W081	PA36MW08A	02/08/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9307A590	PA36MW08A	02/16/1993	0	A	NA	NA	NA	<0.5 UJ3	NA	NA	<0.25 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	NA
9307A591	PA36MW08A	02/16/1993	0	A	NA	NA	NA	<0.5 UJ3	NA	NA	<0.25 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	NA	NA	NA	NA	NA	NA
9611W151	PA36MW08A	03/12/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9611W152	PA36MW08A	03/12/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606W084	PA39MW01A	02/09/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9307A611	PA39MW01A	02/18/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9307A612	PA39MW01A	02/18/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9611W159	PA39MW01A	03/14/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9606J860	PA39MW02A	02/09/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
9307D024	PA39MW02A	02/19/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9307D025	PA39MW02A	02/19/1993	0	A	NA	NA	NA	<0.1 UJ3	NA	NA	<0.05 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	<0.1 UJ3	NA	NA	NA	NA	NA	NA
9611W158	PA39MW02A	03/14/1996	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA
0720J061	IR02MW301A	05/18/2007	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA
9610W140	IR02MW372A	03/07/1996	0	A	NA	NA	NA	0.3	NA	NA	<0 05 U	40.4	<1 U	11	0.08 J	<0.1 U	NA	NA	NA	NA	NA	NA
9204X432	IR02MWB 3	01/20/1992	0	A	NA	NA	NA	<1 U	NA	NA	<0.5 U	<1 U	<1 U	<1 U	NA	<1 U	NA	NA	NA	NA	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	NA	NA	NA	<0.5 U	NA	NA	<0.25 U	<0.5 U	<0.5 U	<0.5 U	NA	<1 U	NA	NA	NA	NA	NA	NA
0823H062	IR04MW13A	6/4/2008	0	A	NA	<0.05 U	<1 UJ	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5U	<2.5U	<0.5 U
0830H028	IR04MW13A	7/22/2008	0	A	NA	<0.05 U	<1 UJ	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5UJ	<2.5UJ	<0.5 U
0912N016	IR04MW13A	3/16/2009	0	A	NA	<0.05 U	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<3.5U	<2.5U	<0.5 U
0916P013	IR04MW13A	4/16/2009	0	A	NA	<0.05 U	<1 UJ	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5UJ	<2.5U	<0.5 UJ
0830H031	IR04MW36A	7/22/2008	0	A	NA	<0.05 U	<1 UJ	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5UJ	<2.5UJ	<0.5 U
0912W027	IR04MW36A	3/16/2009	0	A	NA	<0.05 U	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<3.5U	<2.5U	<0.5 U
0839G034	IR12MW11A	9/23/2008	0	A	NA	<0.05 U	<1 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 UJ	<3.5U	<2.5UJ	<0.5 UJ
0912W037	IR12MW11A	3/17/2009	0	A	NA	<0.05 U	<1 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<3.5UJ	<2.5UJ	<0.5 UJ
0916P014	IR12MW11A	4/16/2009	0	A	NA	<0.05 U	<1 UJ	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.5 U	<3.5UJ	<2.5U	<0.5 UJ
0438J026	IR36MW17A	9/14/2004	0	A	NA	NA	NA	<0.05 U	NA	NA	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Demeton-s (µg/L)	Diazinon (µg/L)	Dichlorvos (µg/L)	Dieldrin (µg/L)	Dimethoate (µg/L)	Disulfoton (µg/L)	Endosulfan I (µg/L)	Endosulfan II (µg/L)	Endosulfan Sulfate (µg/L)	Endrin (µg/L)	Endrin Aldehyde (µg/L)	Endrin Ketone (µg/L)	EPN (µg/L)	Ethion (µg/L)	Ethoprop (µg/L)	Famphur (µg/L)	Fensulfothion (µg/L)	Fenthion (µg/L)
9547W198	IR72MW33A	11/22/1995	0	A	NA	NA	NA	<0.1 U	NA	NA	<0.05 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	NA	NA	NA	NA	NA	NA

Notes:

µg/L	micrograms per liter
BHC	benzene hexachloride
bgs	below ground surface
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
0111P015	IR01MW367A	03/21/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0229P002	IR01MW367A	07/15/2002	0	A	<0.09 UJ7	<0.09 U	NA	<1 UJ3	<4.7 U	<1 UJ3	<2 UJ3	<2 UJ3	NA	<1 UJ3	<1 UJ3	NA	<9.4 U	<1 UJ3	<1 UJ3	<1 UJ3
0238S008	IR01MW367A	09/18/2002	0	A	<0.0072 UJ9	<0.0094 U	NA	<0.96 UJ3	<0.47 U	<0.96 UJ3	<1.9 UJ3	<1.9 UJ37	NA	<0.96 UJ3	<0.96 UJ3	NA	<0.94 U	<0.96 UJ3	<0.96 UJ3	<0.96 UJ3
9202A009	IR02MW101A1	01/07/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A010	IR02MW101A1	01/07/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9228J155	IR02MW101A1	07/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J219	IR02MW101A1	08/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J224	IR02MW101A2	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A012	IR02MW101A2	01/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9228J159	IR02MW101A2	07/09/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9204X435	IR02MW114A1	01/20/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9228J146	IR02MW114A1	07/07/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J225	IR02MW114A1	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A026	IR02MW114A2	01/13/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9228J166	IR02MW114A2	07/10/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J226	IR02MW114A2	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A084	IR02MW114A3	01/14/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9228J153	IR02MW114A3	07/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J232	IR02MW114A3	08/26/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9202A002	IR02MW126A	01/06/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0110P011	IR02MW126A	03/13/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9228J158	IR02MW126A	07/08/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9228J157	IR02MW126A	07/08/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9235X717	IR02MW126A	08/25/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0425G031	IR02MW127B	06/15/2004	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9205X468	IR02MW127B	01/28/1992	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0511G048	IR02MW127B	03/15/2005	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0112P005	IR02MW127B	03/26/2001	0	B	<0.0099U	<0.0099U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<0.99U	NA	NA	NA
9230J175	IR02MW127B	07/21/1992	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0230P006	IR02MW127B	07/23/2002	0	B	<0.0094U	<0.0094U	NA	NA	<0.47U	NA	NA	NA	NA	NA	NA	NA	<0.94U	NA	NA	NA
9235J233	IR02MW127B	08/26/1992	0	B	<0.005U	<0.005U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0437P021	IR02MW127B	09/07/2004	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0237E025	IR02MW127B	09/13/2002	0	B	<0.0096U	<0.0096U	NA	NA	<0.48U	NA	NA	NA	NA	NA	NA	NA	<0.96U	NA	NA	NA
0237E026	IR02MW127B	09/13/2002	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
0447R010	IR02MW127B	11/19/2004	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0110P015	IR02MW141A	03/14/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0110P016	IR02MW141A	03/14/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9218Z059	IR02MW141A	05/07/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9218Z060	IR02MW141A	05/07/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9230J177	IR02MW141A	07/21/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9230J178	IR02MW141A	07/21/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0231E002	IR02MW141A	07/29/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9235X715	IR02MW141A	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9235X716	IR02MW141A	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0239J001	IR02MW141A	09/23/2002	0	A	<0.0095 U	<0.0095 U	NA	NA	<0.48 U	NA	NA	NA	NA	NA	NA	NA	<0.95 U	NA	NA	NA
0239J002	IR02MW141A	09/23/2002	0	A	<0.0095 U	<0.0095 U	NA	NA	<0.48 U	NA	NA	NA	NA	NA	NA	NA	<0.95 U	NA	NA	NA
9205X478	IR02MW146A	01/30/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9205X479	IR02MW146A	01/30/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9613W194	IR02MW146A	03/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9622J162	IR02MW146A	05/29/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9622J163	IR02MW146A	05/29/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9203X415	IR02MW147A	01/15/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9228J167	IR02MW147A	07/10/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X719	IR02MW147A	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202N019	IR02MW149A	01/10/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9112X067	IR02MW149A	03/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9622J166	IR02MW173A	05/30/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A089	IR02MW175A	01/14/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0110P002	IR02MW175A	03/12/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0229P014	IR02MW175A	07/18/2002	0	A	<0.09 U	<0.09 U	NA	NA	<4.7 U	NA	NA	NA	NA	NA	NA	NA	<9.4 U	NA	NA	NA
9235J230	IR02MW175A	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0239G002	IR02MW175A	09/23/2002	0	A	<0.0052 UJ9	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9203A086	IR02MW179A	01/14/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J231	IR02MW179A	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J234	IR02MW183A	08/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9112X063	IR02MW196A	03/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J235	IR02MW210B	08/26/1992	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9205X480	IR02MW210B	01/30/1992	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9230J179	IR02MW210B	07/21/1992	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J236	IR02MW210B	08/26/1992	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9612W182	IR02MW298A	03/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9228J152	IR02MW298A	07/08/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9235X728	IR02MW298A	08/27/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9612J946	IR02MW299A	03/21/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J238	IR02MW299A	08/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X726	IR02MW300A	08/26/1992	0	A	U<0.05 U	U<0.05 U	NA	NA	U<0.5 U	NA	NA	NA	NA	NA	NA	NA	U<1 U	NA	NA	NA
0511Z021	IR02MW300A	03/15/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9612J943	IR02MW300A	03/20/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0425H030	IR02MW300A	06/16/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ7	NA	NA	NA
9228X660	IR02MW300A	07/06/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0438G050	IR02MW300A	09/15/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0449C031	IR02MW300A	11/30/2004	0	A	<0.05 U	0.01 J	NA	NA	0.01 J	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0808D007	IR02MW301A	02/21/2008	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 UJ	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0817G023	IR02MW301A	04/21/2008	0	A	<0.05 UJ	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0732D009	IR02MW301A	08/10/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0740D007	IR02MW301A	10/02/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0112P003	IR02MW372A	03/26/2001	0	A	0.03 J9	0.02 J9	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9619J106	IR02MW372A	05/10/1996	0	A	<0.05 U	0.39 J8	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0229P009	IR02MW372A	07/17/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
0237E008	IR02MW372A	09/10/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
0237E009	IR02MW372A	09/10/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9547J609	IR02MW372A	11/22/1995	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9610J904	IR02MW373A	03/04/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0112T001	IR02MW373A	03/26/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9619J107	IR02MW373A	05/10/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9547J608	IR02MW373A	11/21/1995	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9202A001	IR02MW87A	01/06/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9113X078	IR02MW87A	03/26/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9230J176	IR02MW89A	07/21/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9202A004	IR02MW93A	01/06/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9112X071	IR02MW93A	03/22/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J221	IR02MW97A	08/24/1992	0	A	U<0.05 U	U<0.05 U	NA	NA	U<0.5 U	NA	NA	NA	NA	NA	NA	NA	U<1 U	NA	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0230P016	IR02MW97A	07/26/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9235J220	IR02MW97A	08/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0238E003	IR02MW97A	09/16/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 UJ7	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9228J148	IR02MWB-1	07/07/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A028	IR02MWB-1	01/13/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9228J149	IR02MWB-1	07/07/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J239	IR02MWB-1	08/27/1992	0	A	<0.05 UR2	<0.05 UR2	NA	NA	<0.5 UR2	NA	NA	NA	NA	NA	NA	NA	<1 UR2	NA	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<1 UJ3	NA	NA	NA
9228J151	IR02MWB-2	07/07/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J240	IR02MWB-2	08/27/1992	0	A	<0.05 UR2	<0.05 UR2	NA	NA	<0.5 UR2	NA	NA	NA	NA	NA	NA	NA	<1 UR2	NA	NA	NA
9204X432A	IR02MWB-3	01/20/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
0110P020	IR02MWB-3	03/15/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0511G047	IR02MWB-3	03/15/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0425S045	IR02MWB-3	06/17/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	<1 U	<1 U	NA	NA	<10 U	NA	NA	NA	NA	NA	NA	NA	<20 U	NA	NA	NA
0229P020	IR02MWB-3	07/19/2002	0	A	<0.0095 U	<0.0095 U	NA	NA	<0.48 U	NA	NA	NA	NA	NA	NA	NA	<0.95 U	NA	NA	NA
9235J241	IR02MWB-3	08/27/1992	0	A	<0.25 U	<1.2 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9235J242	IR02MWB-3	08/27/1992	0	A	<0.25 U	<1.2 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0438C055	IR02MWB-3	09/17/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0239J003	IR02MWB-3	09/23/2002	0	A	<0.09 U	<0.09 U	NA	NA	<4.8 U	NA	NA	NA	NA	NA	NA	NA	<9.5 U	NA	NA	NA
0448C019	IR02MWB-3	11/23/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9204X441A	IR02MWB-5	01/21/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0110D004	IR02MWB-5	03/13/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J245	IR02MWB-5	08/28/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228X664	IR03MW218A2	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9235X730	IR03MW218A2	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9203X416	IR03MW218A3	01/16/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9235X729	IR03MW218A3	08/27/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9230J196	IR03MW224A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X451	IR03MW224A	01/23/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0109P003	IR03MW224A	03/06/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9235X734	IR03MW224A	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9614Z024	IR03MW225A	04/03/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X470	IR03MW225A	01/28/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9625Z050	IR03MW225A	06/19/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X461	IR03MW226A	01/27/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9230J197	IR03MW226A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9230J198	IR03MW226A	07/24/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0231E018'	IR03MW228B	08/02/2002	0	B	<0.0094U	<0.0094U	NA	NA	<0.47U	NA	NA	NA	NA	NA	NA	NA	<0.94U	NA	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9235J244	IR03MW228B	08/28/1992	0	B	<0.0094U	<0.0094U	NA	NA	<0.47U	NA	NA	NA	NA	NA	NA	NA	<0.94U	NA	NA	NA
0237S014	IR03MW228B	09/12/2002	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0602H043	IR03MW342A	01/10/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H044	IR03MW342A	01/10/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708L005	IR03MW342A	02/22/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0809D031	IR03MW342A	02/28/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0510G026	IR03MW342A	03/10/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0611S012	IR03MW342A	03/14/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0110T017	IR03MW342A	03/15/2001	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9612J944	IR03MW342A	03/21/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9612J945	IR03MW342A	03/21/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0817E034	IR03MW342A	04/22/2008	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0720G016	IR03MW342A	05/15/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0622S011	IR03MW342A	06/01/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0425S039	IR03MW342A	06/16/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526G043	IR03MW342A	06/28/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9228X647	IR03MW342A	07/06/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0735W059	IR03MW342A	08/27/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9235X736	IR03MW342A	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636D037	IR03MW342A	09/06/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0636D038	IR03MW342A	09/06/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G042	IR03MW342A	09/14/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0538A028	IR03MW342A	09/21/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741G024	IR03MW342A	10/08/2007	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0448C016	IR03MW342A	11/22/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0650W041	IR03MW342A	12/11/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9548J613	IR03MW369A	11/29/1995	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9610J911	IR03MW369A	03/06/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9621J126	IR03MW369A	05/20/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9610J908	IR03MW370A	03/06/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9620J125	IR03MW370A	05/16/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9548J615	IR03MW370A	11/30/1995	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9548J617	IR03MW371A	11/30/1995	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9610J912	IR03MW371A	03/06/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9620J123	IR03MW371A	05/16/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9620J124	IR03MW371A	05/16/1996	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9548J618	IR03MW371A	11/30/1995	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602H041	IR03MW373B	01/09/2006	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0809E020	IR03MW373B	02/27/2008	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0809E021	IR03MW373B	02/27/2008	0	B	<0.05 UJ	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0709G048	IR03MW373B	02/28/2007	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 UJ	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0510R032	IR03MW373B	03/10/2005	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0611S026	IR03MW373B	03/17/2006	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0817E028	IR03MW373B	04/21/2008	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
0720A055	IR03MW373B	05/17/2007	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 UJ	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0623P056	IR03MW373B	06/08/2006	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0425S037	IR03MW373B	06/15/2004	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0526G046	IR03MW373B	06/28/2005	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0634G006	IR03MW373B	08/25/2006	0	B	<0.05 UJ	<0.05 U	NA	NA	<0.05 UJ	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0735W060	IR03MW373B	08/27/2007	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0438J024	IR03MW373B	09/14/2004	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0538A040	IR03MW373B	09/23/2005	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0740D023	IR03MW373B	10/04/2007	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0447C013	IR03MW373B	11/19/2004	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0649G031	IR03MW373B	12/04/2006	0	B	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9225X620	IR04MW09A	06/15/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9146X263	IR04MW09A	11/15/1991	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0602D039	IR04MW13A	01/11/2006	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9207X518	IR04MW13A	02/12/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9207X519	IR04MW13A	02/12/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0708G030	IR04MW13A	02/21/2007	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ	<0.5 U	<0.5 U
0809H025	IR04MW13A	02/27/2008	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.5 UJ	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 UJ
0509G009	IR04MW13A	03/03/2005	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
0611J032	IR04MW13A	03/16/2006	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ	<0.5 U	<0.5 U
0611J033	IR04MW13A	03/16/2006	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ	<0.5 U	<0.5 U
0719W020	IR04MW13A	05/10/2007	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 U	<0.5 U	<3.5 U	<2.5 UJ	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 U	<0.5 UJ	<0.5 UJ	<0.5 UJ
0622T013	IR04MW13A	05/31/2006	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ	<0.5 U	<0.5 U
9225X627	IR04MW13A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9225X628	IR04MW13A	06/17/1992	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0526T039	IR04MW13A	06/27/2005	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
0427S052	IR04MW13A	06/28/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0734D031	IR04MW13A	08/20/2007	0	A	<0.05 UJ	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 UJ	<0.5 UJ	<0.5 UJ	<0.5 U
0537T010	IR04MW13A	09/15/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0537T011	IR04MW13A	09/15/2005	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0438G051	IR04MW13A	09/16/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0741D034	IR04MW13A	10/08/2007	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 UJ	<0.05 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 UJ	<0.5 U	<0.5 UJ	<0.5 U
9146X259	IR04MW13A	11/14/1991	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0450G051	IR04MW13A	12/06/2004	0	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0649D036	IR04MW13A	12/07/2006	0	A	<0.05 UJ	<0.05 UJ	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	<0.5 U	<0.5 U	<0.5 U
9146X256	IR04MW31A	11/14/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9207X517	IR04MW31A	02/12/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
9225X629	IR04MW31A	06/17/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9225X623	IR04MW35A	06/15/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9146X257	IR04MW35A	11/14/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9146X254	IR04MW36A	11/14/1991	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0438T014	IR04MW36A	09/16/2004	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ7	<03.5 UJ7	<02.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
0601T023	IR04MW36A	01/05/2006	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5 UJ	<2.5 UJ	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<1 U	<0.5 UJ	<0.5 UJ	<0.5 U
9207X523	IR04MW36A	02/13/1992	0	A	<0.05 U	<0.05 U	NA	NA	<1 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207X524	IR04MW36A	02/13/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0708G038	IR04MW36A	02/22/2007	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ	<0.5 U	<0.5 U
0809D012	IR04MW36A	02/25/2008	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 UJ	<0.5 UJ	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
0509G004	IR04MW36A	03/02/2005	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 UJ	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ7	<0.5 U	<0.5 U
0612H046	IR04MW36A	03/22/2006	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 UJ	<0.5 U	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
0718J007	IR04MW36A	05/01/2007	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 UJ	<0.05 UJ	<0.5 U	<3.5 U	<2.5 UJ	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 U	<0.5 UJ	<0.5 UJ	<0.5 UJ
0622T012	IR04MW36A	05/31/2006	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 UJ	<0.5 U	<0.5 U
0524T014	IR04MW36A	06/16/2005	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 UJ7	<0.5 U	<03.5 UJ7	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
9225X630	IR04MW36A	06/17/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0425S044	IR04MW36A	06/17/2004	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<03.5 U	<02.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ7	<0.5 U	<0.5 U	<0.5 U
0734H071	IR04MW36A	08/23/2007	0	A	<0.05 UJ	<0.05 UJ	<0.5 UJ	<0.5 U	<0.05 UJ	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 UJ	<0.5 UJ	<0.5 U	<0.5 U
0536T003	IR04MW36A	09/08/2005	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5 UJ	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
0741N003	IR04MW36A	10/08/2007	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 UJ	<0.05 U	<0.5 UJ	<3.5 UJ	<2.5 UJ	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 UJ	<1 UJ	<0.5 U	<0.5 UJ	<0.5 U
9146X255	IR04MW36A	11/14/1991	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0648G018	IR04MW36A	11/28/2006	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
0449P037	IR04MW36A	12/02/2004	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<03.5 U	<02.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.5 U
9207X530	IR04MW37A	02/14/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
9207X531	IR04MW37A	02/14/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA
9225X621	IR04MW37A	06/15/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9225X622	IR04MW37A	06/15/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X282	IR04MW37A	11/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	<0.06 U	<0.06 U	NA	NA	<0.62 U	NA	NA	NA	NA	NA	NA	NA	<1.2 U	NA	NA	NA
9225X632	IR04MW38A	06/17/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9146X264	IR04MW38A	11/15/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9225X625	IR04MW39A	06/15/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X283	IR04MW39A	11/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9146X261	IR04MW40A	11/15/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9225X631	IR04MW40A	06/17/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
0111T002	IR05MW73A	03/19/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0111T003	IR05MW73A	03/19/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9225X644	IR05MW73A	06/19/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X278	IR05MW73A	11/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
9225X640	IR05MW74A	06/18/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X268	IR05MW74A	11/18/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X269	IR05MW74A	11/18/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.56 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
9207A100	IR05MW76A	02/11/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9225X642	IR05MW76A	06/19/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9225X643	IR05MW76A	06/19/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X281	IR05MW76A	11/21/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207A096	IR05MW77A	02/10/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
9207A097	IR05MW77A	02/10/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.54 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
9225X635	IR05MW77A	06/18/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X270	IR05MW77A	11/18/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.53 U	NA	NA	NA	NA	NA	NA	NA	<1.1 U	NA	NA	NA
9225X639	IR05MW82A	06/18/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X267	IR05MW82A	11/18/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9612W183	IR05MW85A	03/21/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9225X636	IR05MW85A	06/18/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9225X637	IR05MW85A	06/18/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9230J194	IR05MW85A	07/24/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
9230J195	IR05MW85A	07/24/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
0232E002	IR05MW85A	08/06/2002	0	A	<0.0095 U	<0.0095 U	NA	NA	<0.48 U	NA	NA	NA	NA	NA	NA	NA	<0.95 U	NA	NA	NA
9405N295	IR08MW37A	02/01/1994	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9405N296	IR08MW37A	02/01/1994	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9419X278	IR08MW37A	05/10/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9128X091	IR08MW37A	07/10/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9128X092	IR08MW37A	07/10/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9434M578	IR08MW37A	08/26/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9344X052	IR08MW37A	11/05/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9151X352	IR08MW37A	12/19/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9128X094	IR08MW38A	07/10/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9434M579	IR08MW38A	08/26/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9405N298	IR08MW38A	02/01/1994	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9419X277	IR08MW38A	05/10/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9344X050	IR08MW38A	11/05/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9344X051	IR08MW38A	11/05/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9151X358	IR08MW38A	12/20/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9128X095	IR08MW39A	07/10/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9435E158	IR08MW39A	09/01/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9151X359	IR08MW39A	12/20/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9151X360	IR08MW39A	12/20/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9151X353	IR08MW40A	12/19/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9406X183	IR08MW40A	02/07/1994	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9419X287	IR08MW40A	05/11/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9128X093	IR08MW40A	07/10/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9435E160	IR08MW40A	09/01/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9345X055	IR08MW40A	11/08/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9345X056	IR08MW40A	11/08/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9151X354	IR08MW40A	12/19/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9406X181	IR08MW41A	02/07/1994	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9406X182	IR08MW41A	02/07/1994	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9419X286	IR08MW41A	05/11/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9128X098	IR08MW41A	07/11/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9435E159	IR08MW41A	09/01/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9344X053	IR08MW41A	11/05/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9151X355	IR08MW41A	12/19/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9406X185	IR08MW42A	02/07/1994	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9419X275	IR08MW42A	05/10/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9419X276	IR08MW42A	05/10/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9434M577	IR08MW42A	08/26/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9141X204	IR08MW42A	10/07/1991	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9344X045	IR08MW42A	11/04/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9344X046	IR08MW42A	11/04/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9151X362	IR08MW42A	12/20/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9606W066	IR08MW43A	02/05/1996	0	A	U<0.05 U	U<0.01 U	NA	NA	U<0.5 U	NA	NA	NA	NA	NA	NA	NA	U<3 U	NA	NA	NA
9610J913	IR08MW43A	03/07/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9440X501	IR08MW43A	10/03/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9440X502	IR08MW43A	10/03/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9610J914	IR08MW44A	03/07/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9606W064	IR08MW44A	02/05/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9606W065	IR08MW44A	02/05/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9440X504	IR08MW44A	10/04/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9440X505	IR08MW44A	10/04/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
0109P014	IR11MW25A	03/09/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
8914W25	IR11MW25A	03/10/1989	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9034G314	IR11MW25A	08/22/1990	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9148X298	IR11MW25A	11/25/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9034G301	IR11MW26A	08/21/1990	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9238X756	IR11MW26A	09/15/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9148X297	IR11MW26A	11/25/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
8914W27	IR11MW27A	03/10/1989	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9034G300	IR11MW27A	08/21/1990	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9238X755	IR11MW27A	09/15/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9209X547	IR12MW11A	02/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9612W185	IR12MW11A	03/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9134X179	IR12MW11A	08/26/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X544	IR12MW12A	02/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X185	IR12MW12A	08/27/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X782	IR12MW12A	09/21/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9239X783	IR12MW12A	09/21/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X545	IR12MW13A	02/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X546	IR12MW13A	02/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X180	IR12MW13A	08/26/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X787	IR12MW13A	09/22/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9239X788	IR12MW13A	09/22/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X552	IR12MW14A	02/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X181	IR12MW14A	08/26/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X182	IR12MW14A	08/26/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X789	IR12MW14A	09/22/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0238A004	IR12MW15A	09/16/2002	0	A	<0.0098 U	<0.0098 U	NA	NA	<0.49 UJ7	NA	NA	NA	NA	NA	NA	NA	<0.98 U	NA	NA	NA
9209X553	IR12MW15A	02/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0232E003	IR12MW15A	08/06/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9134X186	IR12MW15A	08/27/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0238A003	IR12MW15A	09/16/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 UJ7	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9238X778	IR12MW15A	09/18/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X555	IR12MW16A	02/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X188	IR12MW16A	08/27/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X189	IR12MW16A	08/27/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X797	IR12MW16A	09/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0238A002	IR12MW17A	09/16/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9234X691	IR12MW17A	08/19/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0509R005	IR12MW17A	03/02/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0110T002	IR12MW17A	03/12/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9612W186	IR12MW17A	03/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0424M013	IR12MW17A	06/10/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0525T026	IR12MW17A	06/21/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 UJ7	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0229P018	IR12MW17A	07/19/2002	0	A	<0.09 U	<0.09 U	NA	NA	<4.8 U	NA	NA	NA	NA	NA	NA	NA	<9.5 U	NA	NA	NA
0229P019	IR12MW17A	07/19/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9234X690	IR12MW17A	08/19/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
0437P031	IR12MW17A	09/10/2004	0	A	<0.05 U	0.0073 J	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X795	IR12MW17A	09/24/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
0447C009	IR12MW17A	11/17/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9613W189	IR12MW18A	03/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9613W190	IR12MW18A	03/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9234X692	IR12MW18A	08/19/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X793	IR12MW18A	09/24/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9239X794	IR12MW18A	09/24/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.56 UJ3	NA	NA	NA	NA	NA	NA	NA	<5.6 UJ3	NA	NA	NA
9613W191	IR12MW19A	03/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9234X693	IR12MW19A	08/19/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X800	IR12MW19A	09/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9239X801	IR12MW19A	09/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9613J971	IR12MW20A	03/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9234X694	IR12MW20A	08/19/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X799	IR12MW20A	09/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9614Z022	IR12MW21A	04/02/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9618J076	IR12MW21A	05/02/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9234X695	IR12MW21A	08/19/1992	0	A	<1.2 U	<1.2 U	NA	NA	<12 U	NA	NA	NA	NA	NA	NA	NA	<25 U	NA	NA	NA
9239A459	IR12MW21A	09/23/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	NA
9238X777	IR13MW10A	09/18/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9209X550	IR13MW10A	02/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X551	IR13MW10A	02/25/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X193	IR13MW10A	08/28/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X558	IR13MW11A	02/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X190	IR13MW11A	08/28/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9238X768	IR13MW11A	09/17/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9238X769	IR13MW11A	09/17/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9134X192	IR13MW12A	08/28/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X557	IR13MW12A	02/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X191	IR13MW12A	08/28/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9238X775	IR13MW12A	09/18/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9238X776	IR13MW12A	09/18/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X559	IR14MW09A	02/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X560	IR14MW09A	02/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0109T013	IR14MW09A	03/07/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0230P003	IR14MW09A	07/22/2002	0	A	<0.0096 U	<0.0096 U	NA	NA	<0.48 U	NA	NA	NA	NA	NA	NA	NA	<0.96 U	NA	NA	NA
9238X754	IR14MW09A	09/15/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
0238A006	IR14MW09A	09/17/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9148X304	IR14MW09A	11/27/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9148X305	IR14MW09A	11/27/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X562	IR14MW10A	02/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0109T018	IR14MW10A	03/08/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9238X752	IR14MW10A	09/15/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9238X753	IR14MW10A	09/15/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9147X285	IR14MW10A	11/22/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9147X286	IR14MW10A	11/22/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X561	IR14MW12A	02/26/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0109P013	IR14MW12A	03/09/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0230D010A	IR14MW12A	07/25/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
0238S009	IR14MW12A	09/19/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 UJ7	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9147X272	IR14MW12A	11/20/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9614Z021	IR14MW13A	04/02/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 UJ7	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9619J102	IR14MW13A	05/09/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9234X696	IR14MW13A	08/19/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
9239A457	IR14MW13A	09/23/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	NA
9239A458	IR14MW13A	09/23/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X564	IR15MW06A	02/27/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9238X750	IR15MW06A	09/14/1992	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9147X276	IR15MW06A	11/20/1991	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9147X274	IR15MW07A	11/20/1991	0	A	U<0.25 U	U<0.25 U	NA	NA	U<2.5 U	NA	NA	NA	NA	NA	NA	NA	U<5 U	NA	NA	NA
9209X565	IR15MW07A	02/27/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X566	IR15MW07A	02/27/1992	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9147X273	IR15MW07A	11/20/1991	0	A	<0.25 U	<0.25 U	NA	NA	<2.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9239X792	IR15MW08A	09/24/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9613W201	IR15MW08A	03/28/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9613W202	IR15MW08A	03/28/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	<2.5 U	<2.5 U	NA	NA	<25 U	NA	NA	NA	NA	NA	NA	NA	<50 U	NA	NA	NA
9233X676	IR15MW08A	08/13/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
9233X679	IR15MW09F	08/14/1992	00	F	<0.25U	<0.25U	NA	NA	<2.5U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9613W195	IR15MW09F	03/27/1996	0	F	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9239X785	IR15MW09F	09/22/1992	0	F	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9613W198	IR15MW10F	03/27/1996	0	F	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9233X678	IR15MW10F	08/14/1992	0	F	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9239X786	IR15MW10F	09/22/1992	0	F	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9238X761	IR17MW11A	09/16/1992	0	A	<0.05 U J5	<0.05 U J5	NA	NA	<0.05 U J5	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9603J803	IR17MW11A	01/16/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9209X570	IR17MW11A	02/28/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X199	IR17MW11A	08/29/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9238X760	IR17MW11A	09/16/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X568	IR17MW12A	02/27/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X198	IR17MW12A	08/29/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9238X770	IR17MW12A	09/17/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9209X571	IR17MW13A	02/28/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9209X572	IR17MW13A	02/28/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X196	IR17MW13A	08/29/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9134X197	IR17MW13A	08/29/1991	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9238X771	IR17MW13A	09/17/1992	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9604W039	IR36MW09A	01/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9611J932	IR36MW09A	03/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9428E065	IR36MW09A	07/13/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9603W012	IR36MW11A	01/18/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9608J883	IR36MW11A	02/21/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0109D011	IR36MW11A	03/07/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0109D014	IR36MW11A	03/07/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0229E018	IR36MW11A	07/18/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9437X471	IR36MW11A	09/12/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9437X472	IR36MW11A	09/12/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0238G003	IR36MW11A	09/18/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9611J923	IR36MW120B	03/13/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9617J043	IR36MW120B	04/23/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9623J174	IR36MW120B	06/04/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9611J924	IR36MW121A	03/13/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9617J044	IR36MW121A	04/24/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9623J175	IR36MW121A	06/04/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9623J176	IR36MW121A	06/04/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9611W157	IR36MW122A	03/13/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9617J055	IR36MW122A	04/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9623J172	IR36MW122A	06/03/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9623J17	IR36MW123B	06/03/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9611W156	IR36MW123B	03/13/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9618J065	IR36MW123B	04/30/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9604W034	IR36MW125A	01/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9611W165	IR36MW125A	03/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9618J061	IR36MW125A	04/29/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9604W033	IR36MW126A	01/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9611J931	IR36MW126A	03/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9620J112	IR36MW126A	05/13/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9604W037	IR36MW127A	01/25/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9611J930	IR36MW127A	03/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9618J062	IR36MW127A	04/29/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9604W029	IR36MW128A	1/24/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0109D008	IR36MW128A	03/06/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9611J929	IR36MW128A	03/14/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9617J037	IR36MW128A	04/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0229P017	IR36MW128A	07/19/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
0237E010	IR36MW128A	09/10/2002	0	A	<0.09 UJ7	<0.09 U	NA	NA	<4.7 UJ7	NA	NA	NA	NA	NA	NA	NA	<9.4 U	NA	NA	NA
9611J927	IR36MW129B	03/14/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9611J928	IR36MW129B	03/14/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9617J041	IR36MW129B	04/23/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9617J042	IR36MW129B	04/23/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9622J168	IR36MW129B	05/31/1996	0	B	<0.05 U	<0.01U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9603W013	IR36MW12A	01/19/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9608J889	IR36MW12A	02/23/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9437X473	IR36MW12A	09/12/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9602J783	IR36MW135A	01/09/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9607J865	IR36MW135A	02/12/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9611W164	IR36MW135A	03/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9604Z011	IR36MW139A	01/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9608J888	IR36MW139A	02/23/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9613W199	IR36MW139A	03/28/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9603W011	IR36MW13A	01/18/1996	0	A	<0.05 UJ1	<0.01 UJ1	NA	NA	<0.5 UJ1	NA	NA	NA	NA	NA	NA	NA	<3 UJ1	NA	NA	NA
9608J886	IR36MW13A	02/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9444X560	IR36MW13A	11/03/1994	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9444X561	IR36MW13A	11/03/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9603W010	IR36MW14A	01/18/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9608W116	IR36MW14A	02/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9443X538	IR36MW14A	10/25/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9443X539	IR36MW14A	10/25/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9605W060	IR36MW15A	02/01/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9610J903	IR36MW15A	03/04/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9438X484	IR36MW15A	09/20/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9438X485	IR36MW15A	09/20/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9439X499	IR36MW16A	09/27/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9605W054	IR36MW16A	01/31/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9610J906	IR36MW16A	03/05/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9610J907	IR36MW16A	03/05/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9439X498	IR36MW16A	09/27/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9603W016	IR36MW17A	01/19/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0602H050	IR36MW17A	01/12/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9603W017	IR36MW17A	01/19/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9608J887	IR36MW17A	02/23/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0809E018	IR36MW17A	02/27/2008	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0809E019	IR36MW17A	02/27/2008	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0712D021	IR36MW17A	03/20/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0612M038	IR36MW17A	03/21/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0612M039	IR36MW17A	03/21/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0513Z028	IR36MW17A	03/29/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 UJ7	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0719W023	IR36MW17A	05/11/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0719W024	IR36MW17A	05/11/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0623M030	IR36MW17A	06/07/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0623M031	IR36MW17A	06/07/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0425R005	IR36MW17A	06/18/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0425R006	IR36MW17A	06/18/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0526D037	IR36MW17A	06/29/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
0734D050	IR36MW17A	08/23/2007	0	A	<0.05 UJ	<0.05 UJ	NA	NA	<0.05 UJ	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
0438J025	IR36MW17A	09/14/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0538T030	IR36MW17A	09/22/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0740W028	IR36MW17A	10/05/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
9442X532	IR36MW17A	10/18/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9442X533	IR36MW17A	10/18/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0450J055	IR36MW17A	12/06/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0649D035	IR36MW17A	12/06/2006	0	A	<0.05 U	<0.05 UJ	NA	NA	<0.05 UJ	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
9604Z012	IR38MW01A	01/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9608J885	IR38MW01A	02/22/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9441X521	IR38MW01A	10/12/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9441X522	IR38MW01A	10/12/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9604W022	IR38MW02A	01/23/1996	0	A	U<0.05 U	U<0.01 U	NA	NA	U<0.5 U	NA	NA	NA	NA	NA	NA	NA	U<3 U	NA	NA	NA
9604W021	IR38MW02A	01/23/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9608W121	IR38MW02A	02/23/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9443X535	IR38MW02A	10/24/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9443X536	IR38MW02A	10/24/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0227P007	IR39MW21A	07/02/2002	0	A	<0.02 U1	<0.0094 U	NA	NA	<0.47 UJ7	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9604W025	IR39MW21A	01/23/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9609J886	IR39MW21A	02/26/1996	0	A	<0.05 U	0.02 J	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0109T024	IR39MW21A	03/09/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0425C036	IR39MW21A	06/16/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9425E029	IR39MW21A	06/22/1994	0	A	<0.05 UJ5	<0.01 UJ5	NA	NA	<0.5 UJ5	NA	NA	NA	NA	NA	NA	NA	<3 UJ5	NA	NA	NA
0227P008	IR39MW21A	07/02/2002	0	A	<0.0099 U	<0.006 UJ9	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<0.99 U	NA	NA	NA
0237S003	IR39MW21A	09/09/2002	0	A	0.01 J79	<0.0094 U	NA	NA	<0.47 UJ7	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
0449C027	IR39MW21A	11/29/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9437X481	IR39MW22A	09/14/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9605W045	IR39MW22A	01/29/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9609J897	IR39MW22A	02/29/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9437X480	IR39MW22A	09/14/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9604W040	IR39MW23A	01/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9604W041	IR39MW23A	01/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9609J884	IR39MW23A	02/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9437K156	IR39MW23A	09/15/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9437K157	IR39MW23A	09/15/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9604W042	IR39MW24A	01/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9609J885	IR39MW24A	02/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9438X490	IR39MW24A	09/21/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9438X491	IR39MW24A	09/21/1994	0	A	<0.05 UJ3	<0.01 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<3 UJ3	NA	NA	NA
9604W024	IR39MW33A	01/23/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9609W123	IR39MW33A	02/26/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9613W204	IR39MW33A	03/29/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9602J790	IR39MW35A	01/10/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9607W096	IR39MW35A	02/14/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9607W097	IR39MW35A	02/14/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9612J934	IR39MW35A	03/18/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9602J787	IR39MW36A	01/10/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9602J789	IR39MW36A	01/10/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9607W098	IR39MW36A	02/14/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9612J935	IR39MW36A	03/18/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9610W136	IR56MW39A	03/04/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9620J120	IR56MW39A	05/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9444X557	IR56MW39A	11/02/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9444X558	IR56MW39A	11/02/1994	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9610J905	IR72MW32A	3/5/1996	0	A	U<0.05 U	U<0.01 U	NA	NA	U<0.5 U	NA	NA	NA	NA	NA	NA	NA	U<3 U	NA	NA	NA
0110P027	IR72MW32A	03/16/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
9620J119	IR72MW32A	05/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0229P003	IR72MW32A	07/15/2002	0	A	<0.0094 UJ7	<0.0094 U	NA	NA	<0.47 UJ7	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
0238G004	IR72MW32A	09/18/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9547W195	IR72MW32A	11/21/1995	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9610W138	IR72MW33A	03/05/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9620J118	IR72MW33A	05/15/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9547W197	IR72MW33A	11/22/1995	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0602D042	PA36MW01A	01/11/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9305J230	PA36MW01A	02/04/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.51 U	NA	NA	NA	NA	NA	NA	NA	<5.1 U	NA	NA	NA
9606W074	PA36MW01A	02/07/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0708H030	PA36MW01A	02/21/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0708H031	PA36MW01A	02/21/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9611W148	PA36MW01A	03/11/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
0511R044	PA36MW01A	03/15/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0612H042	PA36MW01A	03/21/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0623M027	PA36MW01A	06/06/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0623M028	PA36MW01A	06/06/2006	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0525T035	PA36MW01A	06/24/2005	0	A	<0.05 UJ3	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0525T036	PA36MW01A	06/24/2005	0	A	<0.05 UJ3	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0438G046	PA36MW01A	09/14/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0538S047	PA36MW01A	09/23/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0538S048	PA36MW01A	09/23/2005	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0449C034	PA36MW01A	12/01/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 UJ7	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0648D027	PA36MW01A	12/01/2006	0	A	<0.05 U	<0.05 UJ	NA	NA	<0.05 UJ	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
0425X004	PA36MW01A	06/16/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA
9305J232	PA36MW02A	02/04/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9606W075	PA36MW02A	02/07/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9611W149	PA36MW02A	03/11/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9606W076	PA36MW03A	02/07/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9306J248	PA36MW03A	02/11/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9306J249	PA36MW03A	02/11/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9611J920	PA36MW03A	03/11/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0231D010	PA36MW03A	07/31/2002	0	A	<0.0096 U	<0.0096 U	NA	NA	<0.48 U	NA	NA	NA	NA	NA	NA	NA	<0.96 U	NA	NA	NA
0237G016	PA36MW03A	09/13/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9606W077	PA36MW04A	02/07/1996	0	A	U<0.05 U	U<0.01 U	NA	NA	U<0.5 U	NA	NA	NA	NA	NA	NA	NA	U<3 U	NA	NA	NA
9305J234	PA36MW04A	02/05/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	0.01 J3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9611J919	PA36MW04A	03/11/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0111T009	PA36MW04A	03/20/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0230P012	PA36MW04A	07/24/2002	0	A	0.01 J9	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
0237J012	PA36MW04A	09/11/2002	0	A	0.0088 J9	<0.0097 U	NA	NA	<0.49 U	NA	NA	NA	NA	NA	NA	NA	<0.97 U	NA	NA	NA
9306J245	PA36MW05A	02/10/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.52U	NA	NA	NA	NA	NA	NA	NA	<0.52U	NA	NA	NA
9606W082	PA36MW05A	02/08/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9306J244	PA36MW05A	02/10/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.56 U	NA	NA	NA	NA	NA	NA	NA	<5.6 U	NA	NA	NA
9611J918	PA36MW05A	03/11/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9615Z045	PA36MW06A	04/09/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9306J252	PA36MW06A	02/11/1993	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<5 U	NA	NA	NA
9612W172	PA36MW06A	03/19/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9615Z044	PA36MW06A	04/09/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9606W079	PA36MW07A	02/08/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9308J309	PA36MW07A	02/23/1993	0	A	0.13	<0.05 U	NA	NA	<0.51 U	NA	NA	NA	NA	NA	NA	NA	<5.1 U	NA	NA	NA
9611J922	PA36MW07A	03/12/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
0110T003	PA36MW07A	03/12/2001	0	A	<0.005 U	<0.005 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<0.5 U	NA	NA	NA
0230A010	PA36MW07A	07/24/2002	0	A	<0.0096 UJ7	<0.0096 U	NA	NA	<0.48 U	NA	NA	NA	NA	NA	NA	NA	<0.96 U	NA	NA	NA
0237E019	PA36MW07A	09/12/2002	0	A	<0.0094 U	<0.0094 U	NA	NA	<0.47 U	NA	NA	NA	NA	NA	NA	NA	<0.94 U	NA	NA	NA
9606W080	PA36MW08A	02/08/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9606W081	PA36MW08A	02/08/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9307A590	PA36MW08A	02/16/1993	0	A	<0.25 UJ3	<0.25 UJ3	NA	NA	<2.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<25 UJ3	NA	NA	NA
9307A591	PA36MW08A	02/16/1993	0	A	<0.25 UJ3	<0.25 UJ3	NA	NA	<2.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<25 UJ3	NA	NA	NA
9611W151	PA36MW08A	03/12/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9611W152	PA36MW08A	03/12/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9606W084	PA39MW01A	02/09/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9307A611	PA39MW01A	02/18/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9307A612	PA39MW01A	02/18/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9611W159	PA39MW01A	03/14/1996	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9606J860	PA39MW02A	02/09/1996	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
9307D024	PA39MW02A	02/19/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9307D025	PA39MW02A	02/19/1993	0	A	<0.05 UJ3	<0.05 UJ3	NA	NA	<0.5 UJ3	NA	NA	NA	NA	NA	NA	NA	<5 UJ3	NA	NA	NA
9611W158	PA39MW02A	03/14/1996	0	A	<0.05 U	<0.05 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3U	NA	NA	NA
0720J061	IR02MW301A	05/18/2007	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 UJ	NA	NA	NA
9610W140	IR02MW372A	03/07/1996	0	A	<0.05 U	<0.2 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA
9204X432	IR02MWB 3	01/20/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	<0.5 U	<0.5 U	NA	NA	<5 U	NA	NA	NA	NA	NA	NA	NA	<10 U	NA	NA	NA
0823H062	IR04MW13A	6/4/2008	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 UJ	<0.05 U	<0.5 U	<3.5U	<2.5UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<1 U	<0.5 UJ	NA	<0.5 U
0830H028	IR04MW13A	7/22/2008	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 UJ	<0.05 U	<0.5 U	<3.5U	<2.5UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	<0.5 U
0912N016	IR04MW13A	3/16/2009	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 UJ	<0.5 U	<3.5UJ	<2.5U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	<0.5 U	NA	<0.5 U
0916P013	IR04MW13A	4/16/2009	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5U	<2.5UJ	<0.5 UJ	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 UJ	NA	<0.5 UJ
0830H031	IR04MW36A	7/22/2008	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 UJ	<0.05 U	<0.5 U	<3.5U	<2.5UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<0.5 U	NA	<0.5 U
0912W027	IR04MW36A	3/16/2009	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 UJ	<0.5 U	<3.5UJ	<2.5U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 UJ	<0.5 U	NA	<0.5 U
0839G034	IR12MW11A	9/23/2008	0	A	<0.05 U	<0.05 U	<0.5 UJ	<0.5 U	<0.05 U	<0.5 UJ	<3.5UJ	<2.5U	<0.5 UJ	<0.5 U	<0.5 UJ	<0.5 UJ	<1 UJ	<0.5 UJ	NA	<0.5 UJ
0912W037	IR12MW11A	3/17/2009	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 UJ	<0.5 UJ	<3.5UJ	<2.5U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 UJ	<0.5 UJ	NA	<0.5 U
0916P014	IR12MW11A	4/16/2009	0	A	<0.05 U	<0.05 U	<0.5 U	<0.5 U	<0.05 U	<0.5 U	<3.5U	<2.5UJ	<0.5 UJ	<0.5 U	<0.5 UJ	<0.5 U	<1 U	<0.5 UJ	NA	<0.5 UJ
0438J026	IR36MW17A	9/14/2004	0	A	<0.05 U	<0.05 U	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA	NA	<1 U	NA	NA	NA

Table A2-9. Summary of Analytical Results for Pesticides *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Heptachlor (µg/L)	Heptachlor Epoxide (µg/L)	Malathion (µg/L)	Merphos (µg/L)	Methoxychlor (µg/L)	Methyl Parathion (µg/L)	Mevinphos (µg/L)	Naled (µg/L)	Parathion (µg/L)	Phorate (µg/L)	Ronnel (µg/L)	Sulfotep (µg/L)	Toxaphene (µg/L)	Tetrachlorvinphos (µg/L)	Tokuthion (µg/L)	Trichloronate
9547W198	IR72MW33A	11/22/1995	0	A	<0.05 U	<0.01 U	NA	NA	<0.5 U	NA	NA	NA	NA	NA	NA	NA	<3 U	NA	NA	NA

Notes:

µg/L	micrograms per liter
BHC	benzene hexachloride
bgs	below ground surface
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane

Table A2-10. Summary of Analytical Results for PCBs

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
0111P015	IR01MW367A	03/21/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	0.3
0229P002	IR01MW367A	07/15/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
0238S008	IR01MW367A	09/18/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9202A009	IR02MW101A1	01/07/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9202A010	IR02MW101A1	01/07/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9228J155	IR02MW101A1	07/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J219	IR02MW101A1	08/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9202A012	IR02MW101A2	01/08/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9228J159	IR02MW101A2	07/09/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J224	IR02MW101A2	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9204X435	IR02MW114A1	01/20/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9228J146	IR02MW114A1	07/07/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J225	IR02MW114A1	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9203A026	IR02MW114A2	01/13/1992	0	A	<0.53 U	<0.53 U	NA	<0.53 U	<0.53 U	<1 U	<1 U
9228J166	IR02MW114A2	07/10/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J226	IR02MW114A2	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9203A084	IR02MW114A3	01/14/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9228J153	IR02MW114A3	07/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J232	IR02MW114A3	08/26/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9202A002	IR02MW126A	01/06/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	3.2
0110P011	IR02MW126A	03/13/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9228J157	IR02MW126A	07/08/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	4.1 J
9228J158	IR02MW126A	07/08/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	3.6 J
0233D013	IR02MW126A	08/15/2002	0	A	<0.48 U	<0.96 U	<0.48 U	<0.48 U	<0.19 U	<0.19 U	<0.19 U
9235X717	IR02MW126A	08/25/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	2.9 J7
0239J006	IR02MW126A	09/24/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9205X468	IR02MW127B	01/28/1992	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0511G048	IR02MW127B	03/15/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0112P005	IR02MW127B	03/26/2001	0	B	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
0425G031	IR02MW127B	06/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9230J175	IR02MW127B	07/21/1992	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J233	IR02MW127B	08/26/1992	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0437P021	IR02MW127B	09/07/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0447R010	IR02MW127B	11/19/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0110P015	IR02MW141A	03/14/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
0110P016	IR02MW141A	03/14/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9218Z059	IR02MW141A	05/07/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	2.8 J	2.3 J
9218Z060	IR02MW141A	05/07/1992	0	A	<0.5 U	<0.5 U	<0.5 U	2.3	<0.5 U	<1 U	0.87 J
9230J177	IR02MW141A	07/21/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	0.73 J
9230J178	IR02MW141A	07/21/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	0.68 J
0231E002	IR02MW141A	07/29/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235X715	IR02MW141A	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<2.5 U	<5 U	5.1 J3
9235X716	IR02MW141A	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<2.5 U	<5 U	3.2 J3
0239J001	IR02MW141A	09/23/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9205X478	IR02MW146A	01/30/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9205X479	IR02MW146A	01/30/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	8.7
9613W194	IR02MW146A	03/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9622J162	IR02MW146A	05/29/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9622J163	IR02MW146A	05/29/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.24 J	<0.5 U
9203X415	IR02MW147A	01/15/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9228J167	IR02MW147A	07/10/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0229A009	IR02MW147A	07/17/2002	0	A	<0.49 U	<0.98 U	<0.49 U	<0.49 U	<0.2 U	<0.2 U	<0.2 U
9235X719	IR02MW147A	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0239E009	IR02MW147A	09/25/2002	0	A	<0.49 U	<0.98 U	<0.49 U	<0.49 U	<0.2 U	<0.2 U	<0.2 U
9202N019	IR02MW149A	01/10/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9112X067	IR02MW149A	03/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0231E006	IR02MW149A	07/30/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235X718	IR02MW149A	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0239E005	IR02MW149A	09/24/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9205X474	IR02MW173A	01/29/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9205X475	IR02MW173A	01/29/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9613W193	IR02MW173A	03/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9622J166	IR02MW173A	05/30/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9203A089	IR02MW175A	01/14/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
0110P002	IR02MW175A	03/12/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9228X669	IR02MW175A	07/10/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9228X670	IR02MW175A	07/10/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0229P014	IR02MW175A	07/18/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235J230	IR02MW175A	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0239G002	IR02MW175A	09/23/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9203A086	IR02MW179A	01/14/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9224X616	IR02MW179A	06/09/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0229D010	IR02MW179A	07/17/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
0229D011	IR02MW179A	07/17/2002	0	A	<0.49 U	<0.98 U	<0.49 U	<0.49 U	<0.2 U	<0.2 U	<0.2 U

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9235J231	IR02MW179A	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0238J020	IR02MW179A	09/20/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9203A087	IR02MW183A	01/14/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9203A088	IR02MW183A	01/14/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9224X618	IR02MW183A	06/09/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0230E012	IR02MW183A	07/26/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235J234	IR02MW183A	08/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0237G010	IR02MW183A	09/11/2002	0	A	<0.47 UJ5	<0.94 UJ5	<0.47 UJ5	<0.47 UJ5	<0.19 UJ5	<0.19 UJ5	<0.19 UJ5
9202A017	IR02MW196A	01/08/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9112X063	IR02MW196A	03/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9112X064	IR02MW196A	03/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235X722	IR02MW196A	08/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9202A015	IR02MW206A1	01/08/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9224X615	IR02MW206A1	06/09/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0230D012	IR02MW206A1	07/25/2002	0	A	<0.48 U	<0.95 U	<0.48 U	<0.48 U	<0.19 U	<0.19 U	<0.19 U
0230D013	IR02MW206A1	07/25/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235X720	IR02MW206A1	08/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0239A007	IR02MW206A1	09/24/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9202A016	IR02MW206A2	01/08/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9224X611	IR02MW206A2	06/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0229D014	IR02MW206A2	07/18/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235X723	IR02MW206A2	08/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0238J018	IR02MW206A2	09/20/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9202A013	IR02MW209A	01/08/1992	0	A	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<1 UJ3	<1 UJ3
9202A014	IR02MW209A	01/08/1992	0	A	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<1 UJ3	<1 UJ3
9224X609	IR02MW209A	06/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9224X610	IR02MW209A	06/08/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0230P013	IR02MW209A	07/25/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235X725	IR02MW209A	08/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0239A009	IR02MW209A	09/25/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9205X480	IR02MW210B	01/30/1992	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9230J179	IR02MW210B	07/21/1992	0	B	<0.5 U	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0231E007	IR02MW210B	07/30/2002	0	B	<0.47 UJ3	<0.94 UJ3	<0.47 UJ3	<0.47 UJ3	<0.19 UJ3	<0.19 UJ3	<0.19 UJ3
9235J235	IR02MW210B	08/26/1992	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J236	IR02MW210B	08/26/1992	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0237J018	IR02MW210B	09/12/2002	0	B	<0.47 UJ5	<0.94 UJ5	<0.47 UJ5	<0.47 UJ5	<0.19 UJ5	<0.19 UJ5	<0.19 UJ5
9612W182	IR02MW298A	03/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9228J152	IR02MW298A	07/08/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9235X728	IR02MW298A	08/27/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9612J946	IR02MW299A	03/21/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9228X661	IR02MW299A	07/06/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J238	IR02MW299A	08/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9612J943	IR02MW300A	03/20/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9228X660	IR02MW300A	07/06/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0229D006	IR02MW300A	07/16/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235X726	IR02MW300A	08/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0238G007	IR02MW300A	09/20/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9610W140	IR02MW372A	03/07/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	27	<0.5 U
0112P003	IR02MW372A	03/26/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	1	<0.1 U
9619J106	IR02MW372A	05/10/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	35	<0.5 U
9547J609	IR02MW372A	11/22/1995	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	10	<0.5 U
9610J904	IR02MW373A	03/04/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.5
0112T001	IR02MW373A	03/26/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9619J107	IR02MW373A	05/10/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0230D006	IR02MW373A	07/23/2002	0	A	<0.48 U	<0.95 U	<0.48 U	<0.48 U	<0.19 U	<0.19 U	<0.19 U
0238S005	IR02MW373A	09/17/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9547J608	IR02MW373A	11/21/1995	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.99
9202A001	IR02MW87A	01/06/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9113X078	IR02MW87A	03/26/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235X710	IR02MW87A	08/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9204X444	IR02MW89A	01/22/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9230J176	IR02MW89A	07/21/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235X711	IR02MW89A	08/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9202A003	IR02MW93A	01/06/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9202A004	IR02MW93A	01/06/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9112X070	IR02MW93A	03/22/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9112X071	IR02MW93A	03/22/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235X712	IR02MW93A	08/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9203A093	IR02MW97A	01/15/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9203A094	IR02MW97A	01/15/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
0109T007	IR02MW97A	03/06/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9112X065	IR02MW97A	03/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0230P016	IR02MW97A	07/26/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9235J220	IR02MW97A	08/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9235J221	IR02MW97A	08/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0238E003	IR02MW97A	09/16/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9203A028	IR02MWB-1	01/13/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9203A029	IR02MWB-1	01/13/1992	0	A	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9228J148	IR02MWB-1	07/07/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9228J149	IR02MWB-1	07/07/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0233A017	IR02MWB-1	08/16/2002	0	A	<0.48 U	<0.96 U	<0.48 U	<0.48 U	<0.19 U	<0.19 U	<0.19 U
9235J239	IR02MWB-1	08/27/1992	0	A	<0.5 UR2	<0.5 UR2	<0.5 UR2	<0.5 UR2	<0.5 UR2	<1 UR2	<1 UR2
0238S012	IR02MWB-1	09/20/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9202A008	IR02MWB-2	01/07/1992	0	A	<0.5 UJ3	<0.5 UJ3	NA	<0.5 UJ3	<0.5 UJ3	<1 UJ3	<1 UJ3
9228J151	IR02MWB-2	07/07/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9235J240	IR02MWB-2	08/27/1992	0	A	<0.5 UR2	<0.5 UR2	<0.5 UR2	<0.5 UR2	<0.5 UR2	<1 UR2	<1 UR2
9204X432	IR02MWB-3	01/20/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	18	<10 U
9204X432A	IR02MWB-3	01/20/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	10	<10 U
0110P020	IR02MWB-3	03/15/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9228X671	IR02MWB-3	07/10/1992	0	A	<10 U	<10 U	<10 U	<10 U	<10 U	40	<20 U
9235J241	IR02MWB-3	08/27/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	23	<25 U
9235J242	IR02MWB-3	08/27/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	19	<25 U
9204X441	IR02MWB-5	01/21/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9204X441A	IR02MWB-5	01/21/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0110D004	IR02MWB-5	03/13/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9224X613	IR02MWB-5	06/09/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9224X614	IR02MWB-5	06/09/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0229A018	IR02MWB-5	07/19/2002	0	A	<0.5 U	<1 U	<0.5 U	<0.5 U	<0.2 U	<0.2 U	<0.2 U
9235J245	IR02MWB-5	08/28/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	0.81 J
0238G006	IR02MWB-5	09/20/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9204X456	IR03MW218A1	01/24/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	<10 U	<10 U
9204X457	IR03MW218A1	01/24/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	<10 U	<10 U
9228X666	IR03MW218A1	07/09/1992	0	A	<25 U	<25 U	<25 U	<25 U	<25 U	<50 U	32 J
0602H042	IR03MW218A2	01/10/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9203A092	IR03MW218A2	01/15/1992	0	A	<5 U	<5 U	NA	<5 U	<5 U	<10 U	<10 U
0709L012	IR03MW218A2	02/27/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0810D051	IR03MW218A2	03/04/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0510G025	IR03MW218A2	03/10/2005	0	A	<0.5 U	0.5	<0.5 U	<0.5 U	<0.5 U	0.5	0.5
0719G001	IR03MW218A2	05/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0623T023	IR03MW218A2	06/08/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0425H025	IR03MW218A2	06/15/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0526G039	IR03MW218A2	06/27/2005	0	A	<0.5 UU	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9228X664	IR03MW218A2	07/09/1992	0	A	<5 U	<25 U	<5 U	<5 U	<5 U	<10 U	<10 U
0232E013	IR03MW218A2	08/09/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
0734D035	IR03MW218A2	08/21/2007	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
9235X730	IR03MW218A2	08/27/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
0636D036	IR03MW218A2	09/06/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0438J022	IR03MW218A2	09/14/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0538A027	IR03MW218A2	09/21/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0239A002	IR03MW218A2	09/23/2002	0	A	<0.56 UJ3	<1.1 UJ3	<0.56 UJ3	<0.56 UJ3	<0.22 UJ3	<0.22 UJ3	<0.22 UJ3
0741D035	IR03MW218A2	10/08/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0448C020	IR03MW218A2	11/23/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0650B043	IR03MW218A2	12/12/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9203X417	IR03MW228B	01/16/1992	0	B	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<1 U	<1 U
9119M013	IR03MW228B	05/06/1991	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9119M014	IR03MW228B	05/06/1991	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0231E018	IR03MW228B	08/02/2002	0	B	<0.48 U	<0.96 U	<0.48 U	<0.48 U	<0.19 U	<0.19 U	<0.19 U
9235J244	IR03MW228B	08/28/1992	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0237S014	IR03MW228B	09/12/2002	0	B	<0.47 UJ5	<0.94 UJ5	<0.47 UJ5	<0.47 UJ5	<0.19 UJ5	<0.19 UJ5	<0.19 UJ5
0602H041	IR03MW373B	01/09/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0809E020	IR03MW373B	02/27/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
0809E021	IR03MW373B	02/27/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
0709G048	IR03MW373B	02/28/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0510R032	IR03MW373B	03/10/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0611S026	IR03MW373B	03/17/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0817E028	IR03MW373B	04/21/2008	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0720A055	IR03MW373B	05/17/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0623P056	IR03MW373B	06/08/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0425S037	IR03MW373B	06/15/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0526G046	IR03MW373B	06/28/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0634G006	IR03MW373B	08/25/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0735W060	IR03MW373B	08/27/2007	0	B	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
0438J024	IR03MW373B	09/14/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0538A040	IR03MW373B	09/23/2005	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0740D023	IR03MW373B	10/04/2007	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0447C013	IR03MW373B	11/19/2004	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0649G031	IR03MW373B	12/04/2006	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9228X667	IR03MWO-1	07/09/1992	0	A	<100 U	<100 U	<100 U	<100 U	<100 U	<200 U	290

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9235X737	IR03MWO-1	08/28/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	<10 U	<10 U
9207X526	IR04MW09A	02/13/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9225X620	IR04MW09A	06/15/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9146X263	IR04MW09A	11/15/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0602D039	IR04MW13A	01/11/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9207X518	IR04MW13A	02/12/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1.1 U	<1.1 U
9207X519	IR04MW13A	02/12/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1.1 U	<1.1 U
0708G030	IR04MW13A	02/21/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0809H025	IR04MW13A	02/27/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
0509G009	IR04MW13A	03/03/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0611J032	IR04MW13A	03/16/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0611J033	IR04MW13A	03/16/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0719W020	IR04MW13A	05/10/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0622T013	IR04MW13A	05/31/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9225X627	IR04MW13A	06/17/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9225X628	IR04MW13A	06/17/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0526T039	IR04MW13A	06/27/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0427S052	IR04MW13A	06/28/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0734D031	IR04MW13A	08/20/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0537T010	IR04MW13A	09/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0537T011	IR04MW13A	09/15/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0438G051	IR04MW13A	09/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0741D034	IR04MW13A	10/08/2007	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
9146X259	IR04MW13A	11/14/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0450G051	IR04MW13A	12/06/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0649D036	IR04MW13A	12/07/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9207X517	IR04MW31A	02/12/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1.1 U	<1.1 U
9225X629	IR04MW31A	06/17/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9146X256	IR04MW31A	11/14/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207X520	IR04MW35A	02/12/1992	0	A	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<1 U	<1 U
9225X623	IR04MW35A	06/15/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9146X257	IR04MW35A	11/14/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0601T023	IR04MW36A	01/05/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9207X523	IR04MW36A	02/13/1992	0	A	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<1 U	<1 U
9207X524	IR04MW36A	02/13/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1 U	<1 U
0708G038	IR04MW36A	02/22/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0809D012	IR04MW36A	02/25/2008	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0509G004	IR04MW36A	03/02/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0612H046	IR04MW36A	03/22/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0718J007	IR04MW36A	05/01/2007	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0622T012	IR04MW36A	05/31/2006	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0524T014	IR04MW36A	06/16/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9225X630	IR04MW36A	06/17/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
0425S044	IR04MW36A	06/17/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0734H071	IR04MW36A	08/23/2007	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
0536T003	IR04MW36A	09/08/2005	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0438T014	IR04MW36A	09/16/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0741N003	IR04MW36A	10/08/2007	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ
9146X254	IR04MW36A	11/14/1991	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9146X255	IR04MW36A	11/14/1991	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
0648G018	IR04MW36A	11/28/2006	0	A	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0449P037	IR04MW36A	12/02/2004	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9207X530	IR04MW37A	02/14/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1.1 U	<1.1 U
9207X531	IR04MW37A	02/14/1992	0	A	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<1 U	<1 U
9225X621	IR04MW37A	06/15/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9225X622	IR04MW37A	06/15/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X282	IR04MW37A	11/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207X529	IR04MW38A	02/14/1992	0	A	<0.62 U	<0.62 U	<0.62 U	<0.62 U	<0.62 U	<1.2 U	<1.2 U
9225X632	IR04MW38A	06/17/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9146X264	IR04MW38A	11/15/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207X527	IR04MW39A	02/13/1992	0	A	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<0.05 U	<1 U	<1 U
9225X625	IR04MW39A	06/15/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X283	IR04MW39A	11/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207X525	IR04MW40A	02/13/1992	0	A	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<1 U	<1 U
9225X631	IR04MW40A	06/17/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9146X261	IR04MW40A	11/15/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9146X262	IR04MW40A	11/15/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207A102	IR05MW73A	02/11/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1.1 U	<1.1 U
0111T002	IR05MW73A	03/19/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
0111T003	IR05MW73A	03/19/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9225X644	IR05MW73A	06/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	0.79 J
0228D005	IR05MW73A	07/08/2002	0	A	<0.48 U	<0.95 U	<0.48 U	<0.48 U	<0.19 U	<0.19 U	<0.19 U
0236J002	IR05MW73A	09/06/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9147X278	IR05MW73A	11/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9147X279	IR05MW73A	11/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207A101	IR05MW74A	02/11/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1 U	<1 U
9225X640	IR05MW74A	06/18/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X268	IR05MW74A	11/18/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X269	IR05MW74A	11/18/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207A099	IR05MW76A	02/11/1992	0	A	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<1.1 U	<1.1 U
9207A100	IR05MW76A	02/11/1992	0	A	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<0.51 U	<1 U	<1 U
9225X642	IR05MW76A	06/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9225X643	IR05MW76A	06/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X281	IR05MW76A	11/21/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207A096	IR05MW77A	02/10/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1.1 U	<1.1 U
9207A097	IR05MW77A	02/10/1992	0	A	<0.54 U	<0.54 U	<0.54 U	<0.54 U	<0.54 U	<1.1 U	<1.1 U
9225X635	IR05MW77A	06/18/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X270	IR05MW77A	11/18/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9207A098	IR05MW82A	02/11/1992	0	A	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<0.53 U	<1.1 U	<1.1 U
9225X639	IR05MW82A	06/18/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X267	IR05MW82A	11/18/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9612W183	IR05MW85A	03/21/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9225X636	IR05MW85A	06/18/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9225X637	IR05MW85A	06/18/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9230J194	IR05MW85A	07/24/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	<10 U	<10 U
9230J195	IR05MW85A	07/24/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	<10 U	<10 U
9101J119	IR08MW37A	01/03/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9101J120	IR08MW37A	01/03/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9101J121	IR08MW37A	01/03/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9405N295	IR08MW37A	02/01/1994	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9405N296	IR08MW37A	02/01/1994	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9419X278	IR08MW37A	05/10/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9128X091	IR08MW37A	07/10/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9128X092	IR08MW37A	07/10/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9028H279	IR08MW37A	07/11/1990	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9028H280	IR08MW37A	07/11/1990	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9434M578	IR08MW37A	08/26/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9344X052	IR08MW37A	11/05/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9151X352	IR08MW37A	12/19/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9101J122	IR08MW38A	01/03/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9101J123	IR08MW38A	01/03/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9405N298	IR08MW38A	02/01/1994	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9419X277	IR08MW38A	05/10/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9028H273	IR08MW38A	07/10/1990	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9128X094	IR08MW38A	07/10/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9434M579	IR08MW38A	08/26/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9344X050	IR08MW38A	11/05/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9344X051	IR08MW38A	11/05/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9151X358	IR08MW38A	12/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9101J125	IR08MW39A	01/03/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9101J126	IR08MW39A	01/03/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9028H274	IR08MW39A	07/10/1990	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9128X095	IR08MW39A	07/10/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9435E158	IR08MW39A	09/01/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9151X359	IR08MW39A	12/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9151X360	IR08MW39A	12/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9101J127	IR08MW40A	01/04/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9101J128	IR08MW40A	01/04/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9406X183	IR08MW40A	02/07/1994	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9419X287	IR08MW40A	05/11/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9028H276	IR08MW40A	07/10/1990	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9028H277	IR08MW40A	07/10/1990	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9128X093	IR08MW40A	07/10/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9435E160	IR08MW40A	09/01/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9345X055	IR08MW40A	11/08/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9345X056	IR08MW40A	11/08/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9151X353	IR08MW40A	12/19/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9151X354	IR08MW40A	12/19/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9101J129	IR08MW41A	01/04/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9101J130	IR08MW41A	01/04/1991	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9406X181	IR08MW41A	02/07/1994	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9406X182	IR08MW41A	02/07/1994	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9419X286	IR08MW41A	05/11/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9028H281	IR08MW41A	07/11/1990	0	A	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9128X098	IR08MW41A	07/11/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9435E159	IR08MW41A	09/01/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9344X053	IR08MW41A	11/05/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9151X355	IR08MW41A	12/19/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9406X185	IR08MW42A	02/07/1994	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9419X275	IR08MW42A	05/10/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9419X276	IR08MW42A	05/10/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9434M577	IR08MW42A	08/26/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9141X203	IR08MW42A	10/07/1991	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	4.4 J
9141X204	IR08MW42A	10/07/1991	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	2.2 J
9344X045	IR08MW42A	11/04/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9344X046	IR08MW42A	11/04/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9151X362	IR08MW42A	12/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	1.1
9606W066	IR08MW43A	02/05/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610J913	IR08MW43A	03/07/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9440X501	IR08MW43A	10/03/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9440X502	IR08MW43A	10/03/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9606W064	IR08MW44A	02/05/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9606W065	IR08MW44A	02/05/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610J914	IR08MW44A	03/07/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9440X504	IR08MW44A	10/04/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9440X505	IR08MW44A	10/04/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
0109P014	IR11MW25A	03/09/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
8914W25	IR11MW25A	03/10/1989	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9034G314	IR11MW25A	08/22/1990	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9148X298	IR11MW25A	11/25/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
8914DUP2	IR11MW26A	03/10/1989	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
8914W26	IR11MW26A	03/10/1989	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9034G301	IR11MW26A	08/21/1990	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X756	IR11MW26A	09/15/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9148X297	IR11MW26A	11/25/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
8914W27	IR11MW27A	03/10/1989	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9034G300	IR11MW27A	08/21/1990	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X755	IR11MW27A	09/15/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9209X547	IR12MW11A	02/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9612W185	IR12MW11A	03/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9134X179	IR12MW11A	08/26/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9209X544	IR12MW12A	02/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X185	IR12MW12A	08/27/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X782	IR12MW12A	09/21/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9239X783	IR12MW12A	09/21/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9209X545	IR12MW13A	02/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9209X546	IR12MW13A	02/24/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X180	IR12MW13A	08/26/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X787	IR12MW13A	09/22/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9239X788	IR12MW13A	09/22/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9209X552	IR12MW14A	02/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X181	IR12MW14A	08/26/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X182	IR12MW14A	08/26/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X789	IR12MW14A	09/22/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9209X553	IR12MW15A	02/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X186	IR12MW15A	08/27/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X778	IR12MW15A	09/18/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9209X555	IR12MW16A	02/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X188	IR12MW16A	08/27/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X189	IR12MW16A	08/27/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X797	IR12MW16A	09/24/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
0110T002	IR12MW17A	03/12/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9612W186	IR12MW17A	03/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9234X690	IR12MW17A	08/19/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9234X691	IR12MW17A	08/19/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9239X795	IR12MW17A	09/24/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9613W189	IR12MW18A	03/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9613W190	IR12MW18A	03/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9234X692	IR12MW18A	08/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X793	IR12MW18A	09/24/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9239X794	IR12MW18A	09/24/1992	0	A	<1.1 UJ3	<2.2 UJ3	<1.1 UJ3	<1.1 UJ3	<1.1 UJ3	<1.1 UJ3	<1.1 UJ3
9613W191	IR12MW19A	03/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9234X693	IR12MW19A	08/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X800	IR12MW19A	09/25/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9239X801	IR12MW19A	09/25/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9613J971	IR12MW20A	03/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9234X694	IR12MW20A	08/19/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X799	IR12MW20A	09/25/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9614Z022	IR12MW21A	04/02/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9618J076	IR12MW21A	05/02/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9234X695	IR12MW21A	08/19/1992	0	A	<12 U	<12 U	<12 U	<12 U	<12 U	<25 U	<25 U
9239A459	IR12MW21A	09/23/1992	0	A	<10 U	<20 U	<10 U	<10 U	<10 U	<10 U	<10 U

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9209X550	IR13MW10A	02/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9209X551	IR13MW10A	02/25/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X193	IR13MW10A	08/28/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X777	IR13MW10A	09/18/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9209X558	IR13MW11A	02/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X190	IR13MW11A	08/28/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X768	IR13MW11A	09/17/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9238X769	IR13MW11A	09/17/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9134X191	IR13MW12A	08/28/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X192	IR13MW12A	08/28/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X775	IR13MW12A	09/18/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9238X776	IR13MW12A	09/18/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9209X559	IR14MW09A	02/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9209X560	IR14MW09A	02/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0109T013	IR14MW09A	03/07/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9238X754	IR14MW09A	09/15/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9148X304	IR14MW09A	11/27/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9148X305	IR14MW09A	11/27/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9209X562	IR14MW10A	02/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0109T018	IR14MW10A	03/08/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
0229D002	IR14MW10A	07/15/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9238X752	IR14MW10A	09/15/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9238X753	IR14MW10A	09/15/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
0238E013	IR14MW10A	09/18/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9147X285	IR14MW10A	11/22/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9147X286	IR14MW10A	11/22/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9209X561	IR14MW12A	02/26/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
0109P013	IR14MW12A	03/09/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9238X763	IR14MW12A	09/16/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9147X272	IR14MW12A	11/20/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9614Z021	IR14MW13A	04/02/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9619J102	IR14MW13A	05/09/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9234X696	IR14MW13A	08/19/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	<10 U	<10 U
9239A457	IR14MW13A	09/23/1992	0	A	<10 U	<20 U	<10 U	<10 U	<10 U	<10 U	<10 U
9239A458	IR14MW13A	09/23/1992	0	A	<10 U	<20 U	<10 U	<10 U	<10 U	<10 U	<10 U
9209X564	IR15MW06A	02/27/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9238X749	IR15MW06A	09/14/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9238X750	IR15MW06A	09/14/1992	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9147X276	IR15MW06A	11/20/1991	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9209X565	IR15MW07A	02/27/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9209X566	IR15MW07A	02/27/1992	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9238X762	IR15MW07A	09/16/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9147X273	IR15MW07A	11/20/1991	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9147X274	IR15MW07A	11/20/1991	0	A	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9613W201	IR15MW08A	03/28/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9613W202	IR15MW08A	03/28/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9233X675	IR15MW08A	08/13/1992	0	A	<25 U	<25 U	<25 U	<25 U	<25 U	<50 U	<50 U
9233X676	IR15MW08A	08/13/1992	0	A	<5 U	<5 U	<5 U	<5 U	<5 U	<10 U	<10 U
9239X792	IR15MW08A	09/24/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9613W195	IR15MW09F	03/27/1996	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9233X679	IR15MW09F	08/14/1992	0	F	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<5 U	<5 U
9239X785	IR15MW09F	09/22/1992	0	F	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9613W198	IR15MW10F	03/27/1996	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9233X678	IR15MW10F	08/14/1992	0	F	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9239X786	IR15MW10F	09/22/1992	0	F	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9603J803	IR17MW11A	01/16/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9209X570	IR17MW11A	02/28/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X199	IR17MW11A	08/29/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X760	IR17MW11A	09/16/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9238X761	IR17MW11A	09/16/1992	0	A	<1 UJ5	<2 UJ5	<1 UJ5	<1 UJ5	<1 UJ5	<1 UJ5	<1 UJ5
9209X568	IR17MW12A	02/27/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X198	IR17MW12A	08/29/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X770	IR17MW12A	09/17/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9209X571	IR17MW13A	02/28/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9209X572	IR17MW13A	02/28/1992	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X196	IR17MW13A	08/29/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9134X197	IR17MW13A	08/29/1991	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
9238X771	IR17MW13A	09/17/1992	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9604W039	IR36MW09A	01/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J932	IR36MW09A	03/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9428E065	IR36MW09A	07/13/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9603W012	IR36MW11A	01/18/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9608J883	IR36MW11A	02/21/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0109D011	IR36MW11A	03/07/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
0109D014	IR36MW11A	03/07/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9437X471	IR36MW11A	09/12/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9437X472	IR36MW11A	09/12/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J923	IR36MW120B	03/13/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9617J043	IR36MW120B	04/23/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9623J174	IR36MW120B	06/04/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J924	IR36MW121A	03/13/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9617J044	IR36MW121A	04/24/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9623J175	IR36MW121A	06/04/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9623J176	IR36MW121A	06/04/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611W157	IR36MW122A	03/13/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9617J055	IR36MW122A	04/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9623J172	IR36MW122A	06/03/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611W156	IR36MW123B	03/13/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9618J065	IR36MW123B	04/30/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9623J171	IR36MW123B	06/03/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W034	IR36MW125A	01/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611W165	IR36MW125A	03/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9618J061	IR36MW125A	04/29/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W033	IR36MW126A	01/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J931	IR36MW126A	03/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9620J112	IR36MW126A	05/13/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W037	IR36MW127A	01/25/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J930	IR36MW127A	03/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9618J062	IR36MW127A	04/29/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W029	IR36MW128A	01/24/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0109D008	IR36MW128A	03/06/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9611J929	IR36MW128A	03/14/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9617J037	IR36MW128A	04/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J927	IR36MW129B	03/14/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J928	IR36MW129B	03/14/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9617J041	IR36MW129B	04/23/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9617J042	IR36MW129B	04/23/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9622J168	IR36MW129B	05/31/1996	0	B	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9603W013	IR36MW12A	01/19/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9608J889	IR36MW12A	02/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9437X473	IR36MW12A	09/12/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9602J783	IR36MW135A	01/09/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9607J865	IR36MW135A	02/12/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611W164	IR36MW135A	03/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604Z011	IR36MW139A	01/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9608J888	IR36MW139A	02/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9613W199	IR36MW139A	03/28/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9603W011	IR36MW13A	01/18/1996	0	A	<0.5 UJ1	<0.5 UJ1	<0.5 UJ1	<0.5 UJ1	<0.5 UJ1	<0.5 UJ1	<0.5 UJ1
9608J886	IR36MW13A	02/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9444X560	IR36MW13A	11/03/1994	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9444X561	IR36MW13A	11/03/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9603W010	IR36MW14A	01/18/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9608W116	IR36MW14A	02/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9443X538	IR36MW14A	10/25/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9443X539	IR36MW14A	10/25/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9605W060	IR36MW15A	02/01/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610J903	IR36MW15A	03/04/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0230A004	IR36MW15A	07/22/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
0237S006	IR36MW15A	09/10/2002	0	A	<0.48 UJ5	<0.96 UJ5	<0.48 UJ5	<0.48 UJ5	<0.19 UJ5	<0.19 UJ5	<0.19 UJ5
9438X484	IR36MW15A	09/20/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9438X485	IR36MW15A	09/20/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9605W054	IR36MW16A	01/31/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610J906	IR36MW16A	03/05/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610J907	IR36MW16A	03/05/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9439X498	IR36MW16A	09/27/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9439X499	IR36MW16A	09/27/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9603W016	IR36MW17A	01/19/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9603W017	IR36MW17A	01/19/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9608J887	IR36MW17A	02/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9442X532	IR36MW17A	10/18/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9442X533	IR36MW17A	10/18/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604Z012	IR38MW01A	01/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9608J885	IR38MW01A	02/22/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9441X521	IR38MW01A	10/12/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9441X522	IR38MW01A	10/12/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9604W021	IR38MW02A	01/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W022	IR38MW02A	01/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9608W121	IR38MW02A	02/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

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Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9443X535	IR38MW02A	10/24/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9443X536	IR38MW02A	10/24/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W025	IR39MW21A	01/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9609J886	IR39MW21A	02/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0109T024	IR39MW21A	03/09/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9425E029	IR39MW21A	06/22/1994	0	A	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	<0.5 UJ5	0.63 J35
0227P007	IR39MW21A	07/02/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
0227P008	IR39MW21A	07/02/2002	0	A	<0.5 U	<0.99 U	<0.5 U	<0.5 U	<0.2 U	<0.2 U	<0.2 UJ7
0237S003	IR39MW21A	09/09/2002	0	A	<0.47 U	<0.94 U	<0.47 U	<0.47 U	<0.19 U	<0.19 U	<0.19 U
9605W045	IR39MW22A	01/29/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9609J897	IR39MW22A	02/29/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9437X480	IR39MW22A	09/14/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9437X481	IR39MW22A	09/14/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9604W040	IR39MW23A	01/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W041	IR39MW23A	01/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9609J884	IR39MW23A	02/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9437K156	IR39MW23A	09/15/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9437K157	IR39MW23A	09/15/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9604W042	IR39MW24A	01/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9609J885	IR39MW24A	02/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9438X490	IR39MW24A	09/21/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9438X491	IR39MW24A	09/21/1994	0	A	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3	<0.5 UJ3
9604W024	IR39MW33A	01/23/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9609W123	IR39MW33A	02/26/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9613W204	IR39MW33A	03/29/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9602J790	IR39MW35A	01/10/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9607W096	IR39MW35A	02/14/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9607W097	IR39MW35A	02/14/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9612J934	IR39MW35A	03/18/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9602J787	IR39MW36A	01/10/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9602J789	IR39MW36A	01/10/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9607W098	IR39MW36A	02/14/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9612J935	IR39MW36A	03/18/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610W136	IR56MW39A	03/04/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9620J120	IR56MW39A	05/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9444X557	IR56MW39A	11/02/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9444X558	IR56MW39A	11/02/1994	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610J905	IR72MW32A	03/05/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0110P027	IR72MW32A	03/16/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9620J119	IR72MW32A	05/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.28 J35
9547W195	IR72MW32A	11/21/1995	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9610W138	IR72MW33A	03/05/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9620J118	IR72MW33A	05/15/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9547W197	IR72MW33A	11/22/1995	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9547W198	IR72MW33A	11/22/1995	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9305J230	PA36MW01A	02/04/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9606W074	PA36MW01A	02/07/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611W148	PA36MW01A	03/11/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9305J232	PA36MW02A	02/04/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9606W075	PA36MW02A	02/07/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611W149	PA36MW02A	03/11/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9606W076	PA36MW03A	02/07/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9306J248	PA36MW03A	02/11/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9306J249	PA36MW03A	02/11/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9611J920	PA36MW03A	03/11/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9305J234	PA36MW04A	02/05/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9606W077	PA36MW04A	02/07/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611J919	PA36MW04A	03/11/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0111T009	PA36MW04A	03/20/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9606W082	PA36MW05A	02/08/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9306J244	PA36MW05A	02/10/1993	0	A	<1.1 U	<2.2 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U
9306J245	PA36MW05A	02/10/1993	0	A	<1 U	<2.1 U	<1 U	<1 U	<1 U	<1 U	<1 U
9611J918	PA36MW05A	03/11/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9306J252	PA36MW06A	02/11/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9612W172	PA36MW06A	03/19/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9615Z044	PA36MW06A	04/09/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9615Z045	PA36MW06A	04/09/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9606W079	PA36MW07A	02/08/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9308J309	PA36MW07A	02/23/1993	0	A	<1 U	<2 U	<1 U	<1 U	<1 U	<1 U	<1 U
9611J922	PA36MW07A	03/12/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0110T003	PA36MW07A	03/12/2001	0	A	<0.1 U	<0.2 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U	<0.1 U
9606W080	PA36MW08A	02/08/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9606W081	PA36MW08A	02/08/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9307A590	PA36MW08A	02/16/1993	0	A	<5 UJ3	<10 UJ3	<5 UJ3	<5 UJ3	<5 UJ3	<5 UJ3	<5 UJ3

Table A2-10. Summary of Analytical Results for PCBs *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)
9307A591	PA36MW08A	02/16/1993	0	A	<5 UJ3	<10 UJ3	<5 UJ3	<5 UJ3	<5 UJ3	<5 UJ3	<5 UJ3
9611W151	PA36MW08A	03/12/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9611W152	PA36MW08A	03/12/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9606W084	PA39MW01A	02/09/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9307A611	PA39MW01A	02/18/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9307A612	PA39MW01A	02/18/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9611W159	PA39MW01A	03/14/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9606J860	PA39MW02A	02/09/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
9307D024	PA39MW02A	02/19/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9307D025	PA39MW02A	02/19/1993	0	A	<1 UJ3	<2 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3	<1 UJ3
9611W158	PA39MW02A	03/14/1996	0	A	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
0836G017	IR02MW374A	9/3/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0842G005	IR02MW374A	10/13/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0842G006	IR02MW374A	10/13/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0912W041	IR02MW374A	3/19/2009	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0920W012	IR02MW374A	5/13/2009	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0928B011	IR02MW374A	7/7/2009	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0941W014	IR02MW374A	10/5/2009	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0836G016	IR02MW375A	9/3/2008	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0842G004	IR02MW375A	10/13/2008	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0912W042	IR02MW375A	3/19/2009	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0920W013	IR02MW375A	5/13/2009	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0928B012	IR02MW375A	7/7/2009	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0941W015	IR02MW375A	10/5/2009	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0823H060	IR03MW218A2	6/4/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0823H062	IR04MW13A	6/4/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0830H028	IR04MW13A	7/22/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0912N016	IR04MW13A	3/16/2009	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0916P013	IR04MW13A	4/16/2009	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0830H031	IR04MW36A	7/22/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0912W027	IR04MW36A	3/16/2009	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0839G034	IR12MW11A	9/23/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0912W037	IR12MW11A	3/17/2009	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0916P014	IR12MW11A	4/16/2009	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0831E059	IR14MW10A	7/29/2008	0	A	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
0912H040	IR14MW10A	3/20/2009	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ
0830E033	IR14MW13A	7/23/2008	0	A	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ	<0.5UJ

Notes:

µg/L	micrograms per liter
bgs	below ground surface
PCBs	polychlorinated biphenyls

Table A2-11. Summary of Analytical Results for TPH

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9205X468	IR02MW127B	01/28/1992	0	B	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9230J169	IR02MW127B	07/20/1992	0	B	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9230J175	IR02MW127B	07/21/1992	0	B	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9235J229	IR02MW127B	08/25/1992	0	B	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9235J233	IR02MW127B	08/26/1992	0	B	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9235X718	IR02MW149A	08/25/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9205X474	IR02MW173A	01/29/1992	0	A	1,000	<500 U	5,900	NA	6,900	NA	NA	NA
9205X475	IR02MW173A	01/29/1992	0	A	1,900	<500 U	5,800	NA	7,700	NA	NA	NA
9613W193	IR02MW173A	03/26/1996	0	A	0.7 Y	3.8	NA	2.1 Z	6.6	NA	NA	3.1
9622J166	IR02MW173A	05/30/1996	0	A	0.28 Y	2.3	NA	1.6 Z	4.18	NA	NA	2.5
9203A089	IR02MW175A	01/14/1992	0	A	<250 U	<50 U	110	NA	110	NA	NA	NA
9228X669	IR02MW175A	07/10/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9228X670	IR02MW175A	07/10/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235J230	IR02MW175A	08/25/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9203A086	IR02MW179A	01/14/1992	0	A	<250 U	<50 U	<50 U	NA	<250 U	NA	NA	NA
9224X616	IR02MW179A	06/09/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235J231	IR02MW179A	08/25/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9203A087	IR02MW183A	01/14/1992	0	A	<250 U	<50 U	<50 U	NA	<250 U	NA	NA	NA
9203A088	IR02MW183A	01/14/1992	0	A	<250 U	<50 U	<50 U	NA	<250 U	NA	NA	NA
9224X618	IR02MW183A	06/09/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235J234	IR02MW183A	08/26/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9202A017	IR02MW196A	01/08/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9112X063	IR02MW196A	03/21/1991	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 UJ5	NA	NA	NA
9112X064	IR02MW196A	03/21/1991	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 UJ5	NA	NA	NA
9235X722	IR02MW196A	08/26/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9202A015	IR02MW206A1	01/08/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9224X615	IR02MW206A1	06/09/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235X720	IR02MW206A1	08/25/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9202A016	IR02MW206A2	01/08/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9224X611	IR02MW206A2	06/08/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235X723	IR02MW206A2	08/26/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9202A013	IR02MW209A	01/08/1992	0	A	<500 U	<53 U	<53 U	NA	<500 U	NA	NA	NA
9202A014	IR02MW209A	01/08/1992	0	A	<500 U	<53 U	<53 U	NA	<500 U	NA	NA	NA
9224X609	IR02MW209A	06/08/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9224X610	IR02MW209A	06/08/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235X725	IR02MW209A	08/26/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9205X480	IR02MW210B	01/30/1992	0	B	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9230J179	IR02MW210B	07/21/1992	0	B	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235J235	IR02MW210B	08/26/1992	0	B	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235J236	IR02MW210B	08/26/1992	0	B	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9612W184	IR02MW298A	03/21/1996	0	A	<0.05 U	NA	NA	NA	<0.05 U	NA	NA	NA
9612W182	IR02MW298A	03/22/1996	0	A	NA	0.45	NA	0.29 YZ	0.74	NA	NA	<1 U
9228J145	IR02MW298A	07/07/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9228J152	IR02MW298A	07/08/1992	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9235X724	IR02MW298A	08/26/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9235X728	IR02MW298A	08/27/1992	0	A	NA	<500 U	930	NA	930	NA	NA	NA
9612J946	IR02MW299A	03/21/1996	0	A	0.032 JZ	<0.1 U	NA	0.053 JZ	0.085	NA	NA	<1 U
9917Z020	IR02MW299A	04/26/1999	0	A	<50 UJ7	<100 U	NA	<100 U	<100 U	NA	NA	NA
9228X661	IR02MW299A	07/06/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235J238	IR02MW299A	08/26/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9612J943	IR02MW300A	03/20/1996	0	A	<0.05 U	0.061 J	NA	0.21 Z	0.271	NA	NA	<1 U
9228X660	IR02MW300A	07/06/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235X726	IR02MW300A	08/26/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9202A001	IR02MW87A	01/06/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9113X078	IR02MW87A	03/26/1991	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9235X710	IR02MW87A	08/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9204X444	IR02MW89A	01/22/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9230J176	IR02MW89A	07/21/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235X711	IR02MW89A	08/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9202A003	IR02MW93A	01/06/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9202A004	IR02MW93A	01/06/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9112X070	IR02MW93A	03/22/1991	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 UJ5	NA	NA	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9112X071	IR02MW93A	03/22/1991	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 UJ5	NA	NA	NA
9235X712	IR02MW93A	08/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9203A093	IR02MW97A	01/15/1992	0	A	<100 U	<50 U	<50 U	NA	<100 U	NA	NA	NA
9203A094	IR02MW97A	01/15/1992	0	A	NA	<50 U	<50 U	NA	<50 U	NA	NA	NA
0109T007	IR02MW97A	03/06/2001	0	A	<50 U	<100 U	NA	<100 U	<50 U	NA	NA	NA
9112X065	IR02MW97A	03/21/1991	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 UJ5	NA	NA	NA
9235J220	IR02MW97A	08/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235J221	IR02MW97A	08/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9203A028	IR02MWB-1	01/13/1992	0	A	<100 U	<50 U	<50 U	NA	<100 U	NA	NA	NA
9203A029	IR02MWB-1	01/13/1992	0	A	<250 U	<50 U	<50 U	NA	<250 U	NA	NA	NA
9228J148	IR02MWB-1	07/07/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9228J149	IR02MWB-1	07/07/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235J239	IR02MWB-1	08/27/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9202A008	IR02MWB-2	01/07/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9228J151	IR02MWB-2	07/07/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235J240	IR02MWB-2	08/27/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9204X432	IR02MWB-3	01/20/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
0511G047	IR02MWB-3	03/15/2005	0	A	<20 U	640 H	NA	970	1,610	NA	NA	NA
0425S045	IR02MWB-3	06/17/2004	0	A	<20 U	270	NA	710	980	NA	NA	NA
9228X671	IR02MWB-3	07/10/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235J241	IR02MWB-3	08/27/1992	0	A	<500 U	<500 U	1,600	NA	1,600	NA	NA	NA
9235J242	IR02MWB-3	08/27/1992	0	A	<500 U	<500 U	1,600	NA	1,600	NA	NA	NA
0438C055	IR02MWB-3	09/17/2004	0	A	<20 U	380 H	NA	790	1,170	NA	NA	NA
0448C019	IR02MWB-3	11/23/2004	0	A	<20 U	490 H	NA	340 J	830	NA	NA	NA
9204X441	IR02MWB-5	01/21/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9224X613	IR02MWB-5	06/09/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9224X614	IR02MWB-5	06/09/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235J245	IR02MWB-5	08/28/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9204X456	IR03MW218A1	01/24/1992	0	A	<500 U	<500 U	3,700	NA	3,700	NA	NA	NA
9204X457	IR03MW218A1	01/24/1992	0	A	<500 U	<1,000 U	10,000	NA	10,000	NA	NA	NA
9228X666	IR03MW218A1	07/09/1992	0	A	21,000	<38,000 U	62,000	NA	83,000	NA	NA	NA
0602H042	IR03MW218A2	01/10/2006	0	A	390 H	6,800	NA	3,800 J	10,990	NA	NA	NA
9203A092	IR03MW218A2	01/15/1992	0	A	580	<100 U	6,700	NA	7,280	NA	NA	NA
0709L012	IR03MW218A2	02/27/2007	0	A	270 JZ	8,100 Z	NA	5,000	13,370	NA	NA	NA
0810D051	IR03MW218A2	03/04/2008	0	A	250 J	9,300	NA	5,500	15,050	NA	NA	NA
0510G025	IR03MW218A2	03/10/2005	0	A	540	7,800	NA	4,400 J38	12,740	NA	NA	NA
0110T012	IR03MW218A2	03/14/2001	0	A	500 H	4,000 D	NA	1,000 LM	5,500	NA	NA	NA
0719G001	IR03MW218A2	05/10/2007	0	A	270 J	6,800	NA	4,300	11,370	NA	NA	NA
0823H060	IR03MW218A2	06/04/2008	0	A	140	6,900	NA	2,900 J	9,940	NA	NA	NA
0623T023	IR03MW218A2	06/08/2006	0	A	300 JH	9200 J	NA	4,100 J	13,600	NA	NA	NA
0425H025	IR03MW218A2	06/15/2004	0	A	310	8,100	NA	3,400	11,810	NA	NA	NA
0526G039	IR03MW218A2	06/27/2005	0	A	460 J3	7,200	NA	4,000	11,660	NA	NA	NA
9228X664	IR03MW218A2	07/09/1992	0	A	2,000	<7,500 U	11,000	NA	13,000	NA	NA	NA
0734D035	IR03MW218A2	08/21/2007	0	A	370	7,900 J	NA	5,500 J	13,770	NA	NA	NA
9235X730	IR03MW218A2	08/27/1992	0	A	4,900	<7,500 U	15,000	NA	19,900	NA	NA	NA
0636D036	IR03MW218A2	09/06/2006	0	A	340 H	7,600 H	NA	4400	12,340	NA	NA	NA
0438J022	IR03MW218A2	09/14/2004	0	A	290 H	NA	NA	NA	290	NA	NA	NA
0538A027	IR03MW218A2	09/21/2005	0	A	330 H	7,700	NA	4,500	12,530	NA	NA	NA
0741D035	IR03MW218A2	10/08/2007	0	A	340 J	9,000 J	NA	6,200	15,540	NA	NA	NA
0448C020	IR03MW218A2	11/23/2004	0	A	190	7,500	NA	1,500 J	9,190	NA	NA	NA
0650B043	IR03MW218A2	12/12/2006	0	A	210 Z	6,800 H	NA	5,600 J	12,610	NA	NA	NA
9203A091	IR03MW218A3	01/15/1992	0	A	<250 U	NA	NA	NA	<250 U	NA	NA	NA
9203X416	IR03MW218A3	01/16/1992	0	A	NA	<50 U	820	NA	820	NA	NA	NA
9228X665	IR03MW218A3	07/09/1992	0	A	<500 U	<500 U	1,200	NA	1,200	NA	NA	NA
9235X729	IR03MW218A3	08/27/1992	0	A	<500 U	<500 U	1,800	NA	1,800	NA	NA	NA
9204X451	IR03MW224A	01/23/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
0109P003	IR03MW224A	03/06/2001	0	A	<50 U	<100 U	NA	<100 U	<50 U	NA	NA	NA
9230J196	IR03MW224A	07/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9235X734	IR03MW224A	08/28/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235X735	IR03MW224A	08/28/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9205X470	IR03MW225A	01/28/1992	0	A	<500 U	12,000	<1,000 U	NA	12,000	NA	NA	NA
9205X471	IR03MW225A	01/28/1992	0	A	<500 U	12,000	<1,000 U	NA	12,000	NA	NA	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9614Z024	IR03MW225A	04/03/1996	0	A	0.23 Z	1.9	NA	1.8 Z	3.93	NA	NA	0.7 J
9625Z049	IR03MW225A	06/19/1996	0	A	0.29 Z	NA	NA	NA	0.29	NA	NA	NA
9625Z050	IR03MW225A	06/19/1996	0	A	NA	4.6	NA	3.4 Z	8	NA	NA	3.4
9205X461	IR03MW226A	01/27/1992	0	A	<500 U	3,600	<500 U	NA	3,600	NA	NA	NA
9205X462	IR03MW226A	01/27/1992	0	A	<500 U	2,700	<500 U	NA	2,700	NA	NA	NA
9230J197	IR03MW226A	07/24/1992	0	A	<500 U	<3,800 U	NA	NA	<3,800 U	NA	NA	NA
9230J198	IR03MW226A	07/24/1992	0	A	<500 U	<3000 U	NA	NA	<3,800 U	NA	NA	NA
9235X732	IR03MW226A	08/27/1992	0	A	670	<7,500 U	17,000	NA	17,670	NA	NA	NA
9203X417	IR03MW228B	01/16/1992	0	B	<100 U	<50 U	51	NA	51	NA	NA	NA
9119M013	IR03MW228B	05/06/1991	0	B	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9119M014	IR03MW228B	05/06/1991	0	B	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9235J244	IR03MW228B	08/28/1992	0	B	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
0110T017	IR03MW342A	03/15/2001	0	A	<50 U	<100 U	NA	<100 U	<100 U	NA	NA	NA
9612J944	IR03MW342A	03/21/1996	0	A	0.17 Y	0.61 Y	NA	0.37 Y	1.15	NA	NA	<1 U
9612J945	IR03MW342A	03/21/1996	0	A	0.18 J3	0.6 Y	NA	0.4 Y	1.18	NA	NA	<1 U
9228X647	IR03MW342A	07/06/1992	0	A	1,100 J3	<500 U	NA	NA	1,100	NA	NA	NA
9235X736	IR03MW342A	08/28/1992	0	A	810	<750 U	1,700	NA	2,510	NA	NA	NA
9610J911	IR03MW369A	03/06/1996	0	A	0.7 Y	8.1	NA	4.7	13.5	NA	NA	4.6
9621J126	IR03MW369A	05/20/1996	0	A	0.6 Y	2	NA	1.7 Z	4.3	NA	NA	0.8 J
9548J613	IR03MW369A	11/29/1995	0	A	0.67 Y	4.6	NA	5.2	10.47	NA	NA	4.5
9610J908	IR03MW370A	03/06/1996	0	A	0.7 Y	7.1	NA	5.1 Z	12.9	NA	NA	5.2
9620J125	IR03MW370A	05/16/1996	0	A	0.41 Y	3.6	NA	2.1 Y	6.11	NA	NA	2
9548J615	IR03MW370A	11/30/1995	0	A	0.56 Y	11	NA	16	27.56	NA	NA	27
9610J912	IR03MW371A	03/06/1996	0	A	0.046 JY	4.3	NA	3.5 Z	7.846	NA	NA	4.1
9620J123	IR03MW371A	05/16/1996	0	A	0.029 JY	0.65	NA	0.62 YZ	1.299	NA	NA	0.6 J
9620J124	IR03MW371A	05/16/1996	0	A	0.052 Y	0.85	NA	0.78 YZ	1.682	NA	NA	0.6 J
9548J617	IR03MW371A	11/30/1995	0	A	0.59 Y	3.2	NA	5.7	9.49	NA	NA	8
9548J618	IR03MW371A	11/30/1995	0	A	0.19 Y	4.3	NA	6.4	10.89	NA	NA	9.2
0229H002	IR03MW372A	07/17/2002	0	A	<50 U	<50 U	NA	<300 U	<300 U	NA	NA	NA
0229H003	IR03MW372A	07/18/2002	0	A	<50 U	<50 U	NA	<300 U	<300 U	NA	NA	NA
0229H004	IR03MW372A	07/18/2002	0	A	<50 U	<50 U	NA	<300 U	<300 U	NA	NA	NA
0602H041	IR03MW373B	01/09/2006	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0809E020	IR03MW373B	02/27/2008	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0809E021	IR03MW373B	02/27/2008	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0709G048	IR03MW373B	02/28/2007	0	B	<20 U	<50 UJ	NA	<500 U	<500 U	NA	NA	NA
0510R032	IR03MW373B	03/10/2005	0	B	12 J	50	NA	500	562	NA	NA	NA
0611S026	IR03MW373B	03/17/2006	0	B	<20 U	<50 U	NA	<500 UJ	<500 U	NA	NA	NA
0817E028	IR03MW373B	04/21/2008	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0720A055	IR03MW373B	05/17/2007	0	B	<20 U	<50 UJ	NA	<500 U	<500 U	NA	NA	NA
0623P056	IR03MW373B	06/08/2006	0	B	27 Z	<50 U	NA	<500 U	27	NA	NA	NA
0425S037	IR03MW373B	06/15/2004	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0526G046	IR03MW373B	06/28/2005	0	B	<20 U	50	NA	500	550	NA	NA	NA
0634G006	IR03MW373B	08/25/2006	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0735W060	IR03MW373B	08/27/2007	0	B	<20 U	<50 UJ	NA	<500 U	<500 U	NA	NA	NA
0438J024	IR03MW373B	09/14/2004	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0538A040	IR03MW373B	09/23/2005	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0740D023	IR03MW373B	10/04/2007	0	B	<20 U	<50 UJ	NA	<500 U	<500 U	NA	NA	NA
0447C013	IR03MW373B	11/19/2004	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
0649G031	IR03MW373B	12/04/2006	0	B	<20 U	<50 U	NA	<500 U	<500 U	NA	NA	NA
9204X452	IR03MWO-1	01/23/1992	0	A	<500 U	<5,000 U	560,000	NA	560,000	NA	NA	NA
9204X453	IR03MWO-1	01/23/1992	0	A	<500 U	<5,000 U	520,000	NA	520,000	NA	NA	NA
9228X667	IR03MWO-1	07/09/1992	0	A	1400	<7,500 U	27,000	NA	28,400	NA	NA	NA
9235X737	IR03MWO-1	08/28/1992	0	A	810	<7,500 U	17,000	NA	17,810	NA	NA	NA
9207X526	IR04MW09A	02/13/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X620	IR04MW09A	06/15/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5.9 U2	NA
9146X263	IR04MW09A	11/15/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
0602D039	IR04MW13A	01/11/2006	0	A	100	<50 U	NA	<500 U	100	NA	<5 U	NA
9207X518	IR04MW13A	02/12/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9207X519	IR04MW13A	02/12/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
0708G030	IR04MW13A	02/21/2007	0	A	74 Z	<50 U	NA	<500 U	74	NA	<5 U	NA
0809H025	IR04MW13A	02/27/2008	0	A	77	<50 U	NA	<500 U	77	NA	<5 U	NA
0509G009	IR04MW13A	03/03/2005	0	A	90	50	NA	500	640	NA	5	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
0611J032	IR04MW13A	03/16/2006	0	A	110	<50 U	NA	<500 U	110	NA	<5 U	NA
0611J033	IR04MW13A	03/16/2006	0	A	110	250 HJ	NA	<500 U	360	NA	<5 U	NA
0719W020	IR04MW13A	05/10/2007	0	A	79	<50 U	NA	<500 U	79	NA	<5 U	NA
0622T013	IR04MW13A	05/31/2006	0	A	110 Z	<50 U	NA	<500 U	110	NA	4 J	NA
9225X627	IR04MW13A	06/17/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<7.9 U2	NA
9225X628	IR04MW13A	06/17/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5.4 U2	NA
0526T039	IR04MW13A	06/27/2005	0	A	73	50	NA	500	623	NA	5	NA
0427S052	IR04MW13A	06/28/2004	0	A	86	<50 U	NA	280 J	366	NA	<5 U	NA
0734D031	IR04MW13A	08/20/2007	0	A	100	<50 UJ	NA	<500 U	100	NA	<5 U	NA
0537T010	IR04MW13A	09/15/2005	0	A	120	98 H	NA	<500 U	218	NA	NA	NA
0537T011	IR04MW13A	09/15/2005	0	A	130	78 H	NA	<500 U	208	NA	NA	NA
0438G051	IR04MW13A	09/16/2004	0	A	110	<50 U	NA	<500 U	110	NA	<5 U	NA
0741D034	IR04MW13A	10/08/2007	0	A	99	<50 UJ	NA	<500 U	99	NA	<5 U	NA
9146X259	IR04MW13A	11/14/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
0450G051	IR04MW13A	12/06/2004	0	A	79	<50 U	NA	<500 U	79	NA	<5 U	NA
0649D036	IR04MW13A	12/07/2006	0	A	98 Z	<50 UJ	NA	<500 U	98	NA	<5 U	NA
9207X517	IR04MW31A	02/12/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X629	IR04MW31A	06/17/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9146X256	IR04MW31A	11/14/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9207X520	IR04MW35A	02/12/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X623	IR04MW35A	06/15/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9146X257	IR04MW35A	11/14/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
0601T023	IR04MW36A	01/05/2006	0	A	<20 U	<50 U	NA	<500 U	<500 U	NA	<5 U	NA
9207X523	IR04MW36A	02/13/1992	0	A	<0.5 U	0.64	NA	NA	0.64	NA	11	NA
9207X524	IR04MW36A	02/13/1992	0	A	<0.5 U	0.57	NA	NA	0.57	NA	12	NA
0708G038	IR04MW36A	02/22/2007	0	A	<20 U	200 H	NA	350 J	550	NA	<5 UJ	NA
0809D012	IR04MW36A	02/25/2008	0	A	<20 U	130	NA	<500 U	130	NA	<5 U	NA
0509G004	IR04MW36A	03/02/2005	0	A	46 H	590 J3	NA	500	1,136	NA	5	NA
0612H046	IR04MW36A	03/22/2006	0	A	<20 U	190 H	NA	190 J	380	NA	<5 U	NA
0718J007	IR04MW36A	05/01/2007	0	A	<20 U	<50 UJ	NA	<500 U	<500 U	NA	<5 UJ	NA
0622T012	IR04MW36A	05/31/2006	0	A	<20 U	<50 U	NA	<500 U	<500 U	NA	3.6 J	NA
0524T014	IR04MW36A	06/16/2005	0	A	<31 U2	260	NA	500	760	NA	5	NA
9225X630	IR04MW36A	06/17/1992	0	A	<500 U	<500 U	2,100	NA	2,100	NA	8.8	NA
0425S044	IR04MW36A	06/17/2004	0	A	<20 U	<50 U	NA	<500 U	<500 U	NA	<5 U	NA
0734H071	IR04MW36A	08/23/2007	0	A	<20 U	<50 U	NA	<500 U	<500 U	NA	<5 U	NA
0536T003	IR04MW36A	09/08/2005	0	A	<20 U	130 H	NA	130 J	260	NA	NA	NA
0438T014	IR04MW36A	09/16/2004	0	A	<20 U	210	NA	410 J	620	NA	3.6 J	NA
0741N003	IR04MW36A	10/08/2007	0	A	<20 U	340 J	NA	480 J	820	NA	<5 U	NA
9146X254	IR04MW36A	11/14/1991	0	A	<500 U	<1,500 U	NA	NA	<500 U	NA	NA	NA
9146X255	IR04MW36A	11/14/1991	0	A	<500 U	<750 U	NA	NA	<500 U	NA	NA	NA
0648G018	IR04MW36A	11/28/2006	0	A	<20 U	<50 UJ	NA	<500 U	<500 U	NA	<5 U	NA
0449P037	IR04MW36A	12/02/2004	0	A	69 H	1,200	NA	<500 U	1,269	NA	<5 U	NA
9207X530	IR04MW37A	02/14/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9207X531	IR04MW37A	02/14/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X621	IR04MW37A	06/15/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9225X622	IR04MW37A	06/15/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<7.5 U2	NA
9147X282	IR04MW37A	11/21/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9207X529	IR04MW38A	02/14/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X632	IR04MW38A	06/17/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9146X264	IR04MW38A	11/15/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9207X527	IR04MW39A	02/13/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X625	IR04MW39A	06/15/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9147X283	IR04MW39A	11/21/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9207X525	IR04MW40A	02/13/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X631	IR04MW40A	06/17/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9146X261	IR04MW40A	11/15/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9146X262	IR04MW40A	11/15/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9207A102	IR05MW73A	02/11/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X644	IR05MW73A	06/19/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9147X278	IR05MW73A	11/21/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9147X279	IR05MW73A	11/21/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9207A101	IR05MW74A	02/11/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9225X640	IR05MW74A	06/18/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9147X268	IR05MW74A	11/18/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9147X269	IR05MW74A	11/18/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9207A099	IR05MW76A	02/11/1992	0	A	<0.5 U	0.88	NA	NA	0.88	NA	8	NA
9207A100	IR05MW76A	02/11/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	8	NA
9225X642	IR05MW76A	06/19/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	5.4	NA
9225X643	IR05MW76A	06/19/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9147X281	IR05MW76A	11/21/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9207A096	IR05MW77A	02/10/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9207A097	IR05MW77A	02/10/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X635	IR05MW77A	06/18/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9147X270	IR05MW77A	11/18/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9207A098	IR05MW82A	02/11/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9225X639	IR05MW82A	06/18/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9147X267	IR05MW82A	11/18/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9612W183	IR05MW85A	03/21/1996	0	A	<0.05 U	0.08 J	NA	0.11 Z	0.19	NA	NA	<1 U
9225X636	IR05MW85A	06/18/1992	0	A	800	<500 U	1,100	NA	1,900	NA	<5 U	NA
9225X637	IR05MW85A	06/18/1992	0	A	1,200	<500 U	1,300	NA	2,500	NA	<5 U	NA
9230J194	IR05MW85A	07/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	<5 U	NA
9230J195	IR05MW85A	07/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	<5 U	NA
9128X091	IR08MW37A	07/10/1991	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9028H279	IR08MW37A	07/11/1990	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9028H280	IR08MW37A	07/11/1990	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9151X352	IR08MW37A	12/19/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9028H273	IR08MW38A	07/10/1990	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9128X094	IR08MW38A	07/10/1991	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9151X358	IR08MW38A	12/20/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9028H274	IR08MW39A	07/10/1990	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9128X095	IR08MW39A	07/10/1991	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9151X359	IR08MW39A	12/20/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9151X360	IR08MW39A	12/20/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9028H276	IR08MW40A	07/10/1990	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9028H277	IR08MW40A	07/10/1990	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9128X093	IR08MW40A	07/10/1991	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9151X353	IR08MW40A	12/19/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9151X354	IR08MW40A	12/19/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9028H281	IR08MW41A	07/11/1990	0	A	<0.5 UJ5	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9128X098	IR08MW41A	07/11/1991	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9151X355	IR08MW41A	12/19/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9141X203	IR08MW42A	10/07/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9141X204	IR08MW42A	10/07/1991	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9151X362	IR08MW42A	12/20/1991	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9606W066	IR08MW43A	02/05/1996	0	A	0.029 J	0.12 Z	NA	0.18 Z	0.329	NA	NA	<1 U
9610J913	IR08MW43A	03/07/1996	0	A	<0.05 U	0.077 J	NA	0.2	0.277	NA	NA	<1 U
9440X501	IR08MW43A	10/03/1994	0	A	<0.05 U	<0.1 U	NA	0.36	0.36	NA	NA	<1 U
9440X502	IR08MW43A	10/03/1994	0	A	0.027 JZ	<0.1 U	NA	0.53	0.557	NA	NA	<1 U
9606W064	IR08MW44A	02/05/1996	0	A	0.031 J	<0.1 U	NA	<0.1 U	0.031	NA	NA	<1 U
9606W065	IR08MW44A	02/05/1996	0	A	<0.05 U	<0.1 U	NA	0.053 J	0.053	NA	NA	<1 U
9610J914	IR08MW44A	03/07/1996	0	A	<0.05 U	<0.1 U	NA	0.12	0.12	NA	NA	<1 U
9440X504	IR08MW44A	10/04/1994	0	A	0.036 JZ	<0.2 U	NA	0.93	0.966	NA	NA	0.5 J
9440X505	IR08MW44A	10/04/1994	0	A	0.028 JZ	<0.2 U	NA	0.97	0.998	NA	NA	1
8914W25	IR11MW25A	03/10/1989	0	A	<100 U	<100 U	NA	NA	<100 U	NA	NA	NA
9917B004	IR11MW25A	04/26/1999	0	A	<50 UJ7	<100 U	NA	<100 U	<100 U	NA	NA	NA
9034G313	IR11MW25A	08/22/1990	0	A	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA
9034G314	IR11MW25A	08/22/1990	0	A	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA
9035G316	IR11MW25A	08/31/1990	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9238X748	IR11MW25A	09/14/1992	0	A	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA
9147X289	IR11MW25A	11/22/1991	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9148X303	IR11MW25A	11/27/1991	0	A	NA	<500 U	<500 U	NA	<500 U	NA	NA	NA
8914DUP2	IR11MW26A	03/10/1989	0	A	<100 U	120	NA	NA	120	NA	NA	NA
8914W26	IR11MW26A	03/10/1989	0	A	<100 U	<100 U	NA	NA	<100 U	NA	NA	NA
9917B001	IR11MW26A	04/26/1999	0	A	NA	<100 U	NA	<100 U	<100 U	NA	NA	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9034G301	IR11MW26A	08/21/1990	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9238X747	IR11MW26A	09/14/1992	0	A	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA
9238X756	IR11MW26A	09/15/1992	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9238X766	IR11MW26A	09/16/1992	0	A	NA	NA	NA	NA	NA	NA	<5 U	NA
9147X288	IR11MW26A	11/22/1991	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9148X297	IR11MW26A	11/25/1991	0	A	NA	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9148H931	IR11MW26A	11/26/1991	0	A	NA	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
8914W27	IR11MW27A	03/10/1989	0	A	<100 U	<100 U	NA	NA	<100 U	NA	NA	NA
9917Z019	IR11MW27A	04/26/1999	0	A	<50 UJ7	<100 U	NA	70 YJ	70	NA	NA	NA
9034G300	IR11MW27A	08/21/1990	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9238X746	IR11MW27A	09/14/1992	0	A	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA
9238X765	IR11MW27A	09/16/1992	0	A	NA	<0.5 U	NA	NA	<0.5 U	NA	NA	NA
9147X287	IR11MW27A	11/22/1991	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9149X312	IR11MW27A	12/03/1991	0	A	NA	<500 U	<500 U	NA	<500 U	NA	NA	NA
9209X547	IR12MW11A	02/24/1992	0	A	<500 U	<500 U	<500 U	NA	<500 UJ3	NA	<5 U	NA
9612W185	IR12MW11A	03/22/1996	0	A	<0.05 U	0.069 J	NA	<0.1 U	0.069	NA	NA	<1 U
9134X179	IR12MW11A	08/26/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 UJ3	NA	<5 U	NA
9209X544	IR12MW12A	02/24/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X185	IR12MW12A	08/27/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9239X782	IR12MW12A	09/21/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9239X783	IR12MW12A	09/21/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X545	IR12MW13A	02/24/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9209X546	IR12MW13A	02/24/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X180	IR12MW13A	08/26/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9239X787	IR12MW13A	09/22/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9239X788	IR12MW13A	09/22/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X552	IR12MW14A	02/25/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X181	IR12MW14A	08/26/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9134X182	IR12MW14A	08/26/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9239X789	IR12MW14A	09/22/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X553	IR12MW15A	02/25/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X186	IR12MW15A	08/27/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9238X778	IR12MW15A	09/18/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X555	IR12MW16A	02/25/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	5.5	NA
9134X188	IR12MW16A	08/27/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9134X189	IR12MW16A	08/27/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9239X797	IR12MW16A	09/24/1992	0	A	<0.5 U	<0.5 UJ3	NA	NA	<0.5 U	NA	<5 U	NA
0509R005	IR12MW17A	03/02/2005	0	A	200 H	1,500 J3	NA	1,900	3,600	NA	NA	NA
0110T002	IR12MW17A	03/12/2001	0	A	200 H	600 Z	NA	200 Z	1,000	NA	NA	NA
9612W186	IR12MW17A	03/22/1996	0	A	0.49 J3	3 Y	NA	0.67 Y	4.16	NA	NA	0.5 J
0424M013	IR12MW17A	06/10/2004	0	A	110	810	NA	980	1,900	NA	NA	NA
0525T026	IR12MW17A	06/21/2005	0	A	180	1,800	NA	1,500	3,480	NA	NA	NA
9234X690	IR12MW17A	08/19/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	<5 U	NA
9234X691	IR12MW17A	08/19/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	<5 U	NA
0437P031	IR12MW17A	09/10/2004	0	A	87	510 J3H	NA	800 J3	1,397	NA	NA	NA
9239X795	IR12MW17A	09/24/1992	0	A	<0.5 U	0.56	NA	NA	0.56	NA	<5 U	NA
0447C009	IR12MW17A	11/17/2004	0	A	140	1,600	NA	1,100	2,840	NA	NA	NA
9613W189	IR12MW18A	03/25/1996	0	A	<0.05 U	0.14	NA	<0.1 U	0.14	NA	NA	<1 U
9613W190	IR12MW18A	03/25/1996	0	A	<0.05 U	0.15	NA	<0.1 U	0.15	NA	NA	<1 U
9234X692	IR12MW18A	08/19/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	<5 U	NA
9239X793	IR12MW18A	09/24/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9239X794	IR12MW18A	09/24/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9613W191	IR12MW19A	03/25/1996	0	A	0.035 JZ	<0.1 U	NA	<0.1 U	0.035	NA	NA	<1 U
9234X693	IR12MW19A	08/19/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	<5 U	NA
9239X800	IR12MW19A	09/25/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9239X801	IR12MW19A	09/25/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9613J971	IR12MW20A	03/25/1996	0	A	<0.05 U	0.064 J	NA	<0.1 U	0.064	NA	NA	<1 U
9234X694	IR12MW20A	08/19/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	<10 U	NA
9239X799	IR12MW20A	09/25/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	6.1	NA
9614Z022	IR12MW21A	04/02/1996	0	A	0.2 Y	3.4	NA	1.2 Z	4.8	NA	NA	0.8 J
0216F010	IR12MW21A	04/19/2002	0	A	390 HZ	8,200 DH	NA	5,900 ML	14,490	NA	NA	NA
9618J076	IR12MW21A	05/02/1996	0	A	0.25 Y	3.3	NA	0.85 Y	4.4	NA	NA	1.8

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9234X695	IR12MW21A	08/19/1992	0	A	<2,500 U	<150,000 U	NA	NA	<15,0000 U	NA	200	NA
9239A459	IR12MW21A	09/23/1992	0	A	10	390	NA	NA	400	NA	180	NA
9209X550	IR13MW10A	02/25/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9209X551	IR13MW10A	02/25/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X193	IR13MW10A	08/28/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 UJ3	NA	7.3	NA
9238X777	IR13MW10A	09/18/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X558	IR13MW11A	02/26/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X190	IR13MW11A	08/28/1991	0	A	<500 U	<500 UJ3	800	NA	800	NA	<5 U	NA
9238X768	IR13MW11A	09/17/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9238X769	IR13MW11A	09/17/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X557	IR13MW12A	02/26/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X191	IR13MW12A	08/28/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9134X192	IR13MW12A	08/28/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9238X775	IR13MW12A	09/18/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9238X776	IR13MW12A	09/18/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X559	IR14MW09A	02/26/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9209X560	IR14MW09A	02/26/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
0109T013	IR14MW09A	03/07/2001	0	A	<50 U	<100 U	NA	<100 U	<50 U	NA	NA	NA
9238X754	IR14MW09A	09/15/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9148X304	IR14MW09A	11/27/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9148X305	IR14MW09A	11/27/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9209X562	IR14MW10A	02/26/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9238X752	IR14MW10A	09/15/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9238X753	IR14MW10A	09/15/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9147X285	IR14MW10A	11/22/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9147X286	IR14MW10A	11/22/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9209X561	IR14MW12A	02/26/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
0109P013	IR14MW12A	03/09/2001	0	A	<50 U	<100 U	NA	<100 U	<50 U	NA	NA	NA
9238X763	IR14MW12A	09/16/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9147X272	IR14MW12A	11/20/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9614Z021	IR14MW13A	04/02/1996	0	A	0.21 Y	3.5	NA	3.5 Z	7.21	NA	NA	4
0216F009	IR14MW13A	04/19/2002	0	A	460 J3HZ	1,000 H	NA	970 ML	2,430	NA	NA	NA
9917B003	IR14MW13A	04/26/1999	0	A	100 YJ7	1,000 Y	NA	1,000 Y	2,100	NA	NA	NA
9619J102	IR14MW13A	05/09/1996	0	A	0.12 Y	2.4	NA	1.4 Z	3.92	NA	NA	1.3
9234X696	IR14MW13A	08/19/1992	0	A	<500 U	<75,000 U	NA	NA	<500 U	NA	150	NA
9239A457	IR14MW13A	09/23/1992	0	A	22	280	NA	NA	302	NA	550	NA
9239A458	IR14MW13A	09/23/1992	0	A	4.7	210	NA	NA	214.7	NA	520	NA
9209X564	IR15MW06A	02/27/1992	0	A	<500 U	<500 U	1000	NA	1,000	NA	<5 U	NA
0109T011	IR15MW06A	03/07/2001	0	A	<50 U	<100 U	NA	<100 U	<100 U	NA	NA	NA
9917Z021	IR15MW06A	04/26/1999	0	A	<50 UJ7	<100 U	NA	500 Y	500	NA	NA	NA
9238X749	IR15MW06A	09/14/1992	0	A	<0.5 U	0.53	NA	NA	0.53	NA	8.2	NA
9238X750	IR15MW06A	09/14/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	11	NA
9147X276	IR15MW06A	11/20/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9209X565	IR15MW07A	02/27/1992	0	A	<500 U	<500 U	830	NA	830	NA	9.3	NA
9209X566	IR15MW07A	02/27/1992	0	A	<500 U	<500 U	700	NA	700	NA	13	NA
0110T021	IR15MW07A	03/16/2001	0	A	<50 U	300 H	NA	1,000 M	1,300	NA	NA	NA
9238X762	IR15MW07A	09/16/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	13	NA
9147X273	IR15MW07A	11/20/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	9.3	NA
9147X274	IR15MW07A	11/20/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	7.9	NA
0109P005	IR15MW08A	03/08/2001	0	A	<50 U	<100 U	NA	<100 U	<100 U	NA	NA	NA
9613W201	IR15MW08A	03/28/1996	0	A	0.062 Y	4.2	NA	3.3	7.562	NA	NA	3.9
9613W202	IR15MW08A	03/28/1996	0	A	0.064 Y	4	NA	3.3	7.364	NA	NA	5.3
0216F007	IR15MW08A	04/18/2002	0	A	<50 U	47 J	NA	<300 U	47	NA	NA	NA
9917B002	IR15MW08A	04/26/1999	0	A	<50 UJ7	900 Y	NA	2,000 Y	2,900	NA	NA	NA
9233X675	IR15MW08A	08/13/1992	0	A	<500 U	<30,000 U	74,000	NA	74,000	NA	62	NA
9233X676	IR15MW08A	08/13/1992	0	A	<500 U	<3,800 U	49,000	NA	49,000	NA	40	NA
9239X792	IR15MW08A	09/24/1992	0	A	1.7	65	NA	NA	66.7	NA	85	NA
9613W195	IR15MW09F	03/27/1996	0	F	<0.05 U	0.14	NA	0.075 JZ	0.215	NA	NA	<1 U
9233X673	IR15MW09F	08/13/1992	0	F	<500 U	NA	NA	NA	<0.1 U	NA	NA	NA
9233X679	IR15MW09F	08/14/1992	0	F	NA	<500 U	570	NA	570	NA	<5 U	NA
9239X780	IR15MW09F	09/21/1992	0	F	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA
9239X785	IR15MW09F	09/22/1992	0	F	NA	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9613W198	IR15MW10F	03/27/1996	0	F	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9233X674	IR15MW10F	08/13/1992	0	F	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9233X678	IR15MW10F	08/14/1992	0	F	NA	<500 U	500	NA	500	NA	<5 U	NA
9239X781	IR15MW10F	09/21/1992	0	F	<0.5 U	NA	NA	NA	<0.5 U	NA	NA	NA
9239X786	IR15MW10F	09/22/1992	0	F	NA	<0.5 U	NA	NA	<0.5 U	NA	46	NA
9603J803	IR17MW11A	01/16/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.05 U	NA	NA	<1 U
9209X570	IR17MW11A	02/28/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X199	IR17MW11A	08/29/1991	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9238X760	IR17MW11A	09/16/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9238X761	IR17MW11A	09/16/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X568	IR17MW12A	02/27/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X198	IR17MW12A	08/29/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	<5 U	NA
9238X770	IR17MW12A	09/17/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9209X571	IR17MW13A	02/28/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	7.9	NA
9209X572	IR17MW13A	02/28/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 U	NA
9134X196	IR17MW13A	08/29/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	9.9	NA
9134X197	IR17MW13A	08/29/1991	0	A	<500 U	<500 UJ3	<500 U	NA	<500 U	NA	9.7	NA
9238X771	IR17MW13A	09/17/1992	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9604W039	IR36MW09A	01/25/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.05 U	NA	NA	<1 U
9611J932	IR36MW09A	03/15/1996	0	A	<0.05 U	<0.1 U	NA	0.072 JZ	0.072	NA	NA	<1 U
9428E065	IR36MW09A	07/13/1994	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.05 U	NA	NA	<1 U
9603W012	IR36MW11A	01/18/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.05 U	NA	NA	<1 U
9608J883	IR36MW11A	02/21/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.05 U	NA	NA	<1 U
0109D011	IR36MW11A	03/07/2001	0	A	70 Z	100 Z	NA	1,000 Z	1170	NA	NA	NA
0109D014	IR36MW11A	03/07/2001	0	A	70 Z	<100 U	NA	<100 U	70	NA	NA	NA
9437X471	IR36MW11A	09/12/1994	0	A	<0.059 U1	<0.1 U	NA	1.6	1.6	NA	NA	0.6 J
9437X472	IR36MW11A	09/12/1994	0	A	<0.032 U1	<0.1 U	NA	1.3	1.3	NA	NA	<1 U
9611J923	IR36MW120B	03/13/1996	0	B	<0.05 U	<0.1 U	NA	0.067 JZ	0.067	NA	NA	<1 U
9617J043	IR36MW120B	04/23/1996	0	B	0.033 JZ	<0.1 U	NA	<0.1 U	0.033	NA	NA	<1 U
9623J174	IR36MW120B	06/04/1996	0	B	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9611J924	IR36MW121A	03/13/1996	0	A	<0.05 U	0.095 JZ	NA	0.11 Z	0.205	NA	NA	<1 U
9617J044	IR36MW121A	04/24/1996	0	A	<0.05 U	0.064 J	NA	0.059 JZ	0.123	NA	NA	<1 U
9623J175	IR36MW121A	06/04/1996	0	A	<0.05 U	0.077 JZ	NA	0.066 JZ	0.143	NA	NA	<1 U
9623J176	IR36MW121A	06/04/1996	0	A	<0.05 U	0.094 JZ	NA	0.074 JZ	0.168	NA	NA	<1 U
9611W157	IR36MW122A	03/13/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9617J055	IR36MW122A	04/25/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9623J172	IR36MW122A	06/03/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9611W156	IR36MW123B	03/13/1996	0	B	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9618J065	IR36MW123B	04/30/1996	0	B	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9623J171	IR36MW123B	06/03/1996	0	B	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9604W028	IR36MW125A	01/24/1996	0	A	0.65 Z	<0.13 U	NA	<0.13 U	0.65	NA	NA	NA
9604W034	IR36MW125A	01/25/1996	0	A	NA	NA	NA	NA	NA	NA	NA	<1 U
9611W165	IR36MW125A	03/15/1996	0	A	0.68 Z	<0.1 U	NA	0.17 Z	0.85	NA	NA	<1 U
9617J057	IR36MW125A	04/26/1996	0	A	0.91 Z	NA	NA	NA	0.91	NA	NA	NA
9618J061	IR36MW125A	04/29/1996	0	A	NA	0.051 JZ	NA	0.078 JZ	0.129	NA	NA	<1 U
9604W027	IR36MW126A	01/24/1996	0	A	<0.05 U	0.17	NA	0.33 Z	0.5	NA	NA	<1 U
9611J931	IR36MW126A	03/15/1996	0	A	<0.05 U	0.18 Z	NA	0.57 Z	0.75	NA	NA	0.5 J
9618J063	IR36MW126A	04/29/1996	0	A	<0.05 U	NA	NA	NA	<0.05 U	NA	NA	NA
9618J079	IR36MW126A	05/02/1996	0	A	NA	0.13 Z	NA	0.23 Z	0.36	NA	NA	NA
9619J085	IR36MW126A	05/06/1996	0	A	NA	NA	NA	NA	NA	NA	NA	<1 U
9604W037	IR36MW127A	01/25/1996	0	A	<0.05 U	<0.1 U	NA	0.098 JZ	0.098	NA	NA	<1 U
9611J930	IR36MW127A	03/15/1996	0	A	<0.05 U	<0.1 U	NA	0.14 Z	0.14	NA	NA	<1 U
9618J062	IR36MW127A	04/29/1996	0	A	<0.05 U	<0.1 U	NA	0.063 JZ	0.063	NA	NA	<1 U
9604W029	IR36MW128A	01/24/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9611J929	IR36MW128A	03/14/1996	0	A	<0.05 U	<0.1 U	NA	0.14 Z	0.14	NA	NA	<1 U
9617J037	IR36MW128A	04/22/1996	0	A	0.034 JZ	0.068 JZ	NA	0.062 JZ	0.164	NA	NA	<1 U
9611J927	IR36MW129B	03/14/1996	0	B	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9611J928	IR36MW129B	03/14/1996	0	B	<0.05 U	<0.1 U	NA	0.052 JZ	0.052	NA	NA	<1 U
9617J041	IR36MW129B	04/23/1996	0	B	0.027 JZ	<0.1 U	NA	<0.1 U	0.027	NA	NA	<1 U
9617J042	IR36MW129B	04/23/1996	0	B	0.027 JZ	<0.1 U	NA	<0.1 U	0.027	NA	NA	<1 U
9622J168	IR36MW129B	05/31/1996	0	B	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	0.9 J
0602V035	IR36MW12A	01/11/2006	0	A	<20 U	140	NA	<500 U	140	NA	NA	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
0602V036	IR36MW12A	01/11/2006	0	A	<20 U	150	NA	<500 U	150	NA	NA	NA
9603W013	IR36MW12A	01/19/1996	0	A	0.057 Y	1.3	NA	0.91	2.267	NA	NA	2
9608J889	IR36MW12A	02/23/1996	0	A	0.18 Y	6.6	NA	5.1	11.88	NA	NA	3.1
0709W023	IR36MW12A	02/27/2007	0	A	<20 U	420 JH	NA	810	1230	NA	NA	NA
0809E034	IR36MW12A	02/29/2008	0	A	<20 U	400	NA	430 J	830	NA	NA	NA
0109T010	IR36MW12A	03/07/2001	0	A	<50 U	<100 U	NA	<100 U	<100 U	NA	NA	NA
0511R040	IR36MW12A	03/14/2005	0	A	<20 U	450	NA	370 J	820	NA	NA	NA
0216F004	IR36MW12A	04/18/2002	0	A	<50 U	63	NA	<300 U	63	NA	NA	NA
0817E041	IR36MW12A	04/22/2008	0	A	<20 U	450	NA	290 J	740	NA	NA	NA
0720B004	IR36MW12A	05/17/2007	0	A	<20 U	410 J	NA	390 J	800	NA	NA	NA
0623S017	IR36MW12A	06/05/2006	0	A	<20 U	270 H	NA	<500 U	270	NA	NA	NA
0623S018	IR36MW12A	06/05/2006	0	A	<20 U	310 H	NA	<500 U	310	NA	NA	NA
0425C033	IR36MW12A	06/15/2004	0	A	<20 U	<50 U	NA	350 J	350	NA	NA	NA
0526T040	IR36MW12A	06/27/2005	0	A	<20 U	390	NA	320 J	710	NA	NA	NA
0526T041	IR36MW12A	06/27/2005	0	A	<20 U	360	NA	310 J	670	NA	NA	NA
0734D045	IR36MW12A	08/23/2007	0	A	<20 U	410	NA	400 J	810	NA	NA	NA
0437P034	IR36MW12A	09/10/2004	0	A	<20 UJ5	530	NA	740	1270	NA	NA	NA
9437X473	IR36MW12A	09/12/1994	0	A	<0.05 U	3.5	NA	21	24.5	NA	NA	10
0539A046	IR36MW12A	09/26/2005	0	A	<20 U	340	NA	200	540	NA	NA	NA
0539A047	IR36MW12A	09/26/2005	0	A	<20 U	320	NA	190	510	NA	NA	NA
0740H021	IR36MW12A	10/03/2007	0	A	<20 U	320 J	NA	320 J	640	NA	NA	NA
0447R007	IR36MW12A	11/17/2004	0	A	25	490 H	NA	190 J	705	NA	NA	NA
0649H018	IR36MW12A	12/05/2006	0	A	<20 U	400 H	NA	320 J	720	NA	NA	NA
9602J783	IR36MW135A	01/09/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9607J865	IR36MW135A	02/12/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9611W164	IR36MW135A	03/15/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9604Z011	IR36MW139A	01/22/1996	0	A	0.031 JZ	0.074 J	NA	0.064 JZ	0.169	NA	NA	<1 U
9608J888	IR36MW139A	02/23/1996	0	A	<0.05 U	0.15	NA	0.11 Z	0.26	NA	NA	<1 U
9613W199	IR36MW139A	03/28/1996	0	A	<0.05 U	0.075 J	NA	0.23	0.305	NA	NA	<1 U
9603W011	IR36MW13A	01/18/1996	0	A	<0.05 U	0.59 Z	NA	0.14 Z	0.73	NA	NA	<1 U
9608J886	IR36MW13A	02/22/1996	0	A	<0.05 U	0.56	NA	0.18 Z	0.74	NA	NA	<1 U
9444X560	IR36MW13A	11/03/1994	0	A	<0.05 U	0.39	NA	0.39	0.78	NA	NA	<1 U
9444X561	IR36MW13A	11/03/1994	0	A	<0.05 U	0.4	NA	0.3	0.7	NA	NA	<1 U
9603W010	IR36MW14A	01/18/1996	0	A	<0.05 U	0.17 Z	NA	0.12 Z	0.29	NA	NA	<1 U
9608W116	IR36MW14A	02/22/1996	0	A	<0.05 U	0.31 Z	NA	0.15 Z	0.46	NA	NA	<1 U
9443X538	IR36MW14A	10/25/1994	0	A	<0.05 U	<0.1 U	NA	1.2	1.2	NA	NA	0.7 J
9443X539	IR36MW14A	10/25/1994	0	A	<0.05 U	<0.1 U	NA	1.1	1.1	NA	NA	0.5 J
9605W060	IR36MW15A	02/01/1996	0	A	<0.05 U	<0.1 U	NA	0.066 JZ	0.066	NA	NA	<1 U
9610J903	IR36MW15A	03/04/1996	0	A	<0.05 U	<0.1 U	NA	0.083 JZ	0.083	NA	NA	<1 U
9438X484	IR36MW15A	09/20/1994	0	A	<0.05 U	<0.15 U2	NA	0.19	0.19	NA	NA	<1 U
9438X485	IR36MW15A	09/20/1994	0	A	<0.028 U2	<0.1 U	NA	0.71	0.71	NA	NA	<1 U
9605W054	IR36MW16A	01/31/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9610J906	IR36MW16A	03/05/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9610J907	IR36MW16A	03/05/1996	0	A	<0.05 U	<0.1 U	NA	0.074 JZ	0.074	NA	NA	<1 U
9439X498	IR36MW16A	09/27/1994	0	A	<0.05 U	0.063 JZ	NA	0.4	0.463	NA	NA	<1 U
9439X499	IR36MW16A	09/27/1994	0	A	<0.05 U	0.082 JZ	NA	0.74	0.822	NA	NA	0.5 J
9603W016	IR36MW17A	01/19/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9603W017	IR36MW17A	01/19/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9608J887	IR36MW17A	02/23/1996	0	A	<0.05 U	<0.1 U	NA	0.065 JZ	0.065	NA	NA	<1 U
9442X532	IR36MW17A	10/18/1994	0	A	<0.05 U	<0.1 U	NA	0.13	0.13	NA	NA	<1 U
9442X533	IR36MW17A	10/18/1994	0	A	<0.05 U	<0.059 U2	NA	0.11	0.11	NA	NA	<1 U
9604Z012	IR38MW01A	01/22/1996	0	A	0.029 JZ	<0.1 U	NA	<0.1 U	0.029	NA	NA	<1 U
9608J885	IR38MW01A	02/22/1996	0	A	<0.05 U	<0.1 U	NA	0.12 Z	0.12	NA	NA	<1 U
9441X521	IR38MW01A	10/12/1994	0	A	<0.05 U	<0.1 U	NA	<0.47 U2	<0.47 U2	NA	NA	<1 U
9441X522	IR38MW01A	10/12/1994	0	A	<0.05 U	<0.1 U	NA	<0.35 U2	<0.35 U2	NA	NA	<1 U
9604W021	IR38MW02A	01/23/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9604W022	IR38MW02A	01/23/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9608W121	IR38MW02A	02/23/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9443X535	IR38MW02A	10/24/1994	0	A	<0.05 U	<0.1 U	NA	0.58	0.58	NA	NA	<1 U
9443X536	IR38MW02A	10/24/1994	0	A	<0.05 U	<0.1 U	NA	0.38	0.38	NA	NA	<1 U
9604W025	IR39MW21A	01/23/1996	0	A	3.3	1.9 Y	NA	0.69 Z	5.89	NA	NA	1.3
9609J886	IR39MW21A	02/26/1996	0	A	2	2.1 Y	NA	1.3 Z	5.4	NA	NA	2

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
0425C036	IR39MW21A	06/16/2004	0	A	77	2,000	NA	1,300	3,377	NA	NA	NA
9425E029	IR39MW21A	06/22/1994	0	A	9,100 J3	11,000	NA	13,000 JY	33,100	NA	NA	24.3
0239R011	IR39MW21A	09/27/2002	0	A	<500 U	2,220	NA	<90 U	2,220	NA	NA	NA
0449C027	IR39MW21A	11/29/2004	0	A	490 G	1,100	NA	450 J	2,040	NA	NA	NA
9605W045	IR39MW22A	01/29/1996	0	A	<0.05 U	<0.1 U	NA	0.057 JZ	0.057	NA	NA	<1 U
9609J897	IR39MW22A	02/29/1996	0	A	<0.05 U	<0.1 U	NA	0.067 JZ	0.067	NA	NA	<1 U
9437X480	IR39MW22A	09/14/1994	0	A	<0.05 U	<0.1 U	NA	<0.42 U1	<0.1 U	NA	NA	<1 U
9437X481	IR39MW22A	09/14/1994	0	A	<0.034 U1	<0.1 U	NA	<0.47 U1	<0.1 U	NA	NA	<1 U
9604W040	IR39MW23A	01/26/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9604W041	IR39MW23A	01/26/1996	0	A	<0.05 U	0.059 J	NA	<0.1 U	0.059	NA	NA	<1 U
9609J884	IR39MW23A	02/26/1996	0	A	<0.05 U	0.061 JZ	NA	0.093 JZ	0.154	NA	NA	<1 U
9437K156	IR39MW23A	09/15/1994	0	A	<0.05 U	<0.1 U	NA	<0.43 U1	<0.1 U	NA	NA	0.8 J
9437K157	IR39MW23A	09/15/1994	0	A	<0.05 U	0.058 J	NA	<0.48 U1	0.058	NA	NA	0.5 J
9604W042	IR39MW24A	01/26/1996	0	A	0.046 JY	0.82	NA	0.55	1.416	NA	NA	<1 U
9609J885	IR39MW24A	02/26/1996	0	A	0.031 JY	0.65	NA	1.2	1.881	NA	NA	1.1
9438X490	IR39MW24A	09/21/1994	0	A	<0.061 U2	1	NA	6.9	7.9	NA	NA	3.1
9438X491	IR39MW24A	09/21/1994	0	A	<0.05 U	0.72	NA	5.4	6.12	NA	NA	4
9604W024	IR39MW33A	01/23/1996	0	A	0.25 Y	3.3	NA	2	5.55	NA	NA	4.2
9609W123	IR39MW33A	02/26/1996	0	A	0.27 Y	3.4	NA	2 Z	5.67	NA	NA	2.2
9613W204	IR39MW33A	03/29/1996	0	A	0.29 Y	4.8	NA	4.8	9.89	NA	NA	3.9
9602J790	IR39MW35A	01/10/1996	0	A	<0.05 U	0.13	NA	0.16	0.29	NA	NA	<1 U
9607W096	IR39MW35A	02/14/1996	0	A	<0.05 U	0.12	NA	0.1	0.22	NA	NA	<1 U
9607W097	IR39MW35A	02/14/1996	0	A	<0.05 U	0.13	NA	0.13	0.26	NA	NA	<1 U
9612J934	IR39MW35A	03/18/1996	0	A	<0.05 U	0.19	NA	0.19 Z	0.38	NA	NA	<1 U
9602J787	IR39MW36A	01/10/1996	0	A	0.025 J	0.95	NA	2	2.975	NA	NA	0.5 J
9602J789	IR39MW36A	01/10/1996	0	A	<0.05 U	1.4	NA	2.5	3.9	NA	NA	1.7
9607W098	IR39MW36A	02/14/1996	0	A	0.029 J	1.5	NA	0.81 Y	2.339	NA	NA	0.5 J
9612J935	IR39MW36A	03/18/1996	0	A	0.029 JY	1.7	NA	2.2	3.929	NA	NA	3.7
0602T030	IR56MW39A	01/09/2006	0	A	170	300 L	NA	<500 U	470	NA	NA	NA
0708H027	IR56MW39A	02/20/2007	0	A	47 Z	780 H	NA	800	1627	NA	NA	NA
0809P006	IR56MW39A	02/26/2008	0	A	160 J	330	NA	360 J	850	NA	NA	NA
9610W136	IR56MW39A	03/04/1996	0	A	3.1 J3	3.6	NA	0.9 Z	7.6	NA	NA	4.2
0511G046	IR56MW39A	03/15/2005	0	A	200	520	NA	440 J	1,160	NA	NA	NA
0110P029	IR56MW39A	03/16/2001	0	A	600 H	300 LZ	NA	<100 U	900	NA	NA	NA
0612H050	IR56MW39A	03/23/2006	0	A	170	540	NA	310 J	1,020	NA	NA	NA
0612H051	IR56MW39A	03/23/2006	0	A	150	560	NA	300 J	1,010	NA	NA	NA
0216F002	IR56MW39A	04/17/2002	0	A	530 G	360 L	NA	<300 U	890	NA	NA	NA
0817D043	IR56MW39A	04/23/2008	0	A	120	300	NA	310 J	730	NA	NA	NA
0718A005	IR56MW39A	05/02/2007	0	A	66	900 J	NA	620 J	1,586	NA	NA	NA
9620J120	IR56MW39A	05/15/1996	0	A	2.1 J3	9.8	NA	<0.5 U	11.9	NA	NA	40
0623S025	IR56MW39A	06/07/2006	0	A	200 Z	330 Z	NA	<500 U	530	NA	NA	NA
0623S026	IR56MW39A	06/07/2006	0	A	200 Z	320 Z	NA	<500 U	520	NA	NA	NA
0425X005	IR56MW39A	06/16/2004	0	A	510	710	NA	<500 U	1,220	NA	NA	NA
0526D036	IR56MW39A	06/28/2005	0	A	170	640	NA	510	1,320	NA	NA	NA
0735H082	IR56MW39A	08/27/2007	0	A	92	480 J	NA	540	1,112	NA	NA	NA
0438B046	IR56MW39A	09/14/2004	0	A	250	580 H	NA	520	1,350	NA	NA	NA
0539T037	IR56MW39A	09/26/2005	0	A	350	540	NA	320	1,210	NA	NA	NA
0740W016	IR56MW39A	10/03/2007	0	A	110	350 J	NA	510	970	NA	NA	NA
9444X557	IR56MW39A	11/02/1994	0	A	3.9	15	NA	1.3	20.2	NA	NA	23
9444X558	IR56MW39A	11/02/1994	0	A	7.5	18	NA	1.8	27.3	NA	NA	24
0448C021	IR56MW39A	11/23/2004	0	A	250 G	670	NA	<500 U	920	NA	NA	NA
0649W035	IR56MW39A	12/07/2006	0	A	190 Z	880 JH	NA	590	1,660	NA	NA	NA
9610J905	IR72MW32A	03/05/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
0110P027	IR72MW32A	03/16/2001	0	A	<50 U	<100 U	NA	<100 U	<100 U	NA	NA	NA
0110P028	IR72MW32A	03/16/2001	0	A	<50 U	<100 U	NA	<100 U	<100 U	NA	NA	NA
9620J119	IR72MW32A	05/15/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9547W195	IR72MW32A	11/21/1995	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9610W138	IR72MW33A	03/05/1996	0	A	<0.05 U	<0.1 U	NA	0.073 JZ	0.073	NA	NA	<1 U
9620J118	IR72MW33A	05/15/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9547W197	IR72MW33A	11/22/1995	0	A	<0.05 U	<0.1 U	NA	<0.15 U1	<0.15 U1	NA	NA	<1 U
9547W198	IR72MW33A	11/22/1995	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9305J230	PA36MW01A	02/04/1993	0	A	45	<51 U	<51 U	<510 U	45	<51 U	<5 U	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9606W074	PA36MW01A	02/07/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9611W148	PA36MW01A	03/11/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9305J232	PA36MW02A	02/04/1993	0	A	25	<51 U	<51 U	<510 U	25	<51 U	<5 U	NA
9606W075	PA36MW02A	02/07/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9611W149	PA36MW02A	03/11/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9606W076	PA36MW03A	02/07/1996	0	A	<0.05 U	0.1	NA	0.14 Z	0.24	NA	NA	<1 U
9306J248	PA36MW03A	02/11/1993	0	A	160	<53 U	250	<530 U	410	<53 U	<5.5 UJ5	NA
9306J249	PA36MW03A	02/11/1993	0	A	6	<55 U	260	<550 U	266	<55 U	<5.9 UJ5	NA
9611J920	PA36MW03A	03/11/1996	0	A	<0.05 U	0.18	NA	0.28 Z	0.46	NA	NA	<1 U
9305J234	PA36MW04A	02/05/1993	0	A	<0.5 U	<54 U	<54 U	440 J	440	<54 U	<5 U	NA
9606W077	PA36MW04A	02/07/1996	0	A	0.049 J	0.86	NA	0.39	1.299	NA	NA	0.5 J
9611J919	PA36MW04A	03/11/1996	0	A	<0.05 U	0.81	NA	0.3	1.11	NA	NA	<1 U
9606W082	PA36MW05A	02/08/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	0.5 J
9306J244	PA36MW05A	02/10/1993	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 UJ5	NA
9306J245	PA36MW05A	02/10/1993	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	<5 UJ5	NA
9611J918	PA36MW05A	03/11/1996	0	A	<0.05 U	<0.1 U	NA	0.096 JZ	0.096	NA	NA	<1 U
9306J252	PA36MW06A	02/11/1993	0	A	5	<56 U	<56 U	170 J	175	<56 U	<5.4 UJ5	NA
9607W099	PA36MW06A	02/16/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9612W172	PA36MW06A	03/19/1996	0	A	0.11 Z	<0.1 U	NA	<0.1 U	0.11	NA	NA	<1 U
9615Z044	PA36MW06A	04/09/1996	0	A	<0.05 U	NA	NA	NA	<0.05 U	NA	NA	NA
9615Z045	PA36MW06A	04/09/1996	0	A	<0.05 U	NA	NA	NA	<0.05 U	NA	NA	NA
9606W079	PA36MW07A	02/08/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9308J303	PA36MW07A	02/22/1993	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9308J309	PA36MW07A	02/23/1993	0	A	NA	<500 U	<500 U	NA	<500 U	NA	<5 UJ5	NA
9611J922	PA36MW07A	03/12/1996	0	A	<0.05 U	<0.1 U	NA	<0.1 U	<0.1 U	NA	NA	<1 U
9606W080	PA36MW08A	02/08/1996	0	A	0.025 JYZ	0.56	NA	0.36 Z	0.945	NA	NA	0.5 J
9606W081	PA36MW08A	02/08/1996	0	A	<0.05 U	0.57	NA	0.31 Z	0.88	NA	NA	0.6 J
9307A590	PA36MW08A	02/16/1993	0	A	<0.5 U	11	NA	NA	11	NA	62	NA
9307A591	PA36MW08A	02/16/1993	0	A	<0.5 U	10	NA	NA	10	NA	75	NA
0109P008	PA36MW08A	03/08/2001	0	A	<50 U	<100 U	NA	<100 U	<100 U	NA	NA	NA
9611W151	PA36MW08A	03/12/1996	0	A	0.029 JY	0.56	NA	0.4	0.989	NA	NA	0.5 J
9611W152	PA36MW08A	03/12/1996	0	A	<0.05 U	0.59	NA	0.44	1.03	NA	NA	0.7 J
9606W084	PA39MW01A	02/09/1996	0	A	<0.05 U	0.067 J	NA	0.086 J	0.153	NA	NA	<1 U
9307A611	PA39MW01A	02/18/1993	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9307A612	PA39MW01A	02/18/1993	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9611W159	PA39MW01A	03/14/1996	0	A	<0.05 U	0.062 J	NA	0.19	0.252	NA	NA	<1 U
9606J860	PA39MW02A	02/09/1996	0	A	<0.05 U	0.076 J	NA	0.087 JZ	0.163	NA	NA	<1 U
9307D024	PA39MW02A	02/19/1993	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9307D025	PA39MW02A	02/19/1993	0	A	<0.5 U	<0.5 U	NA	NA	<0.5 U	NA	<5 U	NA
9611W158	PA39MW02A	03/14/1996	0	A	<0.05 U	<0.1 U	NA	0.13	0.13	NA	NA	<1 U
0111P015	IR01MW367A	3/21/2001	0	A	70H	200D	NA	<100 U	270	NA	NA	NA
9202A009	IR02MW101A1	1/7/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9202A010	IR02MW101A1	1/7/1992	0	A	<500 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9228J155	IR02MW101A1	7/8/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235J219	IR02MW101A1	8/24/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9202A007	IR02MW101A2	1/7/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9202A012	IR02MW101A2	1/8/1992	0	A	NA	<50 U	<50 U	NA	<50 U	NA	NA	NA
9228J154	IR02MW101A2	7/8/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9228J159	IR02MW101A2	7/9/1992	0	A	NA	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235J218	IR02MW101A2	8/24/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9235J224	IR02MW101A2	8/25/1992	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9203A085	IR02MW114A1	1/14/1992	0	A	<100 U	NA	NA	NA	<500 U	NA	NA	NA
9204X443	IR02MW114A1	1/21/1992	0	A	NA	<500 U	<500 U	NA	<500 U	NA	NA	NA
9228X646	IR02MW114A1	7/6/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9228J146	IR02MW114A1	7/7/1992	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9235J222	IR02MW114A1	8/24/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9235J225	IR02MW114A1	8/25/1992	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9203A026	IR02MW114A2	1/13/1992	0	A	<100 U	<50 U	<50 U	NA	<500 U	NA	NA	NA
9228J166	IR02MW114A2	7/10/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235J223	IR02MW114A2	8/24/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9235J226	IR02MW114A2	8/25/1992	0	A	NA	<500 U	N A	NA	<500 U	NA	NA	NA
9203A084	IR02MW114A3	1/14/1992	0	A	<250U	<50 U	150	NA	150	NA	NA	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Gasoline (µg/L)	Diesel-Range Organics (µg/L)	Total DRO Unknown (µg/L)	Motor Oil-Range Organics (µg/L)	Total TPH (µg/L)	JP5 (µg/L)	Total Oil & Grease (mg/L)	TRPH (mg/L)
9228J147	IR02MW114A3	7/7/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9228J153	IR02MW114A3	7/8/1992	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9235J227	IR02MW114A3	8/25/1992	0	A	<500 U	NA	NA	NA	<500 U	NA	NA	NA
9235J232	IR02MW114A3	8/26/1992	0	A	NA	<500 U	NA	NA	<500 U	NA	NA	NA
9202A002	IR02MW126A	1/6/1992	0	A	<500 U	<50 U	1,100	NA	1,100	NA	NA	NA
9228J157	IR02MW126A	7/8/1992	0	A	<500 U	<500 U	1,500	NA	1,500	NA	NA	NA
9228J158	IR02MW126A	7/8/1992	0	A	<500 U	<500 U	1,300	NA	1,300	NA	NA	NA
9235X717	IR02MW126A	8/25/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
0424M014	IR02MW126A	6/10/2004	0	A	<20 U	<50 U	NA	1,000	1,000	NA	NA	NA
0437P033	IR02MW126A	9/10/2004	0	A	22	700 H	NA	1,500	2,222	NA	NA	NA
0447C010	IR02MW126A	11/17/2004	0	A	33	1.000 H	NA	1,000	2,033	NA	NA	NA
0511G050	IR02MW126A	3/17/2005	0	A	16J	890 H	NA	1,300	2,206	NA	NA	NA
0526G049	IR02MW126A	6/29/2005	0	A	69	1,100	NA	1,500	2,669	NA	NA	NA
0538A043	IR02MW126A	9/23/2005	0	A	<20 U	990 H	NA	1,000	1,990	NA	NA	NA
0602T033	IR02MW126A	1/10/2006	0	A	16 J	490 H	NA	1,400	1,906	NA	NA	NA
0611J035	IR02MW126A	3/17/2006	0	A	<20 U	<760 UH	NA	1,400	1,400	NA	NA	NA
0623D040	IR02MW126A	6/6/2006	0	A	27Z	580 H	NA	1,000	1,607	NA	NA	NA
0649G043	IR02MW126A	12/6/2006	0	A	<20 U	520 JH	NA	1,200	1,720	NA	NA	NA
0709W026	IR02MW126A	2/28/2007	0	A	<20 U	550 JH	NA	1,500	2,050	NA	NA	NA
0720J051	IR02MW126A	5/14/2007	0	A	23	660 J	NA	1,400	2,083	NA	NA	NA
0732J005	IR02MW126A	8/10/2007	0	A	29	690 J	NA	1,500	2,219	NA	NA	NA
0740W013	IR02MW126A	10/3/2007	0	A	23	700 J	NA	1,500	2,223	NA	NA	NA
8.08E+12	IR02MW126A	2/21/2008	0	A	29	730	NA	1,600	2,359	NA	NA	NA
0817H036	IR02MW126A	4/21/2008	0	A	24	710	NA	1,500	2,234	NA	NA	NA
0830D021	IR02MW126A	7/21/2008	0	A	36	780	NA	1,700 J	2,516	NA	NA	NA
0912W038	IR02MW126A	3/17/2009	0	A	<20 U	1,100	NA	2,000	3,100	NA	NA	NA
9218Z059	IR02MW141A	5/7/1992	0	A	<500 U	<500 U	<500	NA	<500 U	NA	NA	NA
9218Z060	IR02MW141A	5/7/1992	0	A	<500 U	<500 U	<500	NA	<500 U	NA	NA	NA
9230J177	IR02MW141A	7/21/1992	0	A	<500 U	<500 U	<500	NA	<500 U	NA	NA	NA
9230J178	IR02MW141A	7/21/1992	0	A	<500 U	<500 U	<500	NA	<500 U	NA	NA	NA
9235X715	IR02MW141A	8/25/1992	0	A	<500 U	<500 U	<500	NA	<500 U	NA	NA	NA
9235X716	IR02MW141A	8/25/1992	0	A	<500 U	<500 U	<500	NA	<500 U	NA	NA	NA
9205X478	IR02MW146A	1/30/1992	0	A	2600	<1,000 U	11,000	NA	13,600	NA	NA	NA
9205X479	IR02MW146A	1/30/1992	0	A	2400	<500 U	2,700	NA	5,100	NA	NA	NA
9613W194	IR02MW146A	3/26/1996	0	A	0.21 Y	2	NA	0.76Z	2.97	NA	NA	0.9 J
9622J162	IR02MW146A	5/29/1996	0	A	0.2 Y	1.8	NA	0.98	2.98	NA	NA	NA
9622J163	IR02MW146A	5/29/1996	0	A	0.18 Y	2	NA	1.1	3.28	NA	NA	3
9203X415	IR02MW147A	1/15/1992	0	A	<250 U	<50 U	75	NA	75	NA	NA	NA
9228J167	IR02MW147A	7/10/1992	0	A	<500 U	<500 U	<500 U	NA	<500 U	NA	NA	NA
9235X719	IR02MW147A	8/25/1992	0	A	<500 U	<500 U	NA	NA	<500 U	NA	NA	NA
9112X067	IR02MW149A	3/21/1991	0	A	<05 UJ5	<0.5U	NA	NA	<0.5 U	NA	NA	NA
9202N019	IR02MW149A	1/10/1992	0	A		<50 U	<50 U	NA	<500 U	NA	NA	NA
0836G017	IR02MW374A	9/3/2008	0	A	<20 U	230	NA	210	440	NA	NA	NA
0842G005	IR02MW374A	10/13/2008	0	A	<20 U	110	NA	150	260	NA	NA	NA
0842G006	IR02MW374A	10/13/2008	0	A	<20 U	91	NA	110	201	NA	NA	NA
0836G016	IR02MW375A	9/3/2008	0	A	<20 U	630	NA	990	1,620	NA	NA	NA
0842G004	IR02MW375A	10/13/2008	0	A	<20 U	350	NA	700	1,050	NA	NA	NA
0830H028	IR04MW13A	7/22/2008	0	A	99	95	NA	92J	286	NA	NA	NA
0912N016	IR04MW13A	3/16/2009	0	A	79	<40 U	NA	<40 U	79	NA	<5,000 U	NA
0916P013	IR04MW13A	4/16/2009	0	A	78	62	NA	100	240	NA	<5,000 U	NA
0830H031	IR04MW36A	7/22/2008	0	A	14 J	460	NA	320 J	794	NA	NA	NA
0912W027	IR04MW36A	3/16/2009	0	A	<20 U	120	NA	140	260	NA	<5,000 U	NA
0839G034	IR12MW11A	9/23/2008	0	A	<20 U	100	NA	150	250	NA	NA	NA
0912W037	IR12MW11A	3/17/2009	0	A	<20 U	220	NA	510	730	NA	<5,000 U	NA
0916P014	IR12MW11A	4/16/2009	0	A	<20 U	110	NA	250	360	NA	<5,000 U	NA
0830E033	IR14MW13A	7/23/2008	0	A	<20 U	<40 U	NA	<40 UJ	0	NA	NA	NA
0829D017	IR36MW14A	7/18/2008	0	A	<20 U	110	NA	140	250	NA	NA	NA
0914G010	IR36MW14A	3/30/2009	0	A	<20 U	95	NA	150	245	NA	NA	NA
0830H042	IR56MW39A	7/24/2008	0	A	57	260	NA	290	607	NA	NA	NA
0911B028	IR56MW39A	3/13/2009	0	A	100	240 R	NA	280 J	380	NA	NA	NA
0911B028	IR56MW39A	3/13/2009	0	A	NA	280	NA	340 R	280	NA	NA	NA

Table A2-11. Summary of Analytical Results for TPH *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes:

µg/L	micrograms per liter
bgs	below ground surface
DRO	diesel-range organics
mg/L	milligrams per liter
TPH	total petroleum hydrocarbons
TRPH	total recoverable petroleum hydrocarbons

Table A2-12. Summary of Analytical Results for TBT

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Tributyltin (µg/L)
0437P033	IR02MW126A	09/10/2004	0	A	<0.05 U
0447C010	IR02MW126A	11/17/2004	0	A	<0.05 U
0511G050	IR02MW126A	03/17/2005	0	A	<0.05 UJ3
0526G049	IR02MW126A	06/29/2005	0	A	<0.05 UJ7
0538A043	IR02MW126A	09/23/2005	0	A	<0.05 UJ37
0602T033	IR02MW126A	01/10/2006	0	A	<0.05 UJ
0611J035	IR02MW126A	03/17/2006	0	A	<0.05 U
0623D040	IR02MW126A	06/06/2006	0	A	<0.05 U
0649G043	IR02MW126A	12/06/2006	0	A	<0.05 U
0709W026	IR02MW126A	02/28/2007	0	A	<0.05 U
0720J051	IR02MW126A	05/14/2007	0	A	<0.05 U
0732J005	IR02MW126A	08/10/2007	0	A	<0.05 U
0740W013	IR02MW126A	10/03/2007	0	A	<0.05 U
0808E010	IR02MW126A	02/21/2008	0	A	<0.05 U
0817H036	IR02MW126A	04/21/2008	0	A	<0.05 U
0437P022	IR02MW147A	09/07/2004	0	A	<0.05 UJ7
0449P022	IR02MW147A	11/29/2004	0	A	<0.05 UJ3
0511G044	IR02MW147A	03/15/2005	0	A	<0.05 U
0511G045	IR02MW147A	03/15/2005	0	A	<0.05 U
0526M052	IR02MW147A	06/29/2005	0	A	<0.05 U
0538T028	IR02MW147A	09/22/2005	0	A	<0.05 UJ
0602T037	IR02MW147A	01/12/2006	0	A	<0.05 UJ
0612J041	IR02MW147A	03/21/2006	0	A	<0.05 UJ
0623D037	IR02MW147A	06/05/2006	0	A	<0.05 UJ
0636D042	IR02MW147A	09/07/2006	0	A	<0.05 U
0649B030	IR02MW147A	12/07/2006	0	A	<0.05 U
0709L015	IR02MW147A	02/28/2007	0	A	<0.05 U
0720B001	IR02MW147A	05/17/2007	0	A	<0.05 U
0732J006	IR02MW147A	08/10/2007	0	A	<0.05 U
0740G019	IR02MW147A	10/05/2007	0	A	<0.05 U
0810E051	IR02MW147A	03/04/2008	0	A	<0.05 U
0817G029	IR02MW147A	04/22/2008	0	A	<0.05 U
0438T002	IR02MW149A	09/13/2004	0	A	<0.05 U
0448C015	IR02MW149A	11/22/2004	0	A	<0.05 UJ37
0510G024	IR02MW149A	03/10/2005	0	A	<0.05 U
0526G038	IR02MW149A	06/27/2005	0	A	<0.05 U
0538T024	IR02MW149A	09/21/2005	0	A	<0.05 U
0602T036	IR02MW149A	01/12/2006	0	A	<0.05 UJ
0612J040	IR02MW149A	03/21/2006	0	A	<0.05 UJ
0622D020	IR02MW149A	05/30/2006	0	A	<0.05 U
0636D041	IR02MW149A	09/07/2006	0	A	<0.05 UJ
0649W033	IR02MW149A	12/07/2006	0	A	<0.05 UJ
0709L017	IR02MW149A	03/01/2007	0	A	<0.05 UJ

Table A2-12. Summary of Analytical Results for TBT *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Tributyltin (µg/L)
0720N007	IR02MW149A	05/15/2007	0	A	<0.05 UJ
0732D004	IR02MW149A	08/08/2007	0	A	<0.05 U
0740G006	IR02MW149A	10/02/2007	0	A	<0.05 U
0810E052	IR02MW149A	03/04/2008	0	A	<0.05 U
0817D032	IR02MW149A	04/21/2008	0	A	<0.05 U
0438J028	IR02MW175A	09/15/2004	0	A	<0.05 U
0438J029	IR02MW175A	09/15/2004	0	A	<0.05 U
0447R006	IR02MW175A	11/17/2004	0	A	<0.05 U
0511Z023	IR02MW175A	03/17/2005	0	A	<0.05 U
0511Z024	IR02MW175A	03/17/2005	0	A	<0.05 UJ3
0721J065	IR02MW175A	05/21/2007	0	A	<0.05 U
0732W010	IR02MW175A	08/10/2007	0	A	<0.05 U
0740W007	IR02MW175A	10/02/2007	0	A	<0.05 U
0808D008	IR02MW175A	02/21/2008	0	A	<0.05 U
0817D033	IR02MW175A	04/21/2008	0	A	<0.05 U
0438J033	IR02MW179A	09/16/2004	0	A	<0.05 U
0447C012	IR02MW179A	11/19/2004	0	A	<0.05 UJ5
0448P014	IR02MW179A	11/23/2004	0	A	<0.05 UJ3
0448P015	IR02MW179A	11/23/2004	0	A	<0.05 UJ
0511R051	IR02MW179A	03/17/2005	0	A	<0.05 U
0511R052	IR02MW179A	03/17/2005	0	A	<0.05 UJ
0526G047	IR02MW179A	06/29/2005	0	A	<0.05 UJ
0538A041	IR02MW179A	09/23/2005	0	A	<0.05 UJ
0538A042	IR02MW179A	09/23/2005	0	A	<0.05 U
0602H049	IR02MW179A	01/12/2006	0	A	<0.05 U
0611J036	IR02MW179A	03/17/2006	0	A	<0.05 U
0611J037	IR02MW179A	03/17/2006	0	A	<0.05 U
0623D042	IR02MW179A	06/06/2006	0	A	<0.05 U
0649W038	IR02MW179A	12/08/2006	0	A	<0.05 U
0708L007	IR02MW179A	02/22/2007	0	A	<0.05 U
0720J056	IR02MW179A	05/16/2007	0	A	<0.05 UJ3
0732D010	IR02MW179A	08/10/2007	0	A	<0.05 U
0740D008	IR02MW179A	10/02/2007	0	A	<0.05 UJ3
0809P002	IR02MW179A	02/25/2008	0	A	<0.05 U
0817H037	IR02MW179A	04/21/2008	0	A	<0.05 U
0438C046	IR02MW209A	09/15/2004	0	A	<0.05 U
0438C047	IR02MW209A	09/15/2004	0	A	<0.05 UJ7
0449C023	IR02MW209A	11/29/2004	0	A	<0.05 U
0511G049	IR02MW209A	03/17/2005	0	A	<0.05 UJ3
0525G036	IR02MW209A	06/24/2005	0	A	<0.05 UJ3
0525G037	IR02MW209A	06/24/2005	0	A	<0.05 UJ
0539T036	IR02MW209A	09/26/2005	0	A	<0.05 UJ
0602H051	IR02MW209A	01/12/2006	0	A	<0.05 UJ

Table A2-12. Summary of Analytical Results for TBT *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Tributyltin (µg/L)
0611H036	IR02MW209A	03/17/2006	0	A	<0.05 UJ
0623P048	IR02MW209A	06/05/2006	0	A	<0.05 U
0636B016	IR02MW209A	9/6/2006	0	A	<0.05 U
0636B017	IR02MW209A	9/6/2006	0	A	<0.05 UJ
0649G049	IR02MW209A	12/8/2006	0	A	<0.05 UJ
0649G050	IR02MW209A	12/8/2006	0	A	<0.05 UJ
0708L006	IR02MW209A	2/22/2007	0	A	<0.05 U
0720J057	IR02MW209A	5/16/2007	0	A	<0.05 U
0732W009	IR02MW209A	8/10/2007	0	A	<0.05 U
0740W008	IR02MW209A	10/2/2007	0	A	<0.05 U
0808H012	IR02MW209A	2/21/2008	0	A	<0.05 U
8.17E+38	IR02MW209A	4/22/2008	0	A	<0.05 U
0438G050	IR02MW300A	9/15/2004	0	A	<0.05 U
0449C031	IR02MW300A	11/30/2004	0	A	<0.05 U
0511Z021	IR02MW300A	3/15/2005	0	A	<0.05 UJ3
0720J061	IR02MW301A	5/18/2007	0	A	<0.05 U
0732D009	IR02MW301A	8/10/2007	0	A	<0.05 U
0740D007	IR02MW301A	10/2/2007	0	A	<0.05 U
0808D007	IR02MW301A	2/21/2008	0	A	<0.05 U
0817G023	IR02MW301A	4/21/2008	0	A	<0.05 U
0449C029	IR02MWB-1	11/30/2004	0	A	<0.05 U
0510G027	IR02MWB-1	3/10/2005	0	A	<0.05 UJ5
0526T043	IR02MWB-1	6/28/2005	0	A	<0.05 UJ3
0538T025	IR02MWB-1	9/21/2005	0	A	<0.05 UJ
0602V039	IR02MWB-1	1/12/2006	0	A	<0.05 U
0611J034	IR02MWB-1	3/16/2006	0	A	<0.05 UJ
0622D019	IR02MWB-1	5/30/2006	0	A	<0.05 UJ
0636B015	IR02MWB-1	9/6/2006	0	A	<0.05 UJ
0649B029	IR02MWB-1	12/7/2006	0	A	<0.05 U
0709W025	IR02MWB-1	2/28/2007	0	A	<0.05 U
0720N009	IR02MWB-1	5/17/2007	0	A	<0.05 U
0733J013	IR02MWB-1	8/13/2007	0	A	<0.05 U
0741G029	IR02MWB-1	10/10/2007	0	A	<0.05 U
8.08E+13	IR02MWB-1	2/21/2008	0	A	<0.05 U
8.17E+34	IR02MWB-1	4/21/2008	0	A	<0.05 U
0438B044	IR02MWB-2	9/14/2004	0	A	<0.05 UJ3
0448P009	IR02MWB-2	11/22/2004	0	A	<0.05 U
0448P010	IR02MWB-2	11/22/2004	0	A	<0.05 UJ3
0438C055	IR02MWB-3	9/17/2004	0	A	<0.05 U
0448C019	IR02MWB-3	11/23/2004	0	A	<0.05 U
0511G047	IR02MWB-3	3/15/2005	0	A	<0.05 U
0511R050	IR05MW85A	3/17/2005	0	A	<0.05 UJ7
0438J031	IR11MW27A	9/15/2004	0	A	<0.05 U

Table A2-12. Summary of Analytical Results for TBT *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sample ID No.	Location ID No.	Sample Date	Depth (feet bgs)	Aquifer	Tributyltin (µg/L)
0511T037	IR11MW27A	3/15/2005	0	A	<0.05 UJ3
0526D038	IR11MW27A	6/29/2005	0	A	<0.05 UJ3
0602J042	IR11MW27A	1/9/2006	0	A	<0.05 UJ
0611H033	IR11MW27A	3/17/2006	0	A	<0.05 UJ
0623S022	IR11MW27A	6/7/2006	0	A	<0.05 UJ
0635M020	IR11MW27A	8/28/2006	0	A	<0.05 UJ
0709Z030	IR11MW27A	3/2/2007	0	A	<0.05 U
0720A058	IR11MW27A	5/18/2007	0	A	<0.05 U

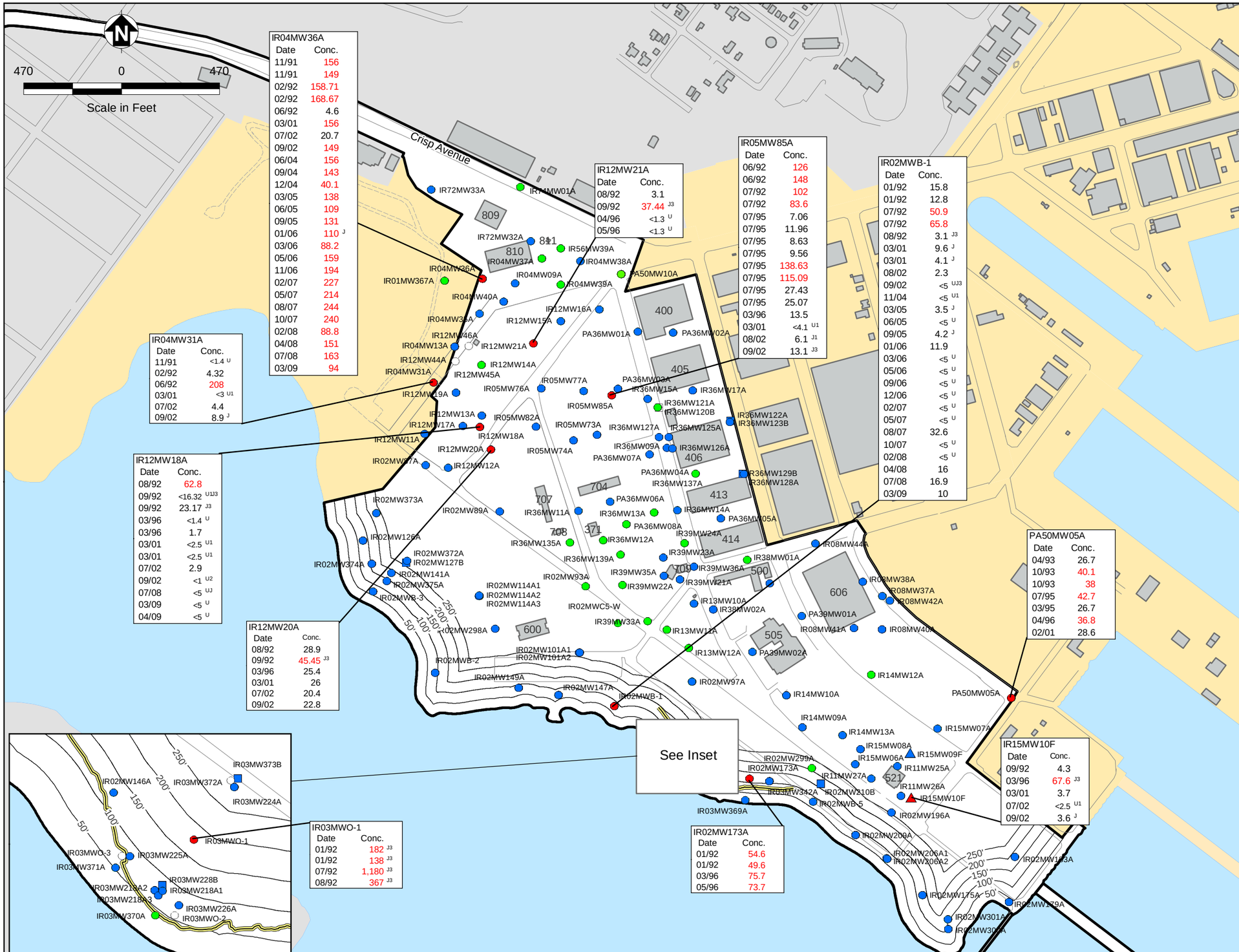
Notes:

µg/L micrograms per liter

bgs below ground surface

TBT tributyltin

Attachment A3. Aquatic Evaluation Maps



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for wells where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquatic evaluation criterion for Arsenic = 36 µg/L
B-Aquifer aquatic evaluation criterion for Arsenic = 36 µg/L
Bedrock WBZ aquatic evaluation criterion for Arsenic = 36 µg/L

IR01MWLF1A — Well ID
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57
Sample Date (mm/yy) — Chemical Concentration (µg/L)

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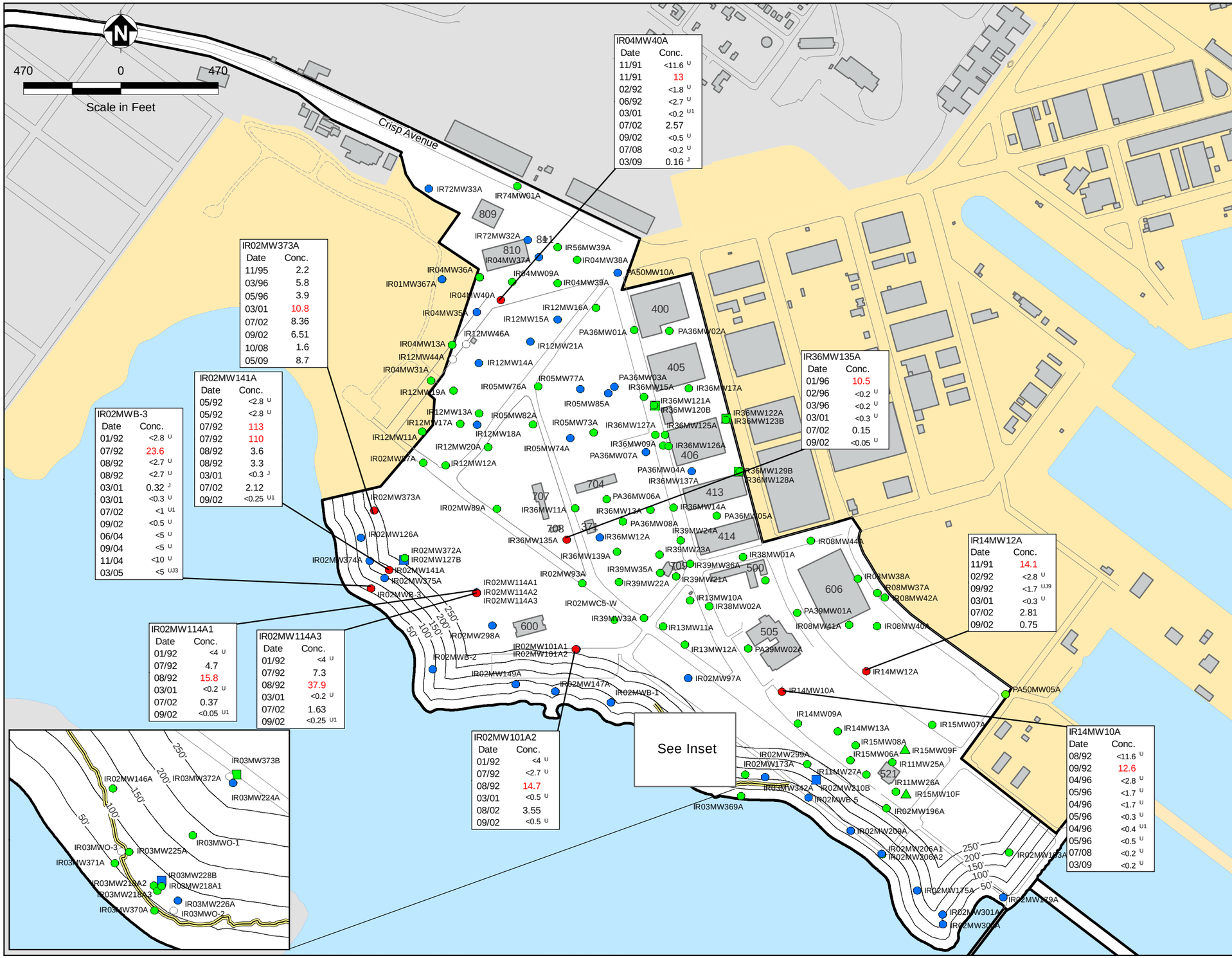
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-1

EVALUATION OF ARSENIC IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Arsenic.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquatic evaluation criterion for Cadmium = 8.8 µg/L
B-Aquifer aquatic evaluation criterion for Cadmium = 8.8 µg/L
Bedrock WBZ aquatic evaluation criterion for Cadmium = 8.8 µg/L

IR01MWLF1A	
Date	Conc
07/04	2.1
09/04	8.4
11/04	2.5
03/05	0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

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Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-2

EVALUATION OF CADMIUM IN GROUNDWATER

Feasibility Study Report for Parcel E

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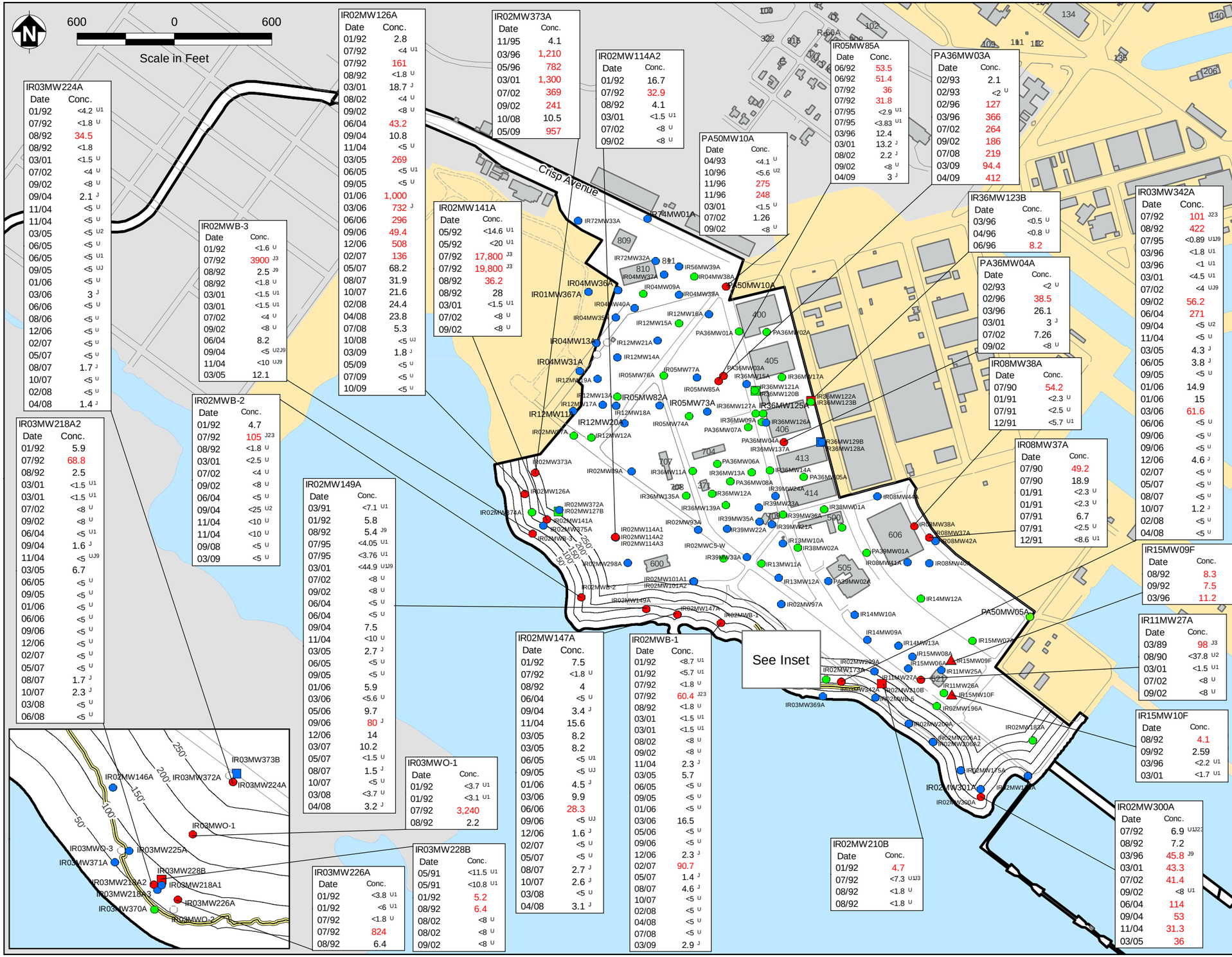

- A-aquifer Well
- B-aquifer Well
- Bedrock WBZ Well
- Not Analyzed for Analyte
- Analyte Not Detected
- Analyte Exceeds Reporting Limit
- Analyte Exceeds Criterion
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- San Francisco Bay
- Building
- Sheet Pile Wall
- Road
- Gravel Road
- 50' Distance from Shoreline (in feet)

Notes:
Results are shown for wells where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquatic evaluation criterion for Copper = 28.0 µg/L
B-Aquifer aquatic evaluation criterion for Copper = 3.1 µg/L
Bedrock WBZ aquatic evaluation criterion for Copper = 3.1 µg/L

IR01MWLF1A — Well ID
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57
Sample Date (mm/yy) → Date
Chemical Concentration (µg/L) → Conc

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Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-3

EVALUATION OF COPPER IN GROUNDWATER

Feasibility Study Report for Parcel E

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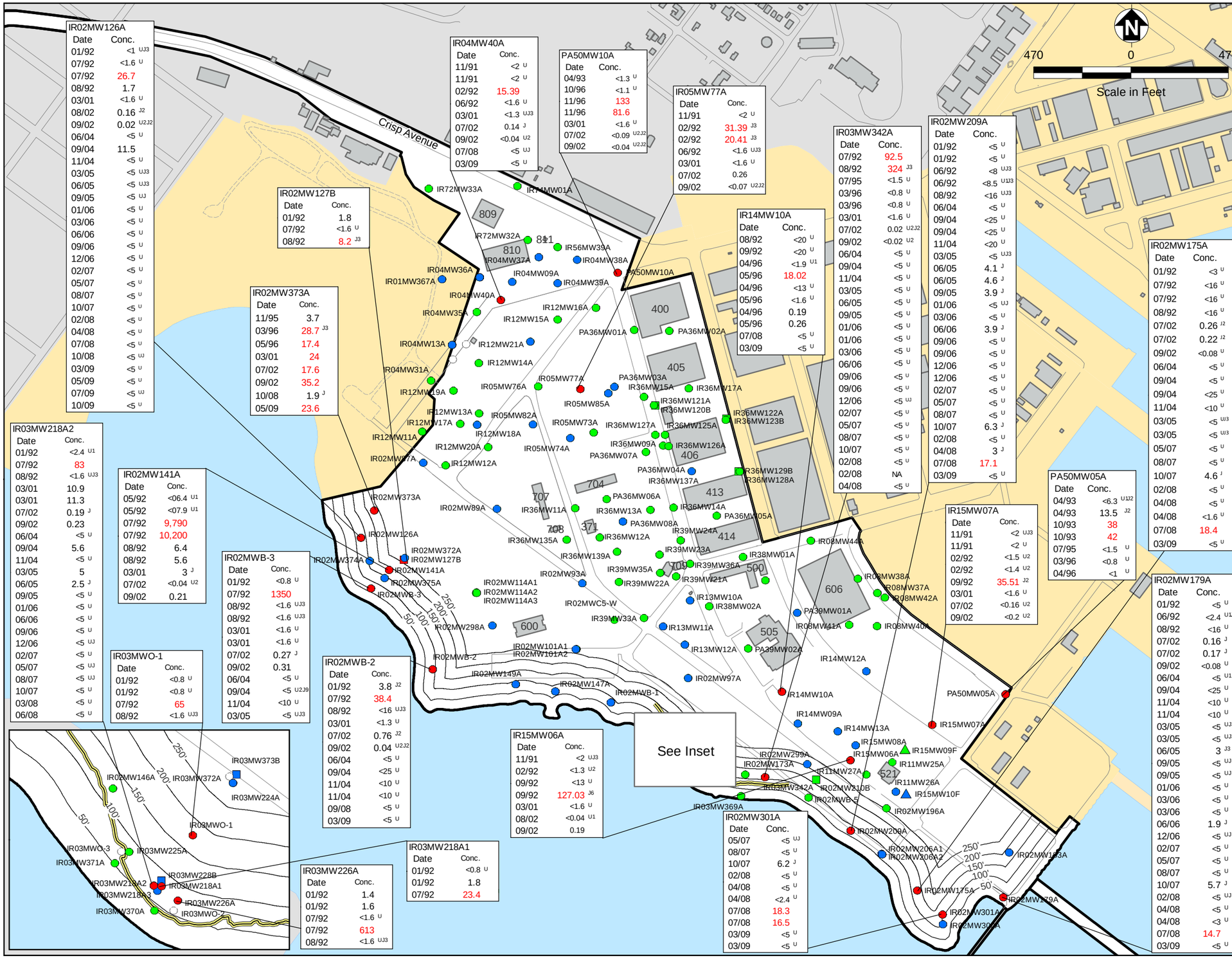


A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for wells where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquatic evaluation criterion for Lead = 14.4 µg/L
B-Aquifer aquatic evaluation criterion for Lead = 8.1 µg/L
Bedrock WBZ aquatic evaluation criterion for Lead = 8.1 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

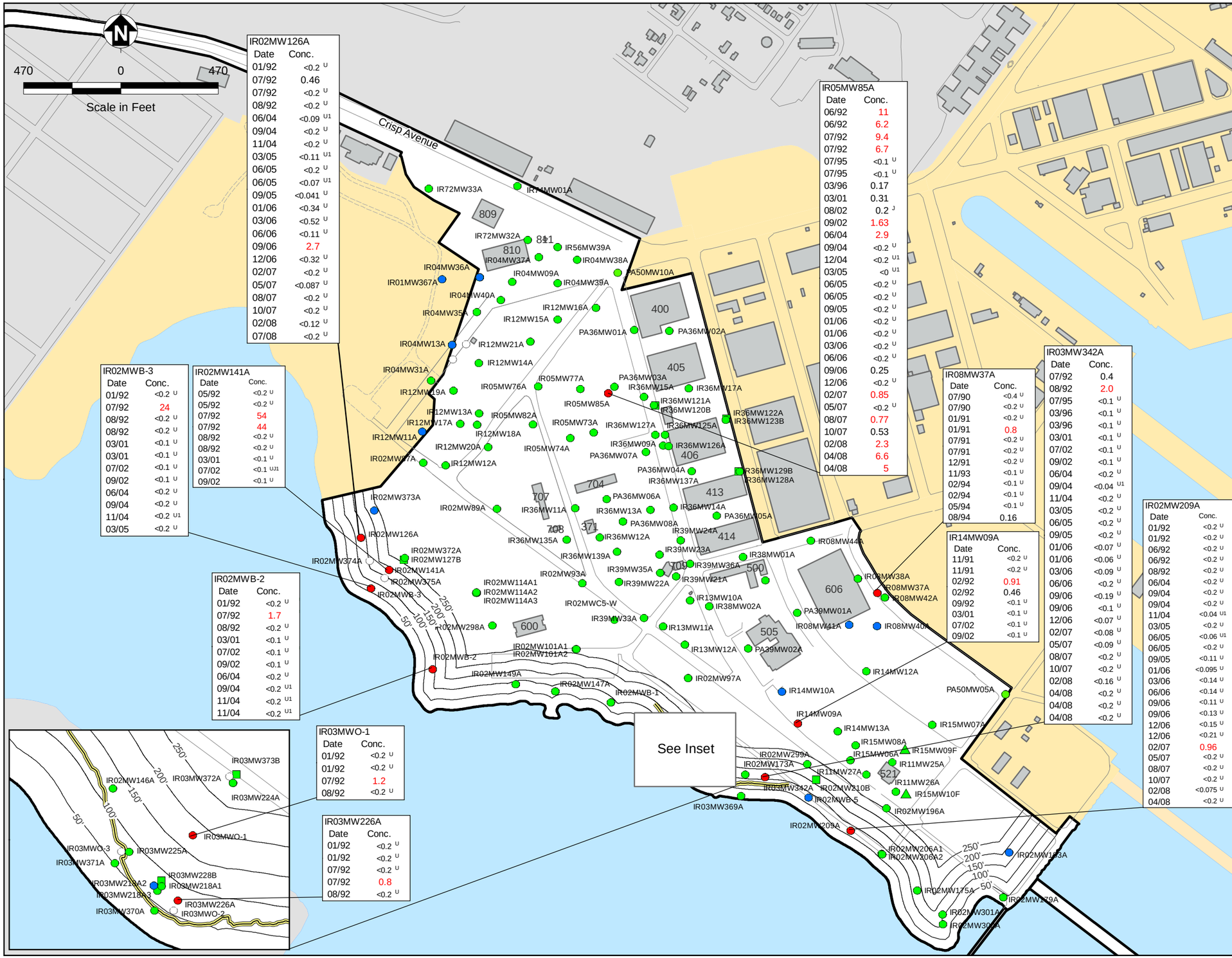
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-4

EVALUATION OF LEAD IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Lead.mxd Last updated: 8/21/2012 at 2:43:27 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquatic evaluation criterion for Mercury = 0.60 µg/L
B-Aquifer aquatic evaluation criterion for Mercury = 0.025 µg/L
Bedrock WBZ aquatic evaluation criterion for Mercury = 0.025 µg/L

IR01MWLF1A (Well ID)
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Sample Date (mm/yy) → Date; Chemical Concentration (µg/L) → Conc

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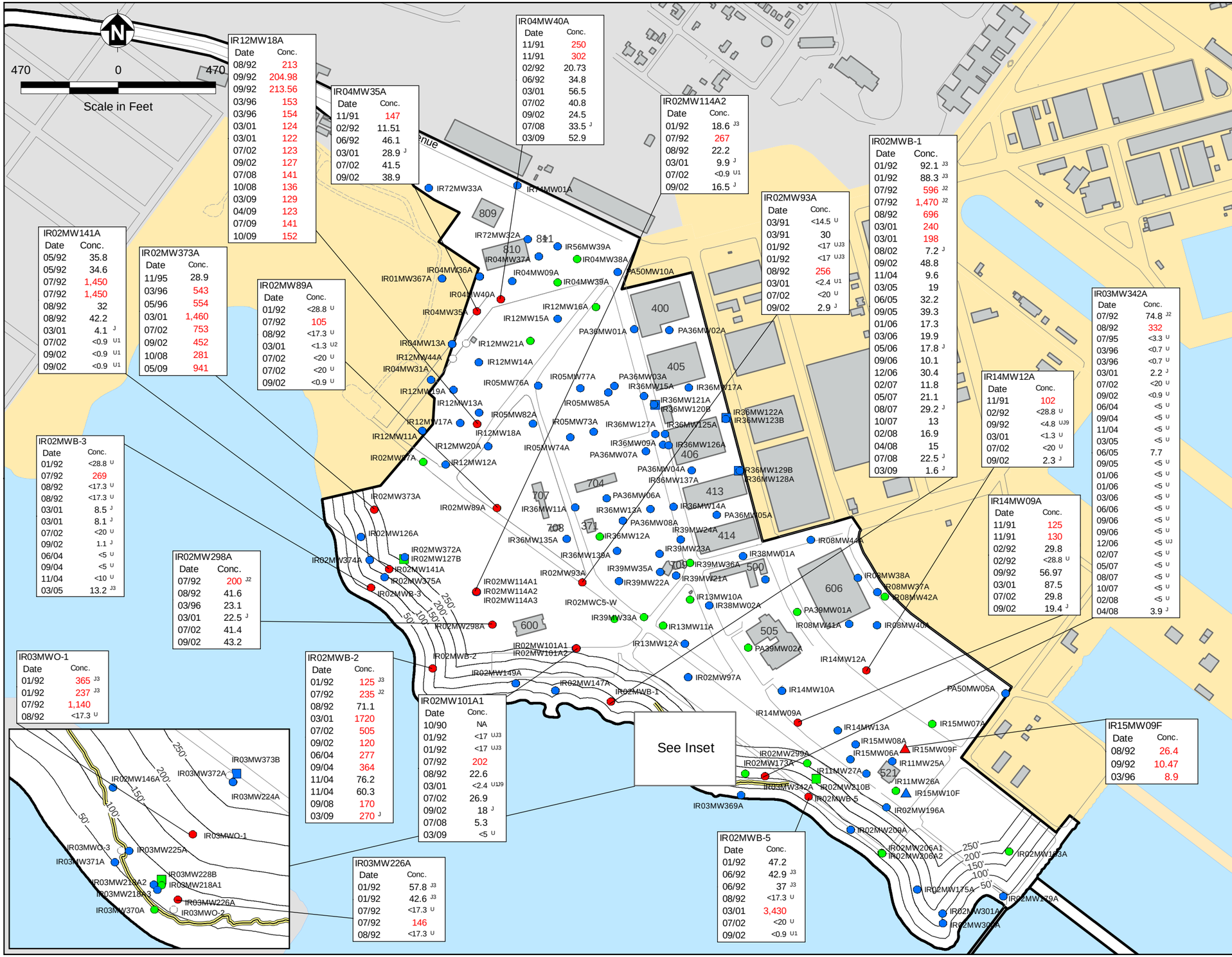
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-5

EVALUATION OF MERCURY IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Mercury.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for wells where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquatic evaluation criterion for Nickel = 96.5 µg/L
B-Aquifer aquatic evaluation criterion for Nickel = 8.2 µg/L
Bedrock WBZ aquatic evaluation criterion for Nickel = 8.2 µg/L

IR01MWLF1A ← Well ID
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57
Sample Date (mm/yy) → 11/04
Chemical Concentration (µg/L) → 2.5

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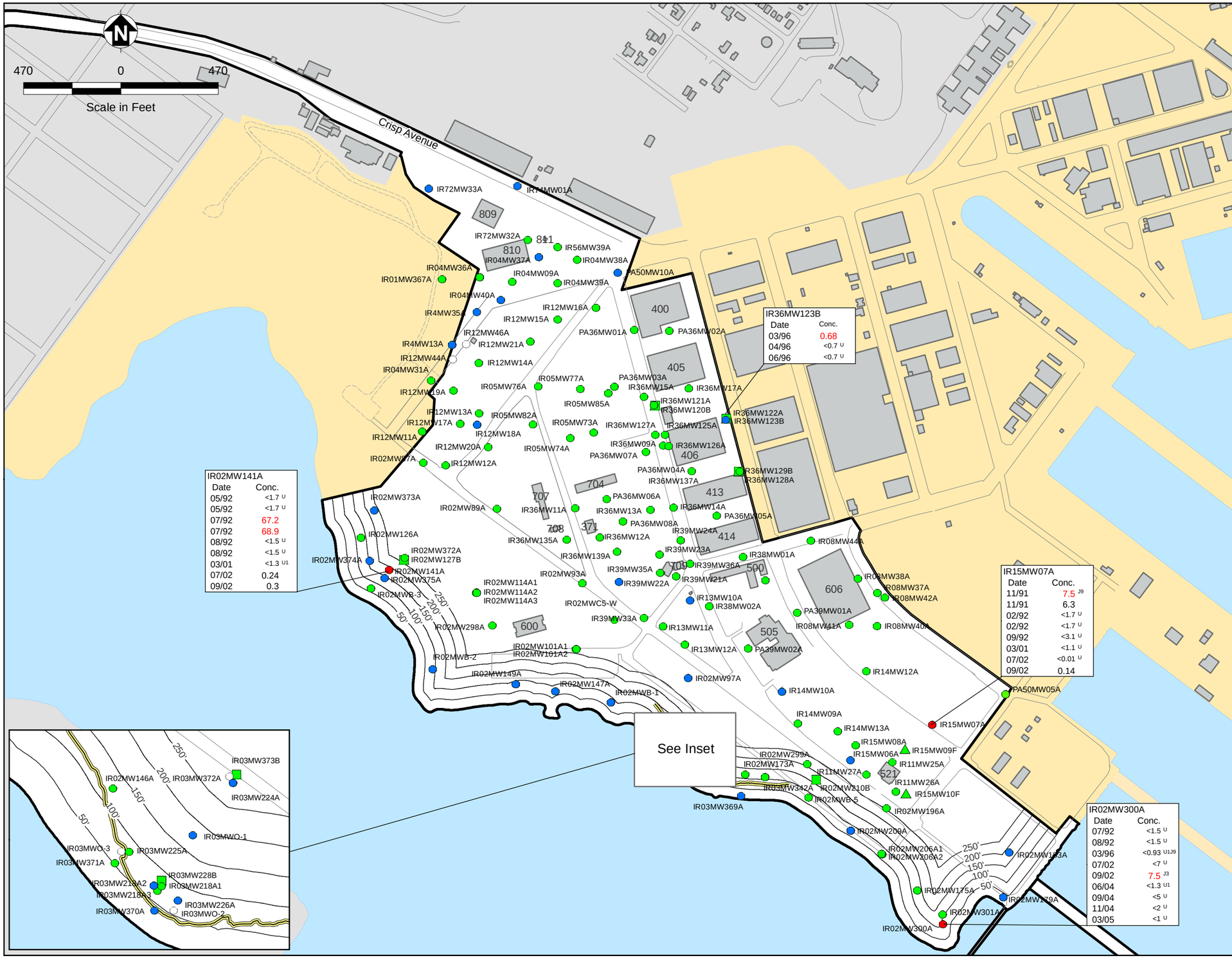
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-6

EVALUATION OF NICKEL IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Nickel.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquaticevaluation criterion for Silver = 7.43 µg/L
B-Aquifer aquatic evaluation criterion for Silver = 0.38 µg/L
Bedrock WBZ aquatic evaluation criterion for Silver = 0.38 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

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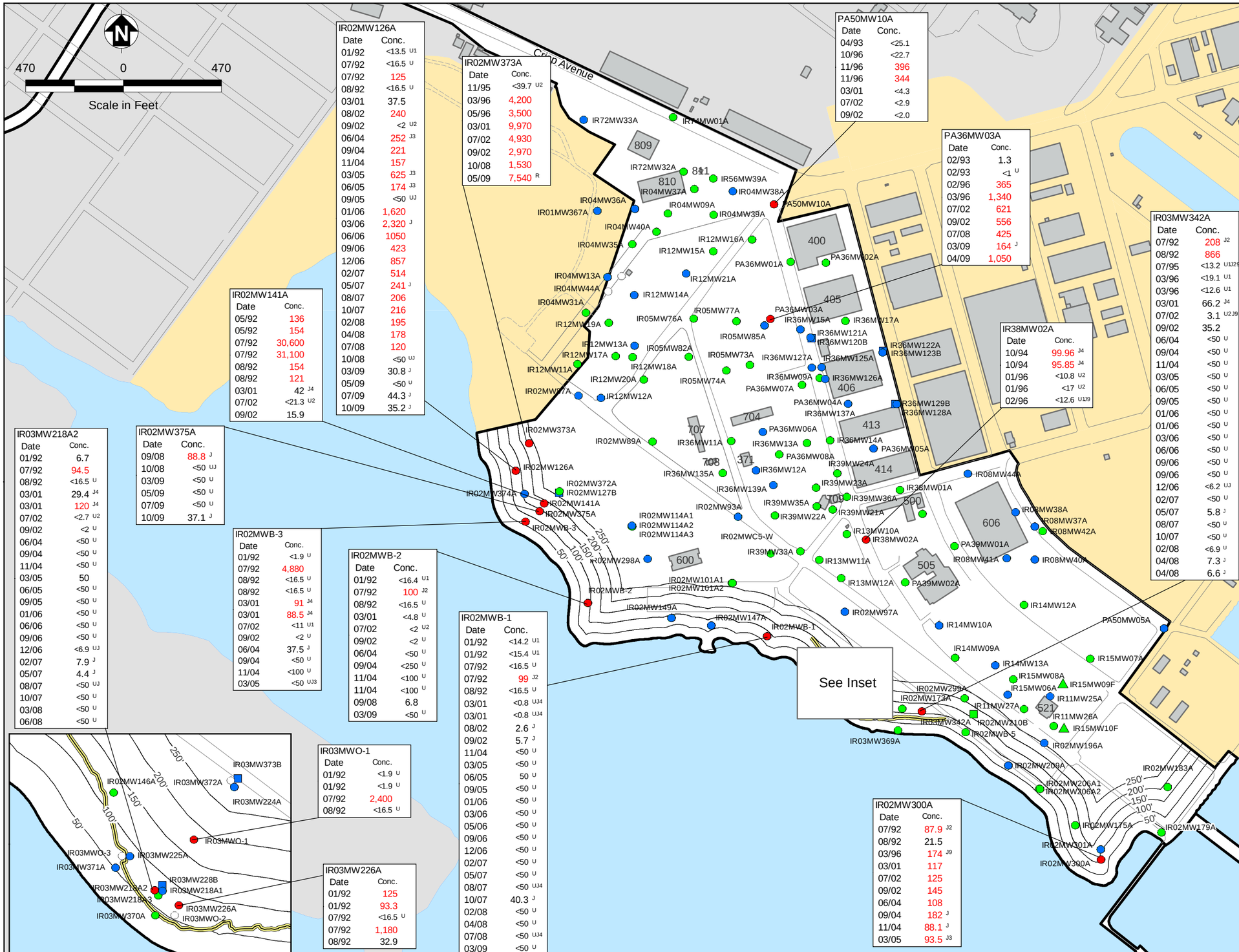
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-7

EVALUATION OF SILVER IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Silver.mxd Last updated: 8/21/2012 at 2:52:35 PM



Notes:
Results are shown for wells where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

A-Aquifer aquatic evaluation criterion for Zinc = 81 µg/L
B-Aquifer aquatic evaluation criterion for Zinc = 81 µg/L
Bedrock WBZ aquatic evaluation criterion for Zinc = 81 µg/L

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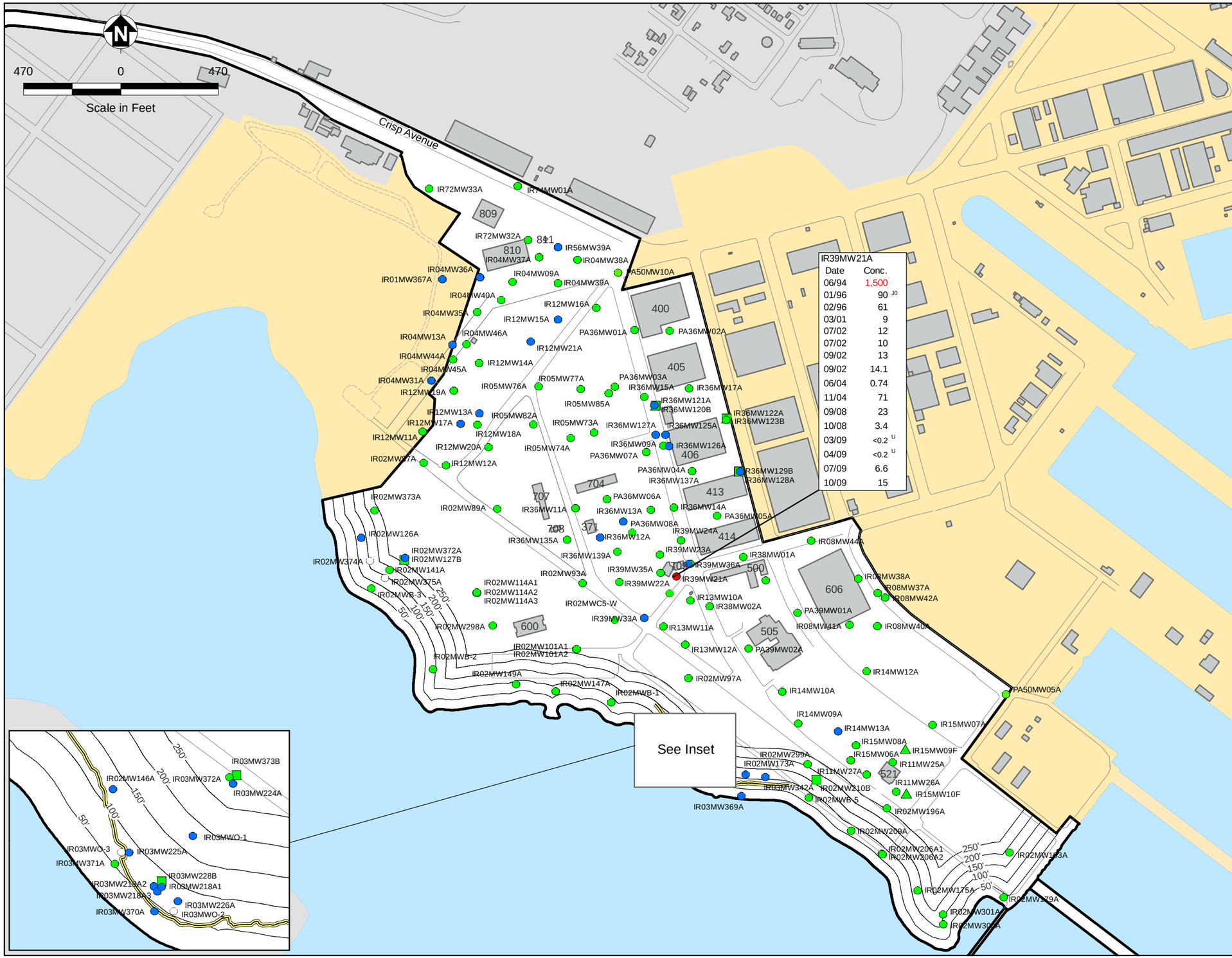
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-8

EVALUATION OF ZINC IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Zinc.mxd Last updated: 8/21/2012 at 2:55:39 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Benzene= 700 µg/L

IR01MWLF1A (Well ID)

Date	Conc
07/04	2.1
09/04	8.4
11/04	2.5
03/05	0.57

Sample Date (mm/yy) — Chemical Concentration (µg/L)

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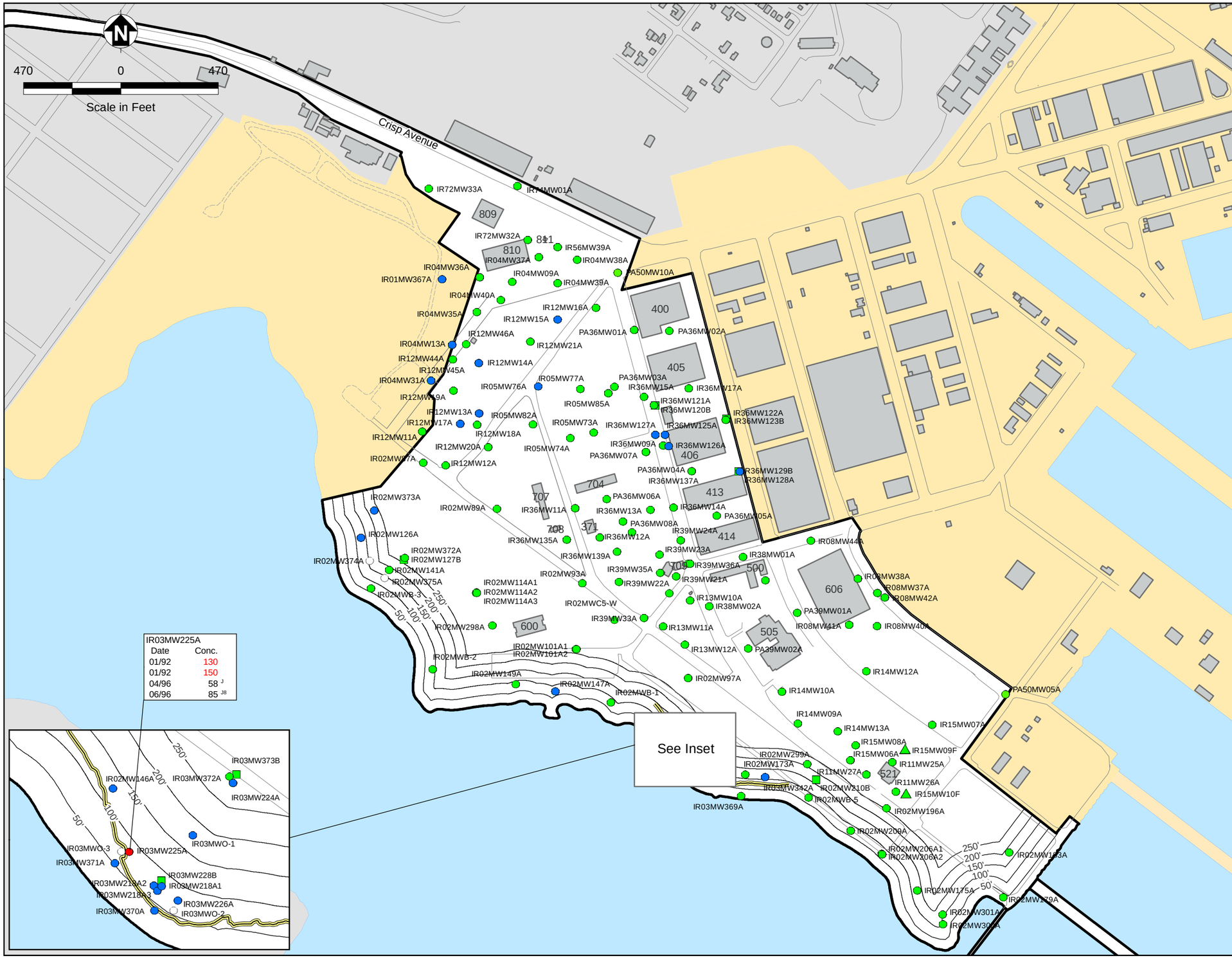
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-9

EVALUATION OF BENZENE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Benzene.mxd Last updated: 8/22/2012 at 10:10:41 AM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Chlorobenzene = 129 µg/L

IR01MWLF1A (Well ID)
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Sample Date (mm/yy)
Chemical Concentration (µg/L)

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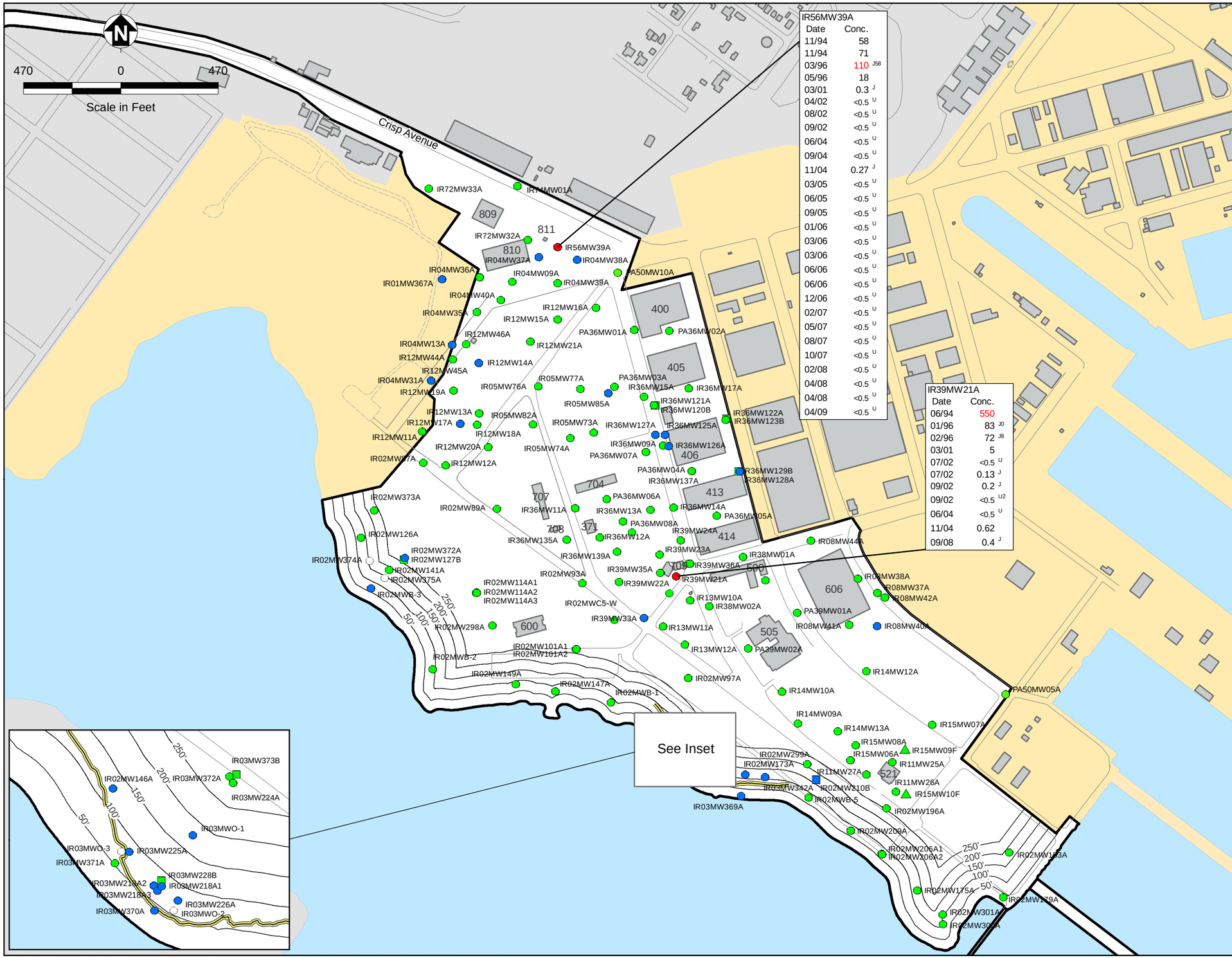
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-10

EVALUATION OF CHLOROBENZENE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Chlorobenzene.mxd Last updated: 8/21/2012 at 3:02:09 PM



IR56MW39A	
Date	Conc.
11/94	58
11/94	71
03/96	110 J58
05/96	18
03/01	0.3 J
04/02	<0.5 U
08/02	<0.5 U
09/02	<0.5 U
06/04	<0.5 U
09/04	<0.5 U
11/04	0.27 J
03/05	<0.5 U
06/05	<0.5 U
09/05	<0.5 U
01/06	<0.5 U
03/06	<0.5 U
03/06	<0.5 U
06/06	<0.5 U
06/06	<0.5 U
12/06	<0.5 U
02/07	<0.5 U
05/07	<0.5 U
08/07	<0.5 U
10/07	<0.5 U
02/08	<0.5 U
04/08	<0.5 U
04/08	<0.5 U
04/09	<0.5 U

IR39MW21A	
Date	Conc.
06/94	550
01/96	83 J0
02/96	72 J8
03/01	5
07/02	<0.5 U
07/02	0.13 J
09/02	0.2 J
09/02	<0.5 U2
06/04	<0.5 U
11/04	0.62
09/08	0.4 J

A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Ethylbenzene = 86 µg/L

IR01MWLF1A	
Date	Conc
07/04	2.1
09/04	8.4
11/04	2.5
03/05	0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

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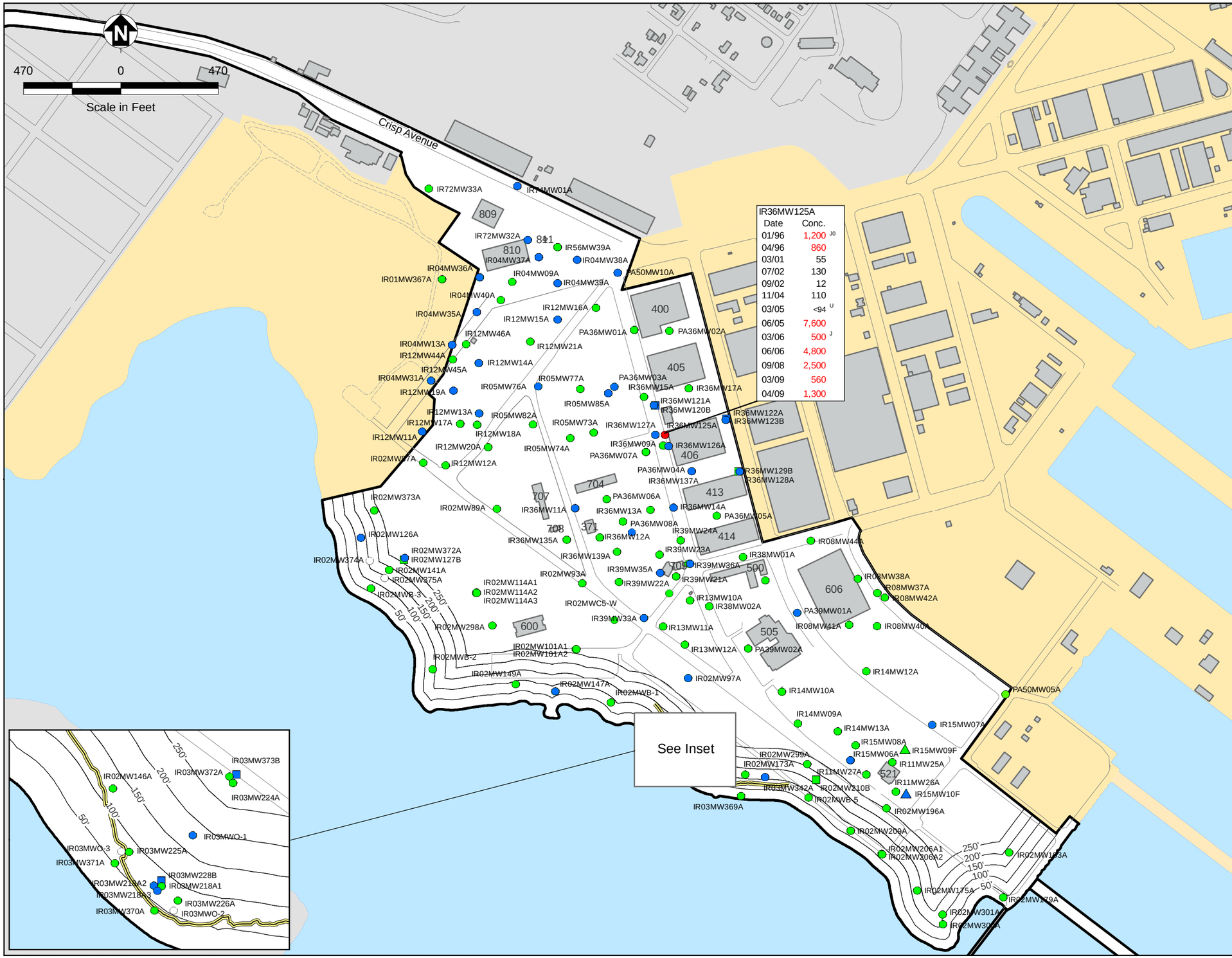
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-11

EVALUATION OF ETHYLBENZENE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Ethylbenzene.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Trichloroethene = 400 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

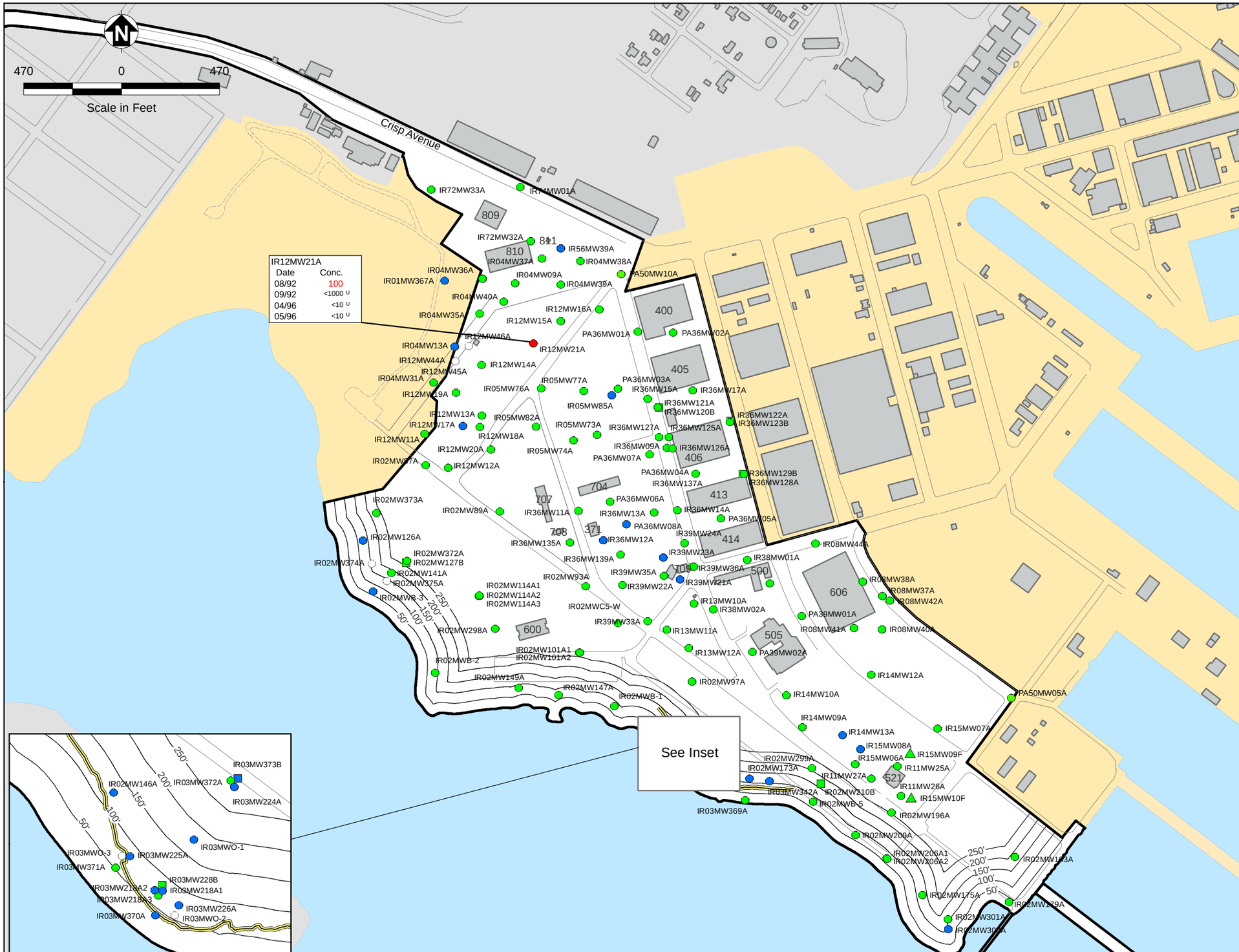
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-12

EVALUATION OF TRICHLOROETHENE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\TCE.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Fluorene = 60 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

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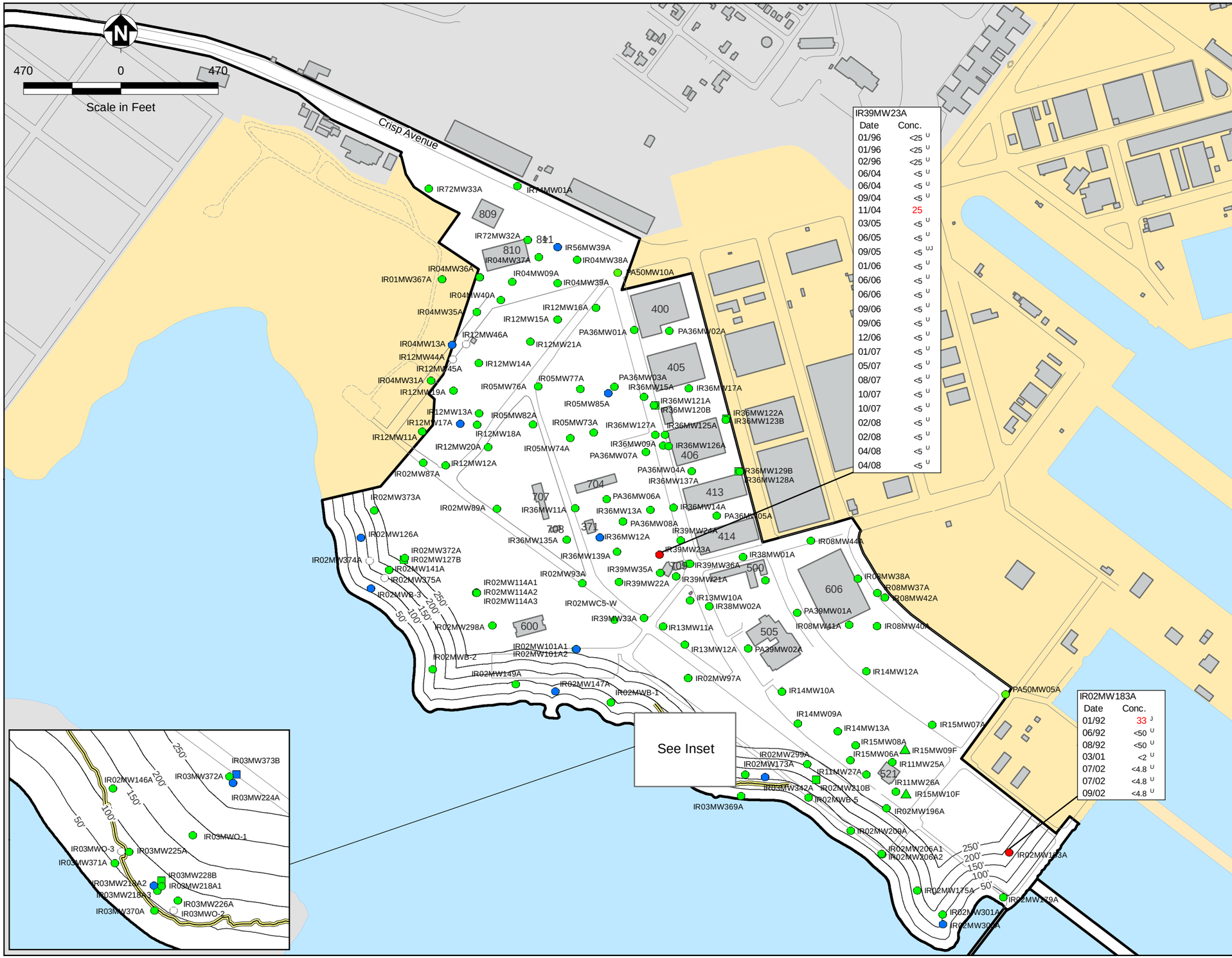
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-13

EVALUATION OF FLUORENE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Fluorene.mxd Last updated: 8/22/2012 at 10:29:12 AM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Pentachlorophenol = 7.9 µg/L

IR01MWLF1A — Well ID
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

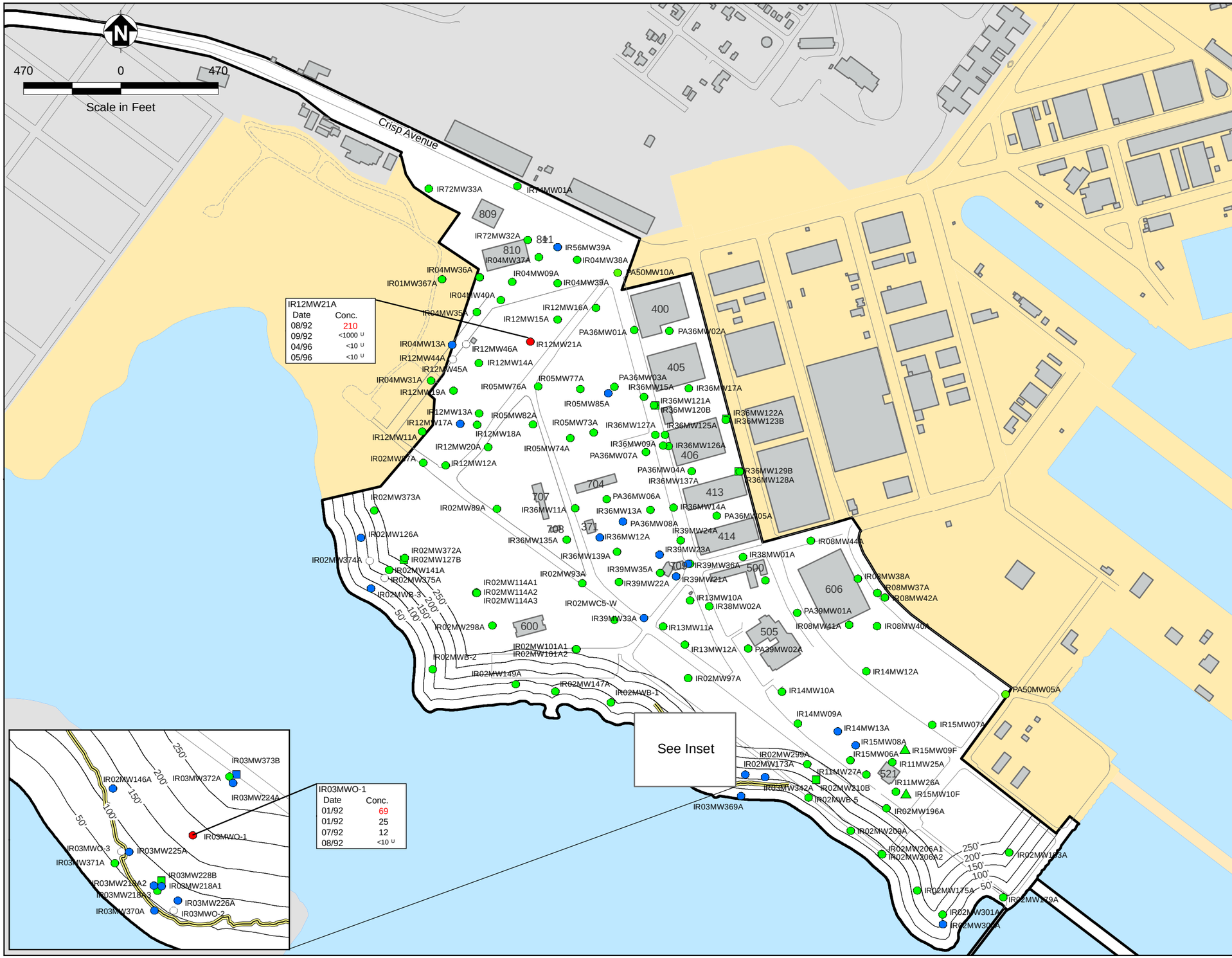
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-14

EVALUATION OF PENTACHLOROPHENOL IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Pentachlorophenol.mxd Last updated: 8/21/2012 at 3:15:08 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Phenanthrene = 60 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

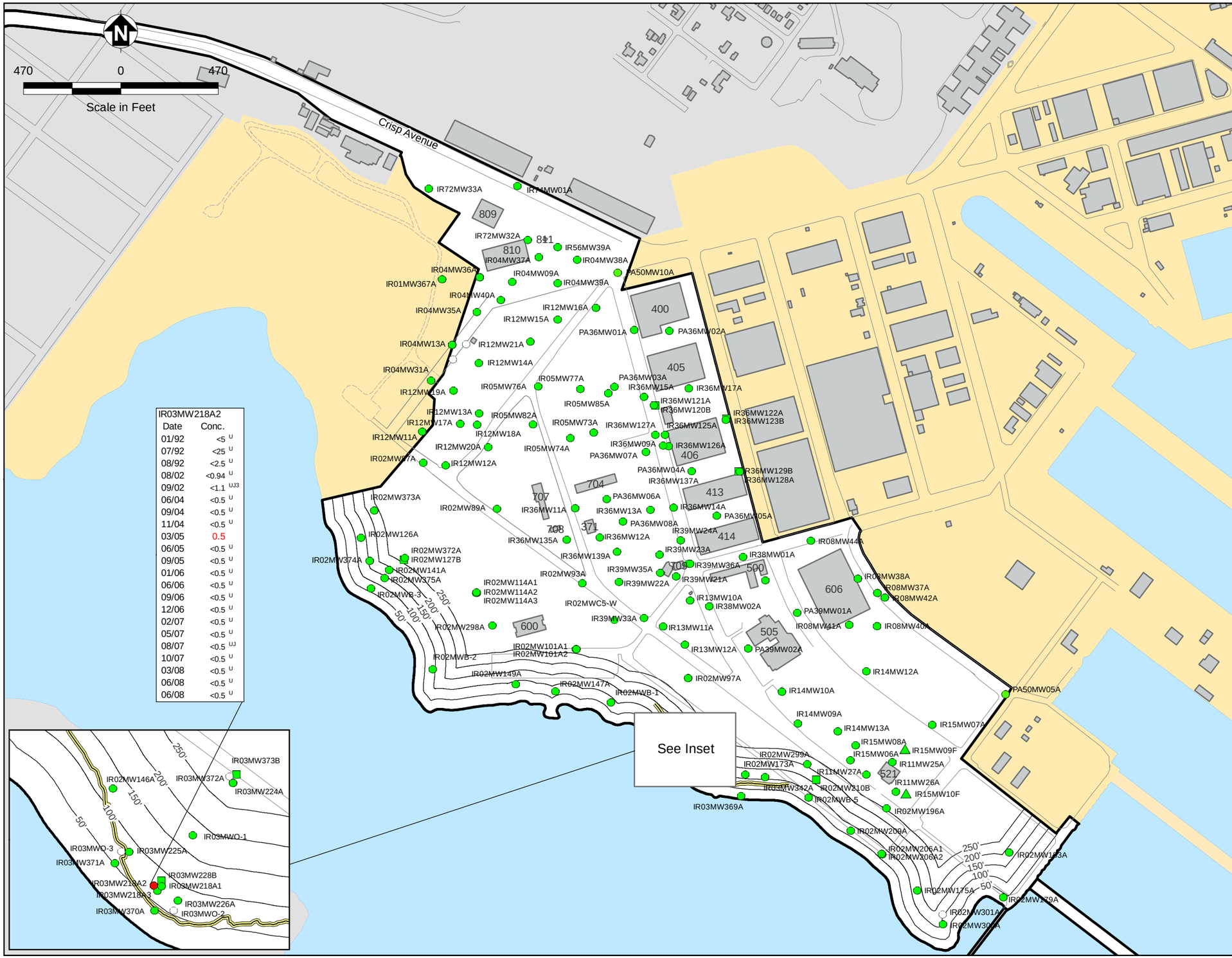
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-15

EVALUATION OF PHENANTHRENE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Phenanthrene.mxd Last updated: 8/21/2012 at 3:17:47 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Aroclor-1221 = 0.03 µg/L

IR01MWLF1A ← Well ID
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57
Sample Date (mm/yy) → Date
Chemical Concentration (µg/L) ← Conc

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

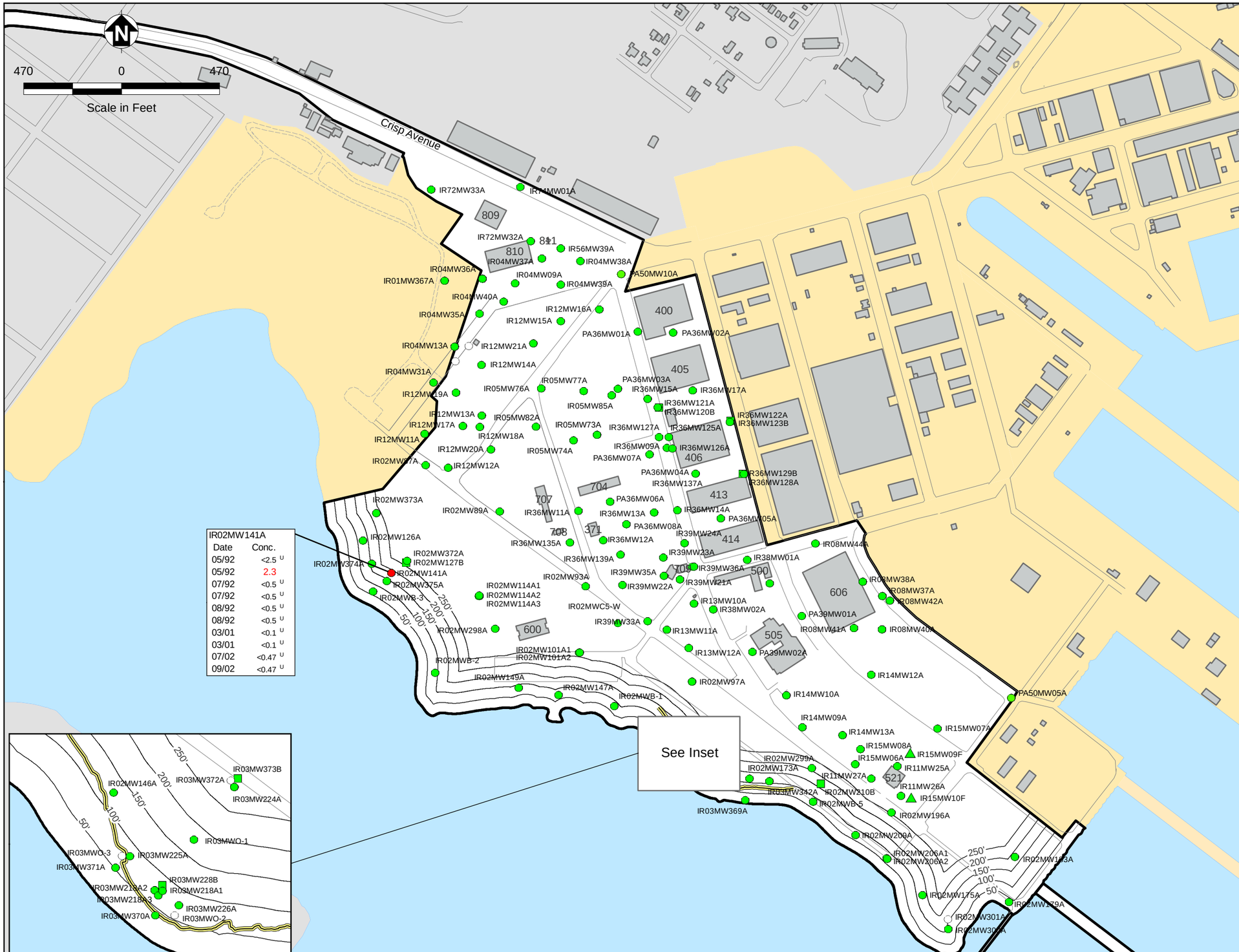
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-16

EVALUATION OF AROCLOR-1221 IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Aroclor-1221.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Aroclor-1242= 0.03 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

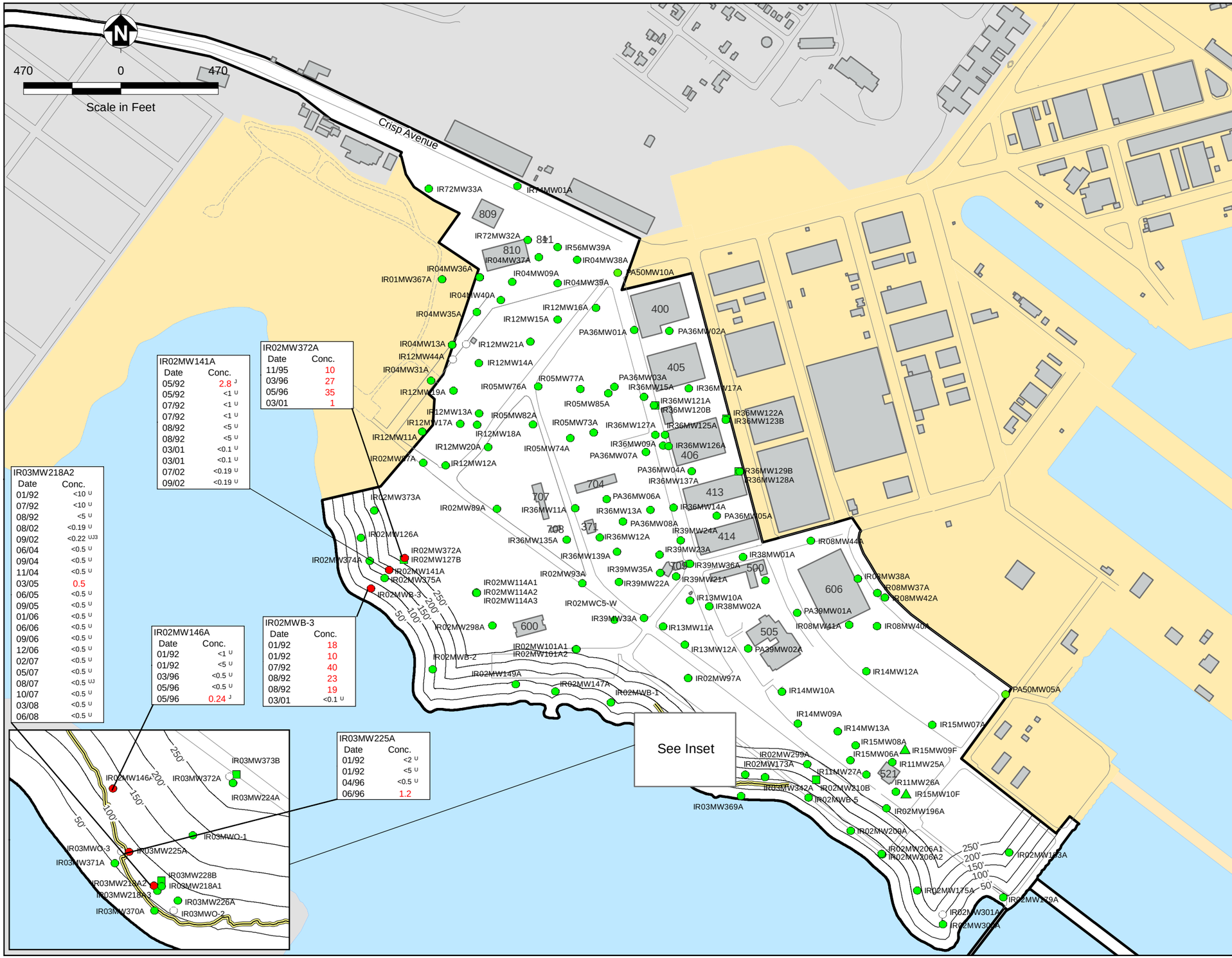
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-17

EVALUATION OF AROCLOR-1242 IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Aroclor-1242.mxd Last updated: 8/21/2012 at 3:23:55 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Aroclor-1254 = 0.03 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

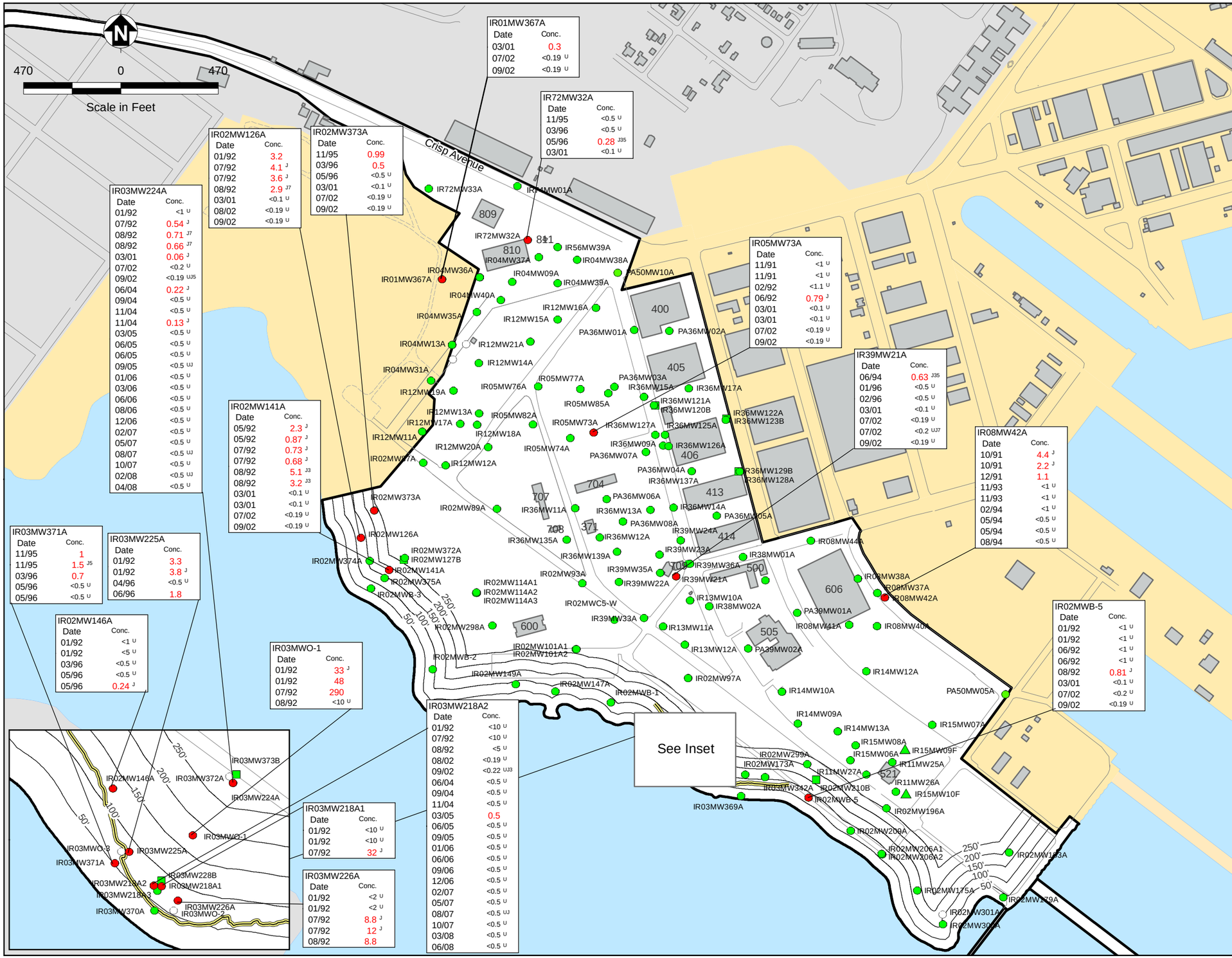
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-18

EVALUATION OF AROCLOR-1254 IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Aroclor-1254.mxd Last updated: 8/21/2012 at 3:28:54 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Aroclor-1260 = 0.03 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Chemical Concentration (µg/L)
Sample Date (mm/yy)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

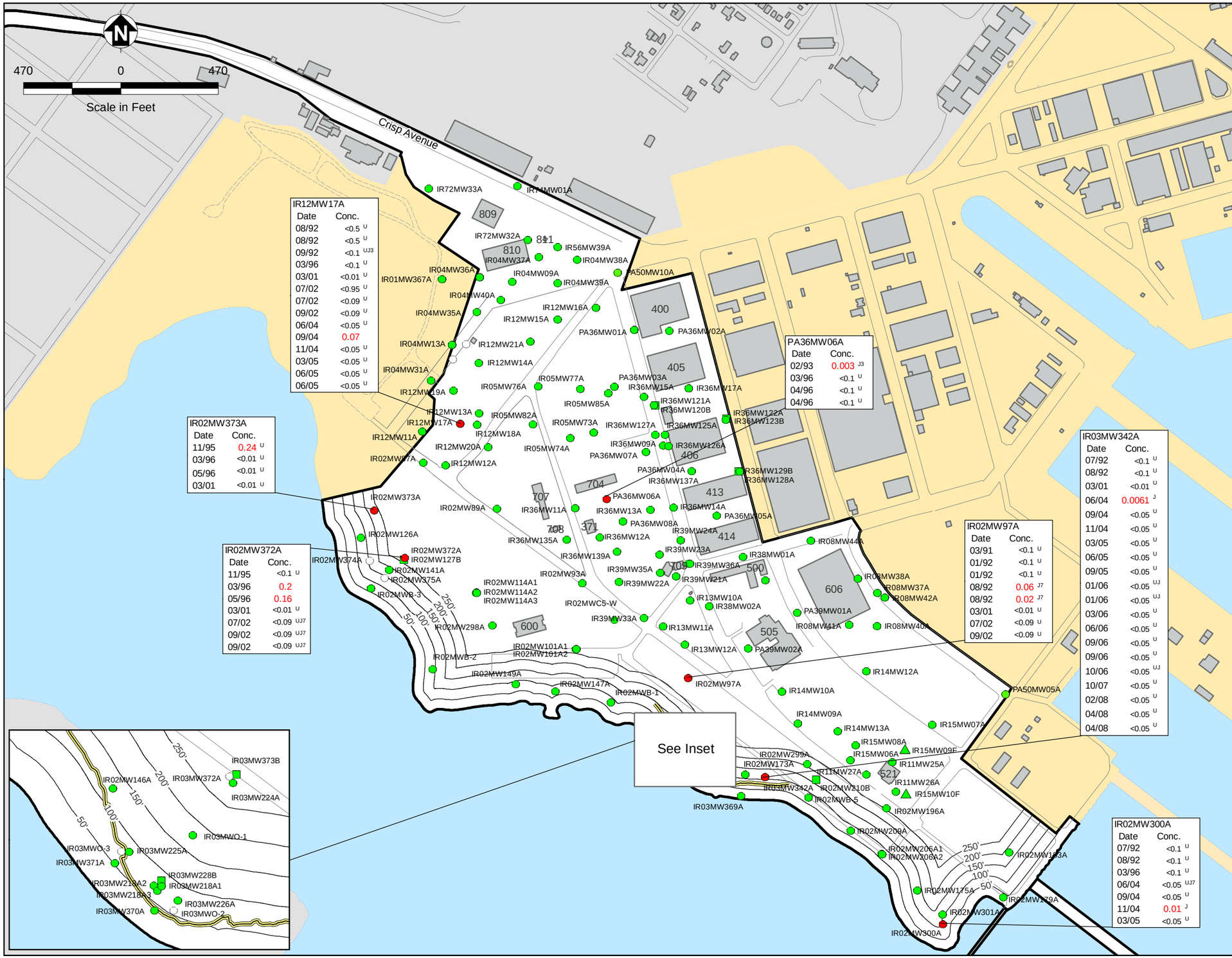
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-19

EVALUATION OF AROCLOR-1260 IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Aroclor-1260.mxd Last updated: 8/21/2012 at 3:31:29 PM



Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
DDD = dichlorodiphenyldichloroethane
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for 4,4'-DDD= 0.001 µg/L

IR01MWLF1A — Well ID
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Sample Date (mm/yy) → Date
Chemical Concentration (µg/L) → Conc

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

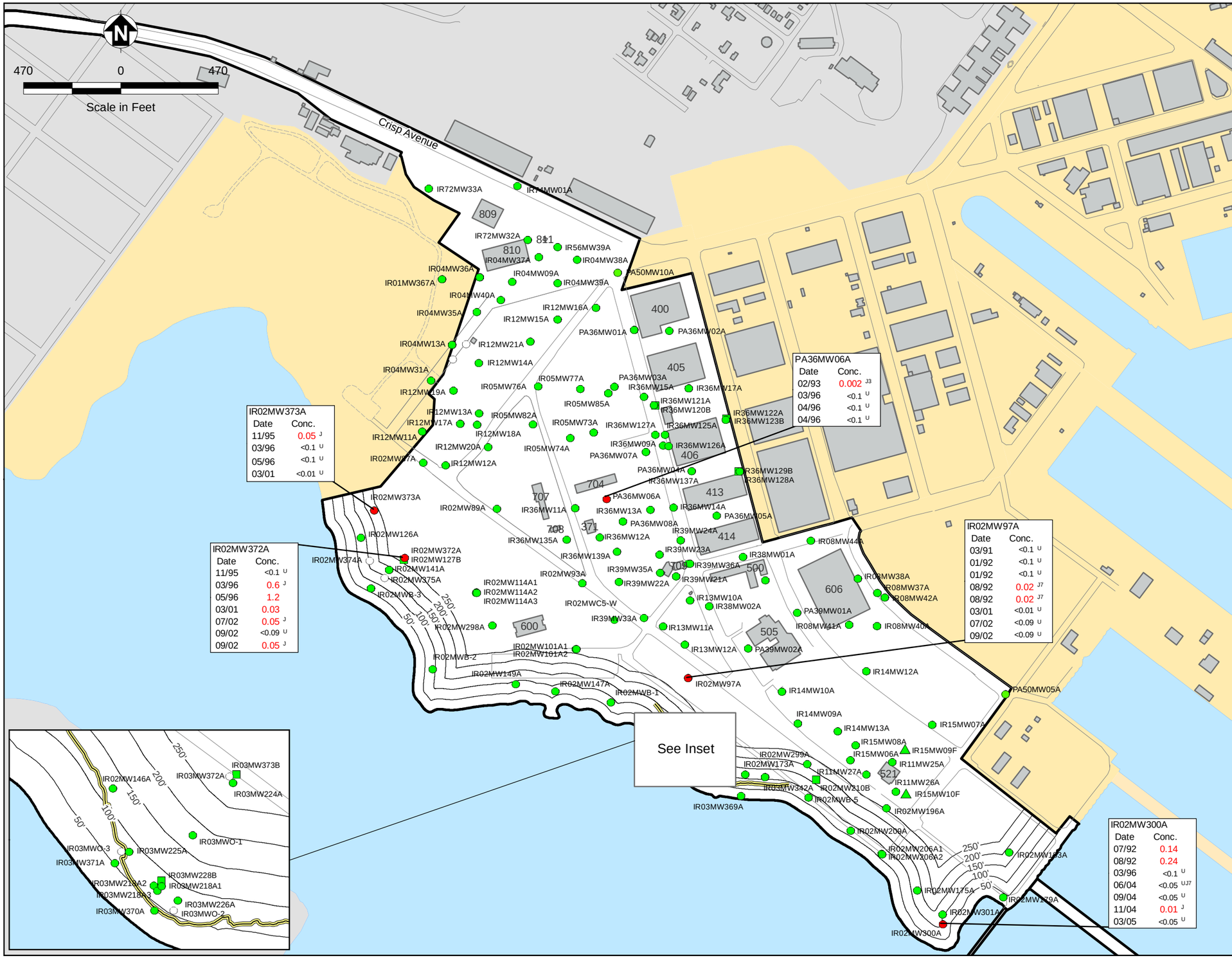
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-20

EVALUATION OF 4,4'-DDD IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\DDD.mxd Last updated: 8/21/2012 at 3:33:58 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
DDE = dichlorodiphenyldichloroethylene
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for 4,4'-DDE= 0.001 µg/L

IR01MWLF1A ← Well ID

Date	Conc
07/04	2.1
09/04	8.4
11/04	2.5
03/05	0.57

Sample Date (mm/yy) → Date
Chemical Concentration (µg/L) ← Conc

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

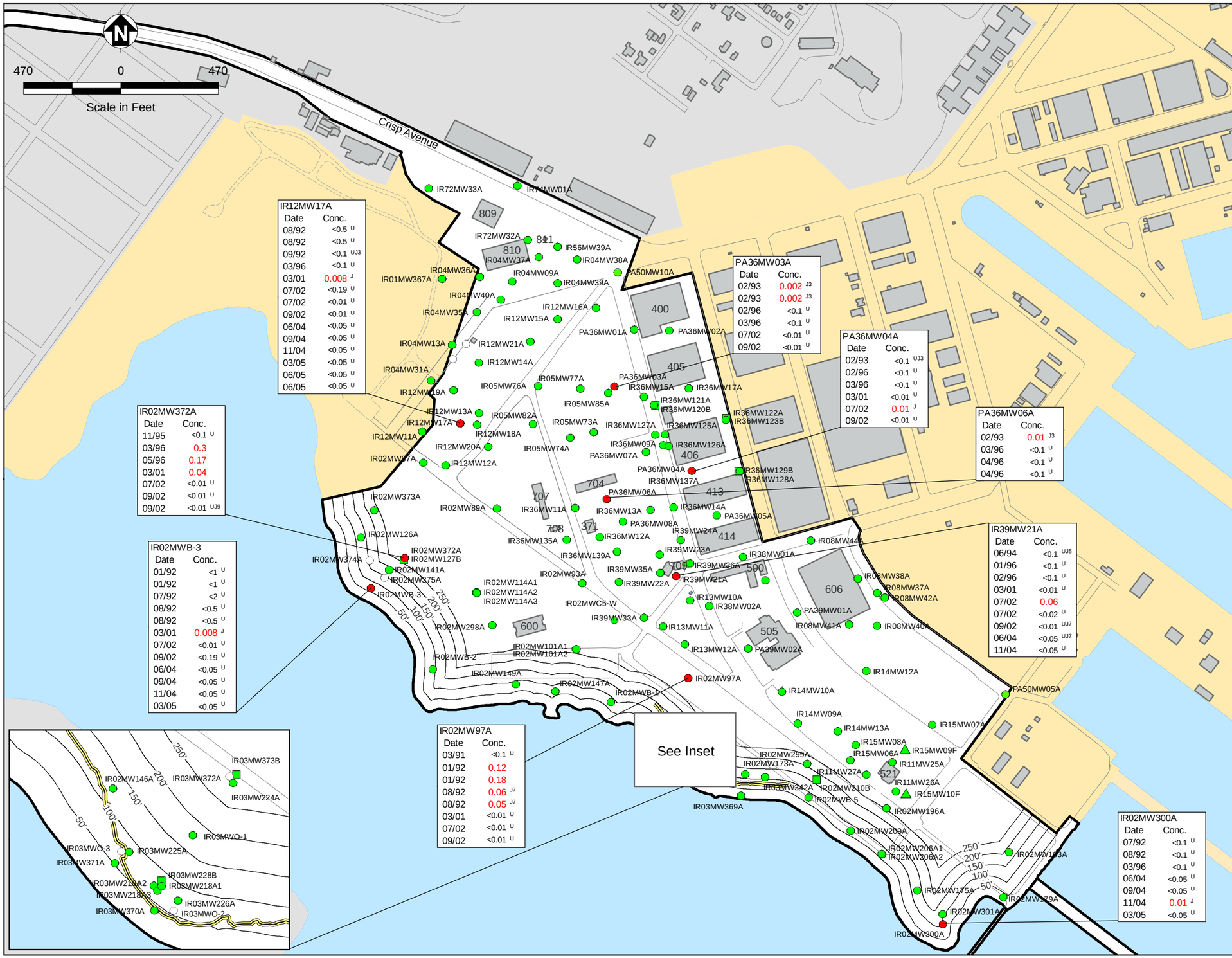
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-21

EVALUATION OF 4,4'-DDE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\DDE.mxd Last updated: 8/21/2012 at 3:44:31 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
DDT = dichlorodiphenyltrichloroethane
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for 4,4'-DDT= 0.001 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

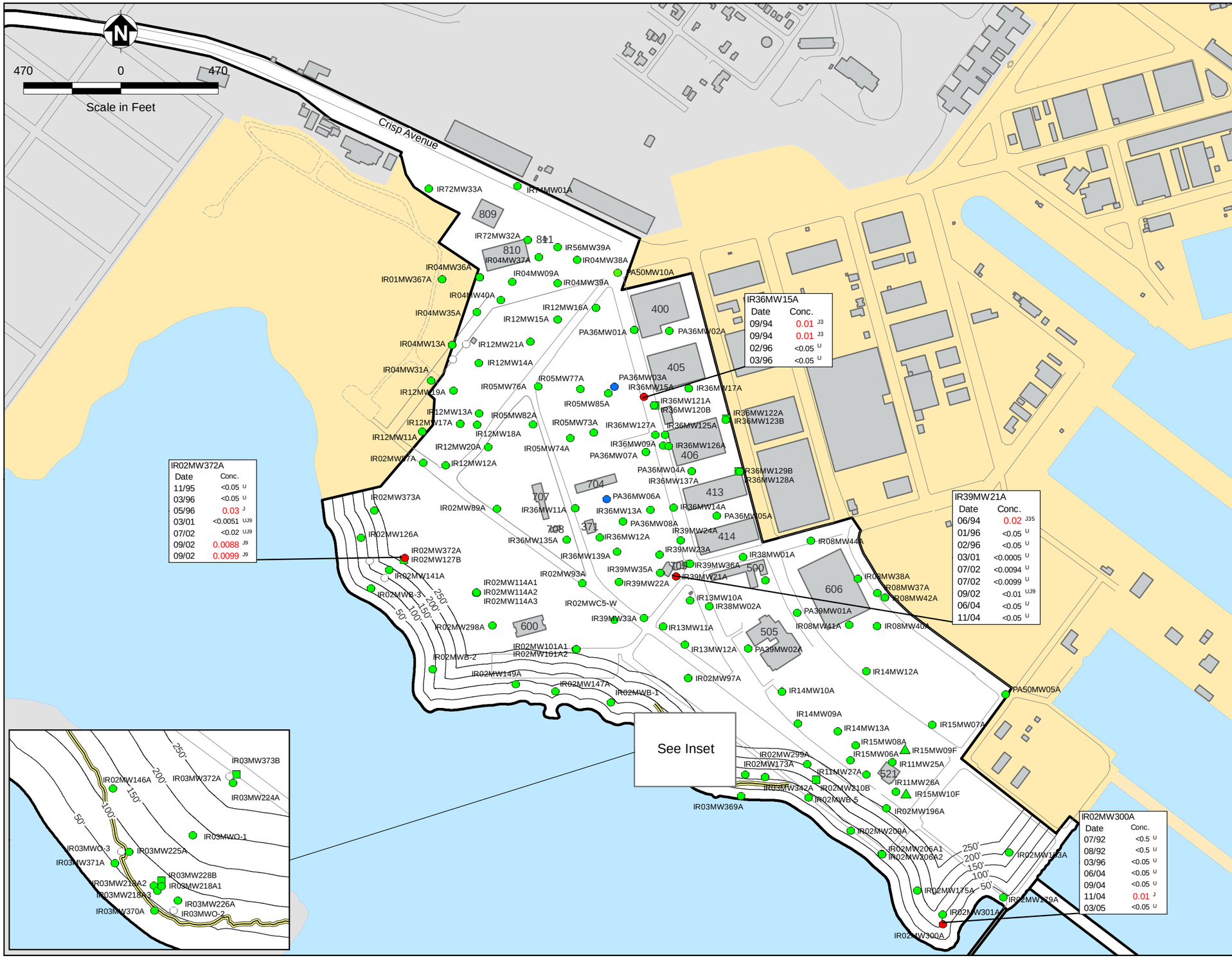
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-22

EVALUATION OF 4,4'-DDT IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\DDT.mxd Last updated: 8/21/2012 at 3:47:58 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for alpha-Chlordane= 0.004 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

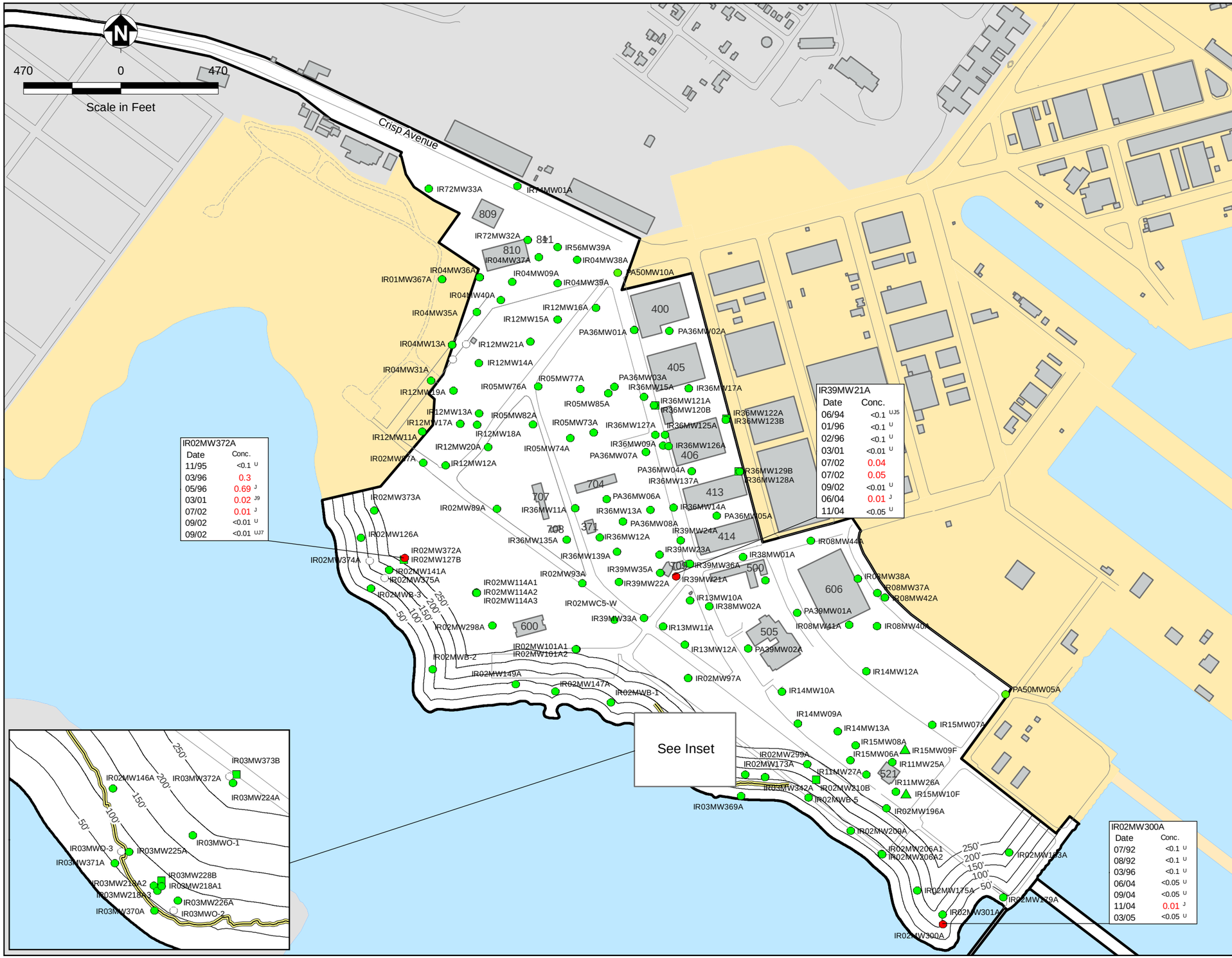
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-23

EVALUATION OF ALPHA-CHLORDANE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\AlphaChlordane.mxd Last updated: 8/21/2012 at 3:50:35 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Dieldrin= 0.0019 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

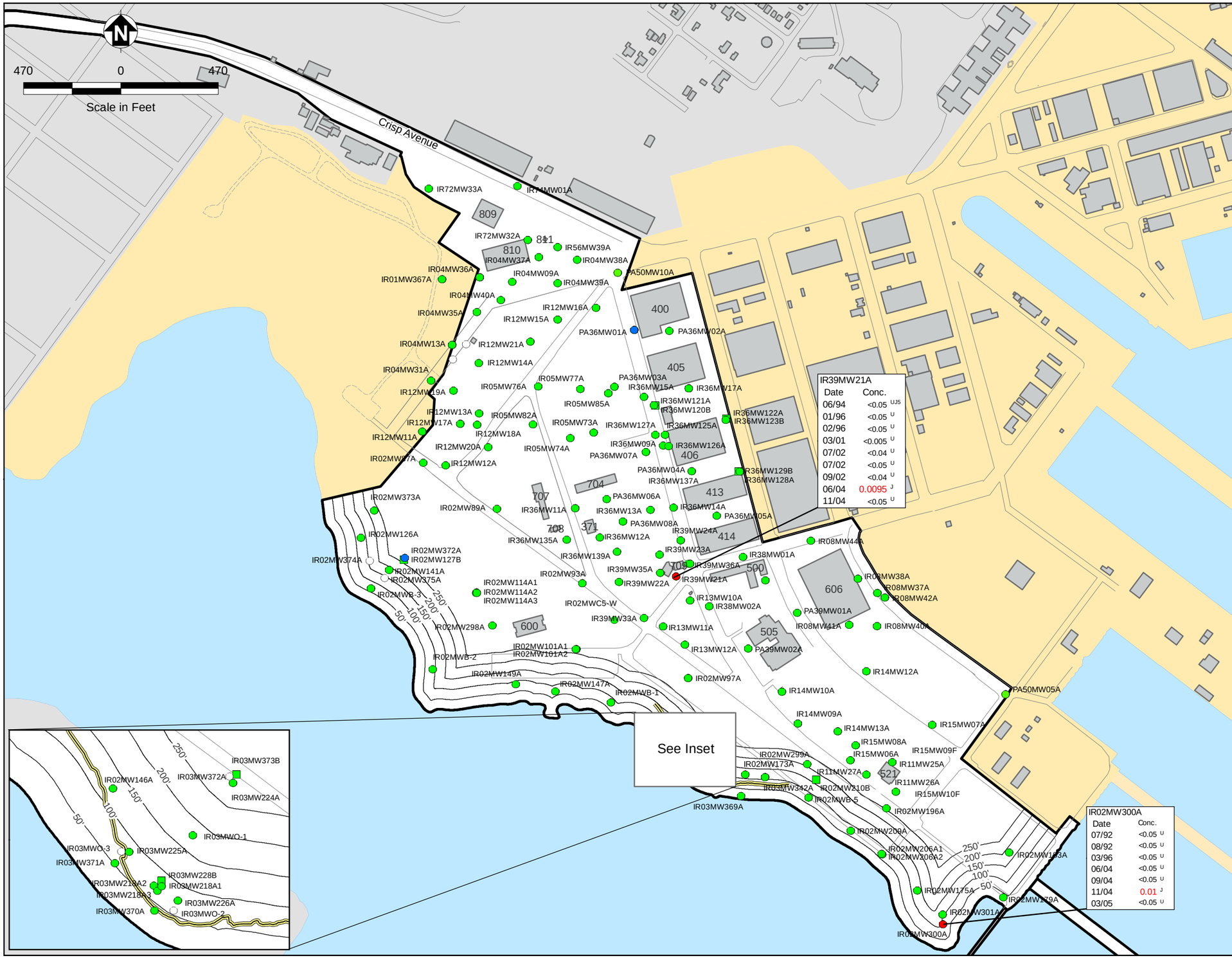
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-24

EVALUATION OF DIELDRIN IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Dieldrin.mxd Last updated: 8/21/2012 at 3:54:04 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Endosulfan I= 0.0087 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

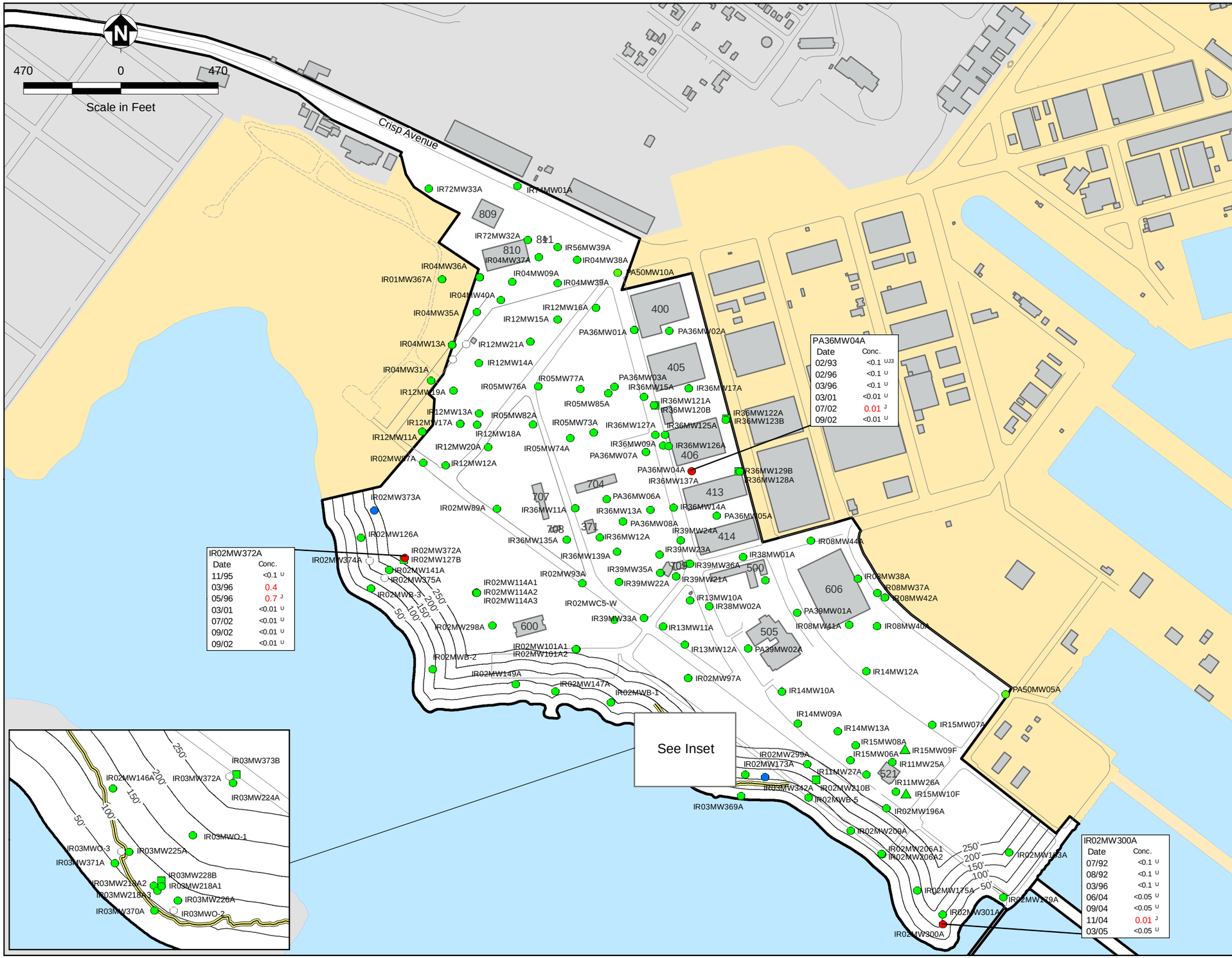
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-25

EVALUATION OF ENDOSULFAN I IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\EndosulfanI.mxd



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Endosulfan II= 0.0087 µg/L

IR01MWLF1A (Well ID)
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Sample Date (mm/yy) → Date
Chemical Concentration (µg/L) → Conc

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

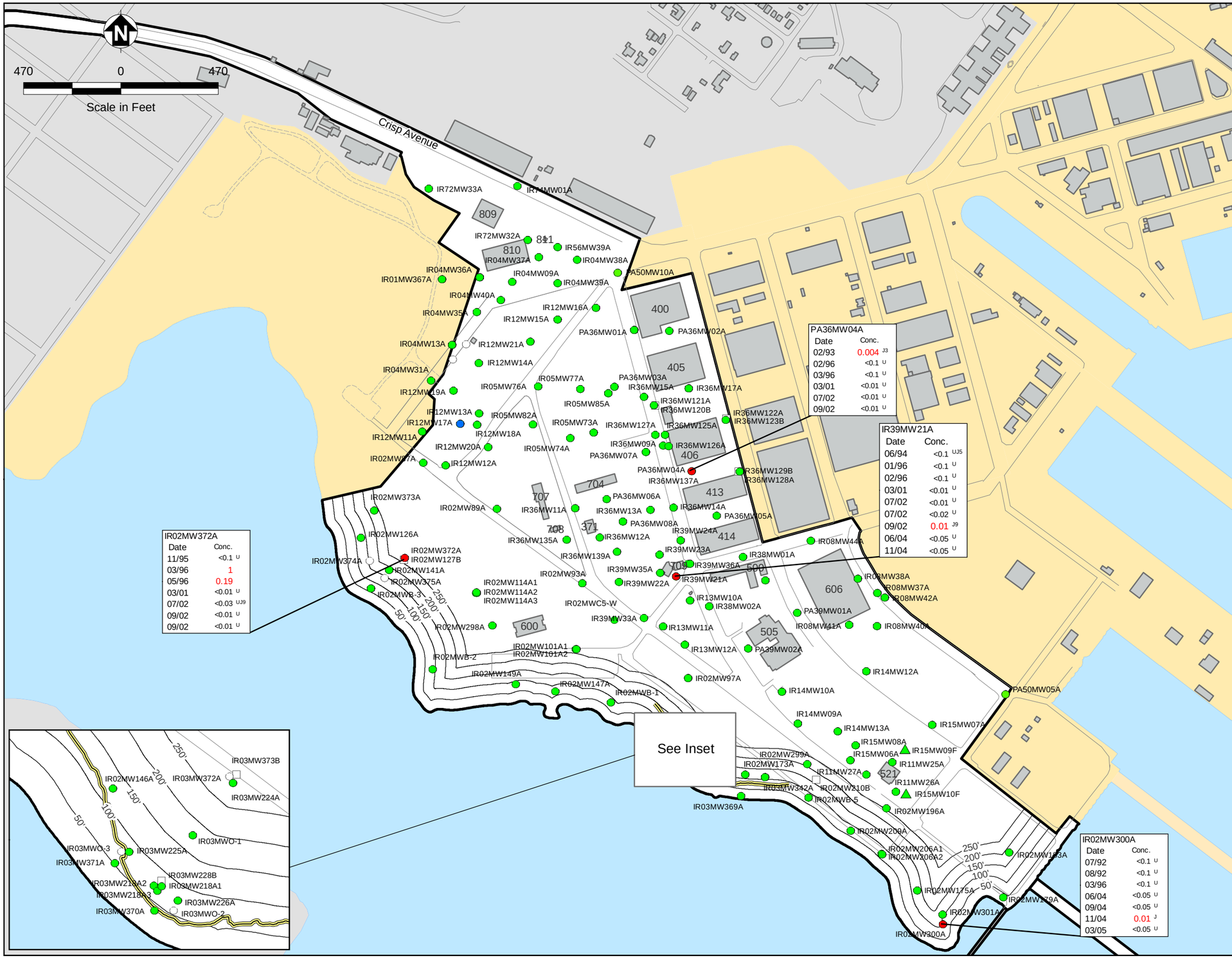
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-26

EVALUATION OF ENDOSULFAN II IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\EndosulfanII.mxd Last updated: 8/21/2012 at 4:09:38 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Endrin= 0.0023 µg/L

IR01MWLF1A — Well ID
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

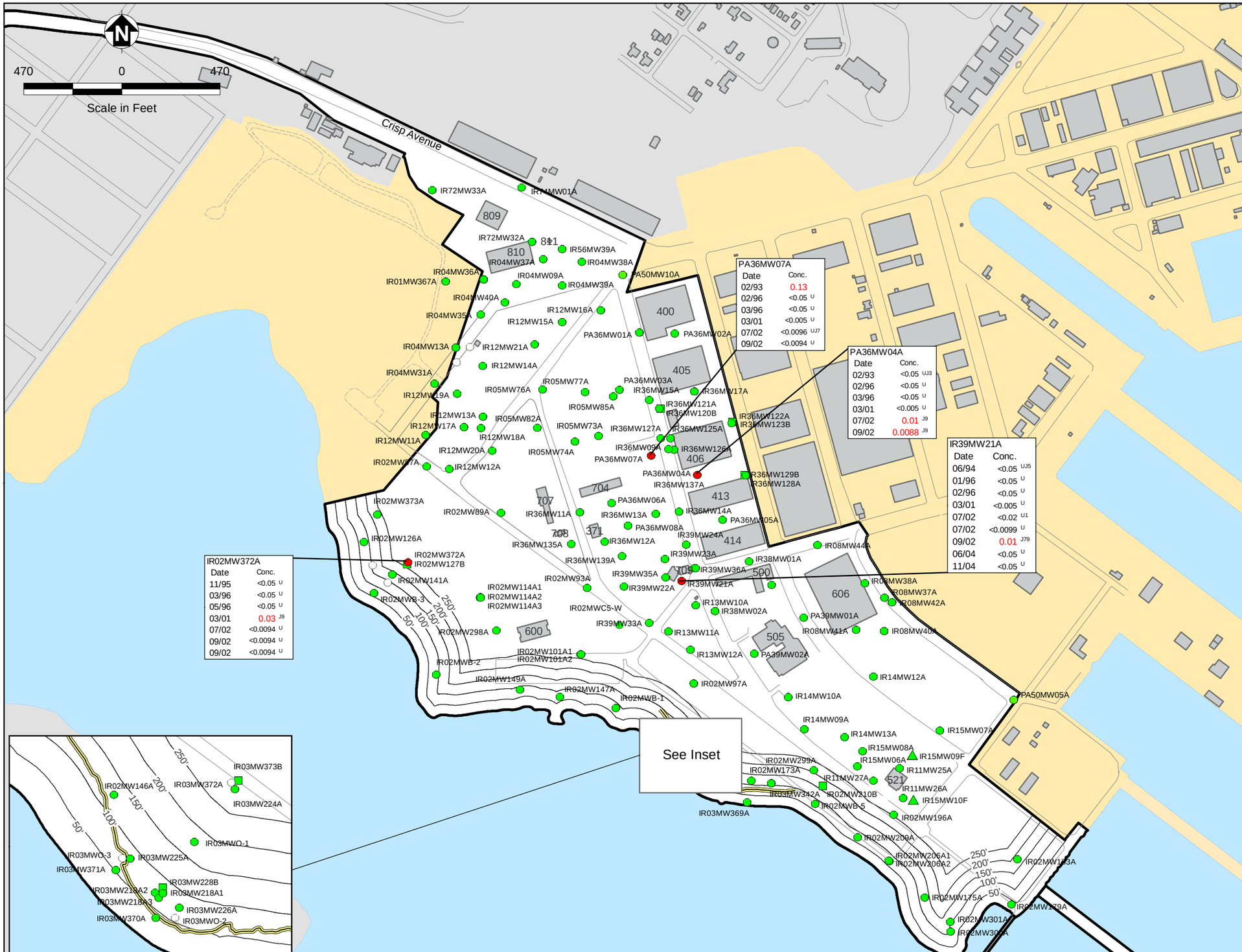
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-27

EVALUATION OF ENDRIN IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Endrin.mxd Last updated: 8/21/2012 at 4:12:08 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Heptachlor= 0.0036 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

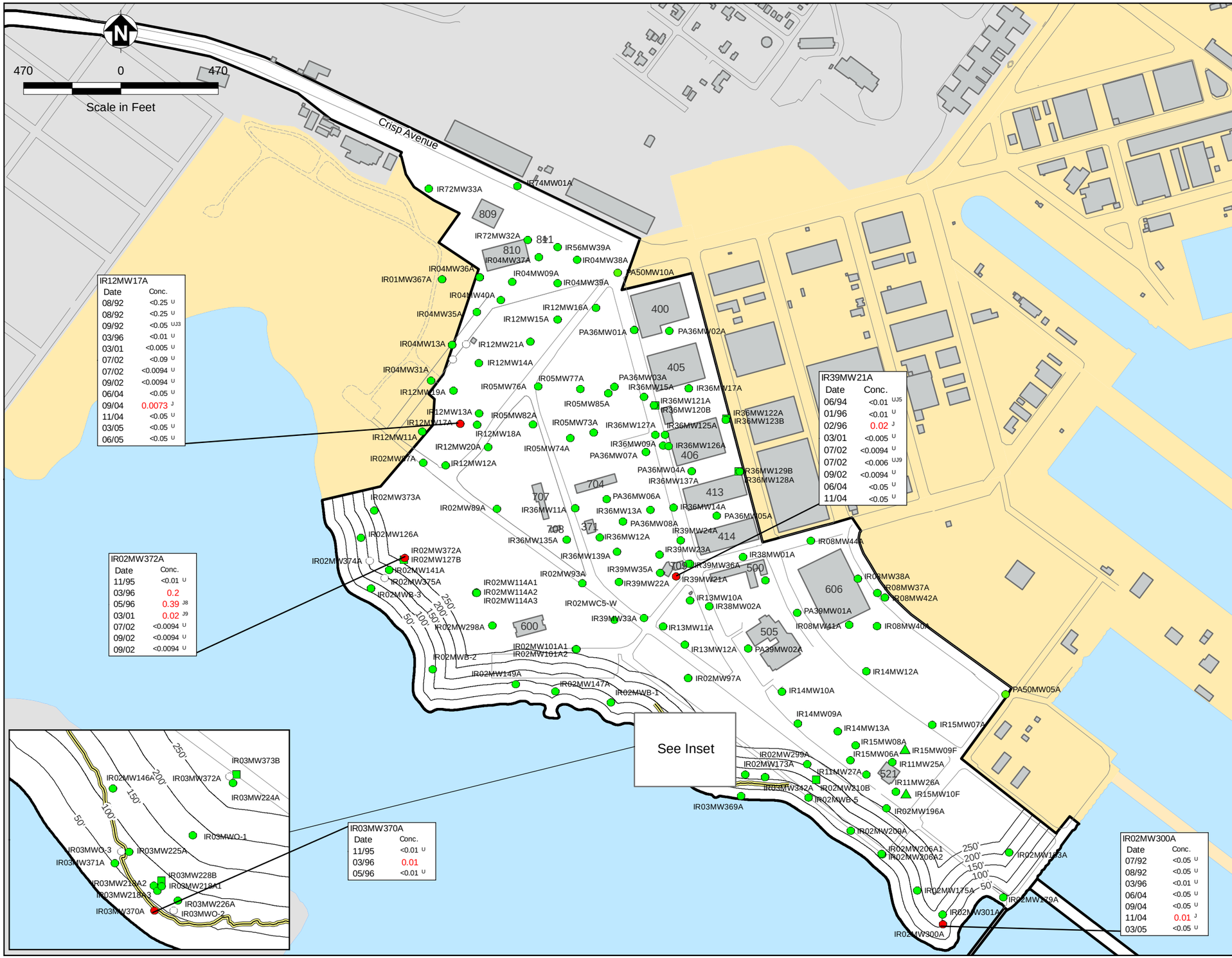
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-28

EVALUATION OF HEPTACHLOR IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\Heptachlor.mxd Last updated: 8/21/2012 at 4:14:20 PM



A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
50' Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criterion.
Red text indicates result that exceeded the aquatic criterion.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
HPS = Hunters Point Shipyard
WBZ = water bearing zone
µg/L = microgram per liter

J = estimated value
U = value was not detected above the reporting limit
Numbers associated with qualifiers are further defined in Attachment A2 of Appendix A.

Aquatic evaluation criterion for Heptachlor Epoxide = 0.0036 µg/L

IR01MWLF1A
Date Conc
07/04 2.1
09/04 8.4
11/04 2.5
03/05 0.57

Well ID
Sample Date (mm/yy)
Chemical Concentration (µg/L)

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

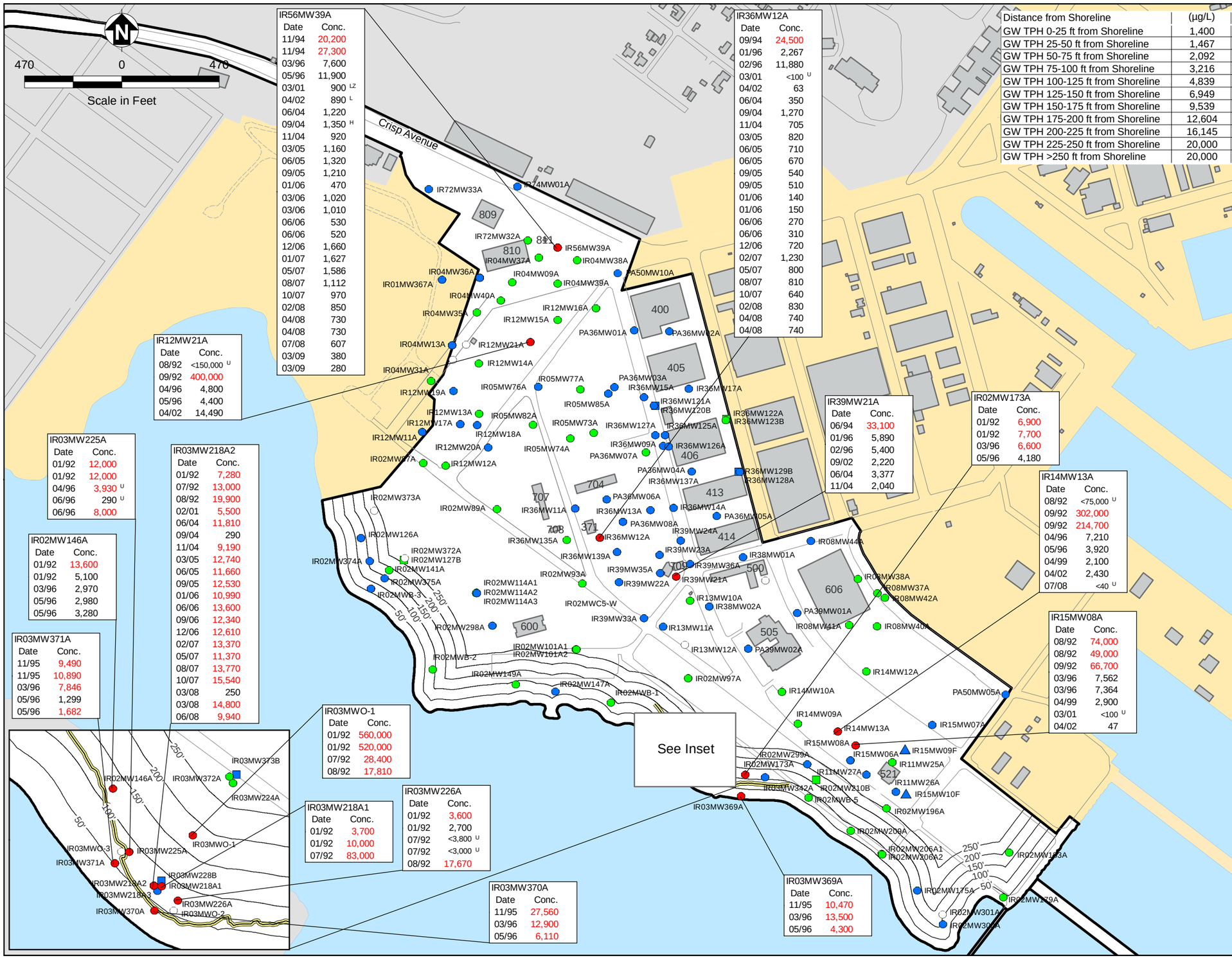
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-29

EVALUATION OF HEPTACHLOR EPOXIDE IN GROUNDWATER

Feasibility Study Report for Parcel E

N:\Projects\2005 Projects\25-049_Navy_HPS_E-2_RI-FS\N_Maps&Drawings\GIS\Projects\Parcel_E_FS\Water\Aquatic\HeptachlorEpoxide.mxd Last updated: 8/22/2012 at 11:12:34 AM



Distance from Shoreline	(µg/L)
GW TPH 0-25 ft from Shoreline	1,400
GW TPH 25-50 ft from Shoreline	1,467
GW TPH 50-75 ft from Shoreline	2,092
GW TPH 75-100 ft from Shoreline	3,216
GW TPH 100-125 ft from Shoreline	4,839
GW TPH 125-150 ft from Shoreline	6,949
GW TPH 150-175 ft from Shoreline	9,539
GW TPH 175-200 ft from Shoreline	12,604
GW TPH 200-225 ft from Shoreline	16,145
GW TPH 225-250 ft from Shoreline	20,000
GW TPH >250 ft from Shoreline	20,000

A-aquifer Well
B-aquifer Well
Bedrock WBZ Well
Not Analyzed for Analyte
Analyte Not Detected
Analyte Exceeds Reporting Limit
Analyte Exceeds Criterion
Parcel E Boundary
Other HPS Parcel
Non-Navy Property
San Francisco Bay
Building
Sheet Pile Wall
Road
Gravel Road
Distance from Shoreline (in feet)

Notes:
Results are shown for well where data have exceeded the aquatic criteria.
Red text indicates result that exceeded the aquatic criteria.
Where results are shown as nondetect (<), the reporting limit follows.

Conc. = concentration
ft = feet
GW = groundwater
HPS = Hunters Point Shipyard
TPH = total petroleum hydrocarbon
WBZ = water bearing zone
µg/L = microgram per liter

Total TPH aquatic evaluation criteria assigned as a function of distance from shoreline; the source of these criteria is from Shaw Environmental, Inc., 2007. "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California." December 21.

IR01MWLF1A — Well ID
Sample Date (mm/yy) → Date; Chemical Concentration (µg/L) → Conc

Date	Conc
07/04	2.1
09/04	8.4
11/04	2.5
03/05	0.57

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE A3-30
EVALUATION OF TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER

Feasibility Study Report for Parcel E

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Acronyms and Abbreviations

µg/L	microgram per liter
§	Section
§§	Sections
33 CFR	Title 33 of the Code of Federal Regulations
40 CFR	Title 40 of the Code of Federal Regulations
50 CFR	Title 50 of the Code of Federal Regulations
ACHP	Advisory Council on Historic Preservation
ARARs	applicable or relevant and appropriate requirements
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Comprehensive Water Quality Control Plan for the San Francisco Bay Basin
BCDC	San Francisco Bay Conservation and Development Commission
bgs	below ground surface
Cal. Code Regs.	California Code of Regulations
CCSF	City and County of San Francisco
CDFG	California Department of Fish and Game
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ch.	Chapter
CIWMB	California Integrated Waste Management Board
COCs	chemicals of concern
COECs	chemicals of ecological concern
CTR	California Toxics Rule
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
div.	Division
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EP	extraction procedure
EPA	U.S. Environmental Protection Agency
ER-L	effects range low
ER-M	effects range median

Fed. Reg.	Federal Register
FESA	Federal Endangered Species Act
FS	Feasibility Study
gpd	gallons per day
HGALs	Hunters Point groundwater ambient levels
HPS	Hunters Point Shipyard
IR	Installation Restoration
ISB	in-situ bioremediation
LDRs	land disposal restrictions
MCLs	maximum contaminant levels
MCLGs	maximum contaminant level goals
mg/L	milligram per liter
MNA	monitored natural attenuation
MOA	Memorandum of Agreement
National Register	National Register of Historic Places
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRWQC	National Recommended Water Quality Criteria
OSPR	Office of Spill Prevention and Response
PCB	polychlorinated biphenyl
POC	point of compliance
ppt	parts per thousand
PRG	preliminary remediation goal
RAOs	remedial action objectives
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
ROD	Record of Decision
RROs	radiological remedial objectives
SDWA	Safe Drinking Water Act
SGALs	soil gas action levels

SHPO	State Historic Preservation Office
SSFs	site-specific factors
STLC	soluble threshold limit concentration
SVE	soil vapor extraction
SVOCs	semivolatile organic compounds
SWRCB	State Water Resources Control Board
TBC	to be considered
TCE	trichloroethene
TCLP	toxicity characteristic leaching procedure
TDS	total dissolved solids
tit.	Title
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
TtECI	Tetra Tech EC, Inc.
TtEMI	Tetra Tech EM Inc.
TTLC	total threshold limit concentration
USACE	U.S. Army Corps of Engineers
USC	United States Code
VOCs	volatile organic compounds
Water Board	San Francisco Regional Water Quality Control Board
WBZ	water-bearing zone
WDRs	waste discharge requirements
WET	waste extraction test
WQOs	water quality objectives
ZVI	zero-valent iron

Section B1. Introduction

This appendix identifies and evaluates potential federal and State of California applicable or relevant and appropriate requirements (ARARs) from the universe of regulations, requirements, and guidance and sets forth the Department of Navy's (Navy) determinations regarding potential ARARs for each response action alternative retained for detailed analysis in this Feasibility Study (FS) Report for Parcel E at Hunters Point Shipyard (HPS), San Francisco, California.

This document addresses potential ARARs for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 hazardous substances, except for radionuclides. Potential ARARs for radiological contamination will be addressed in the Radiological Addendum to this FS Report. Both chemicals and radiological contaminants will then be addressed together in the Proposed Plan and the Record of Decision (ROD).

This ARAR evaluation includes an initial determination of whether the potential ARARs actually qualify as ARARs and a comparison for stringency between the federal and state regulations to identify controlling ARARs. The identification of ARARs is an iterative process. The final determination of ARARs (no longer "potential") will be made by the Navy in the ROD, after public review, as part of the response action selection process.

The remainder of this section summarizes requirements from CERCLA and the National Oil and Hazardous Substances Contingency Plan (NCP); the methodology used to identify and evaluate potential federal and state ARARs for Parcel E; general issues identified during the identification and evaluation of ARARs; and waste characterization.

B1.1. SUMMARY OF CERCLA AND NCP REQUIREMENTS

Section (§) 121(d) of CERCLA [Title 42 of the United States Code (USC) § 9621(d)], as amended, states that remedial actions on CERCLA sites must attain (or the decision document must justify the waiver of) any federal or more stringent state environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate.

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address the situation at a CERCLA site. The requirement is applicable if the jurisdictional

prerequisites of the standard show a direct correspondence when objectively compared to the conditions at the site. An applicable federal requirement is an ARAR. An applicable state requirement is an ARAR only if it is more stringent than federal ARARs.

If the requirement is not legally applicable, then the requirement is evaluated to determine whether it is relevant and appropriate. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable, address problems or situations similar to the circumstances of the proposed response action and are well suited to the conditions of the site (U.S. Environmental Protection Agency [EPA], 1988a). A requirement must be determined to be both relevant and appropriate in order to be considered an ARAR.

The criteria for determining relevance and appropriateness are listed in Title 40 of the Code of Federal Regulations (40 CFR) § 300.400(g)(2) and include the following:

- The purpose of the requirement and the purpose of the CERCLA action.
- The medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site.
- The substances regulated by the requirement and the substances found at the CERCLA site.
- The actions or activities regulated by the requirement and the response action contemplated at the CERCLA site.
- Any variances, waivers, or exemptions of the requirement and their availability for the circumstances at the CERCLA site.
- The type of place regulated and the type of place affected by the release or CERCLA action.
- The type and size of structure or facility regulated and the type and size of structure or facility affected by the release or contemplated by the CERCLA action.
- Any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resources at the CERCLA site.

According to CERCLA ARARs guidance (EPA, 1988a), a requirement may be “applicable” or “relevant and appropriate,” but not both. Identification of ARARs must be done on a site-specific basis and involve a two-part analysis: first, a determination whether a given requirement is applicable; then, if it is not applicable, a determination whether it is nevertheless both relevant and appropriate. It is important to explain that some regulations may be applicable or, if not applicable, may still be relevant and appropriate. When the analysis determines that a requirement is both relevant and appropriate, such a requirement must be complied with to the same degree as if it were applicable (EPA, 1988a).

Tables included in this appendix present each potential ARAR with an initial determination of ARAR status (applicable or relevant and appropriate). For the determination of relevance and appropriateness, the pertinent criteria were examined to determine whether the requirements addressed problems or situations sufficiently similar to the circumstances of the release or response action contemplated, and whether the requirement was well suited to the site. A negative determination of relevance and appropriateness indicates that the requirement did not meet the pertinent criteria. Negative determinations are discussed in the text only for specific cases.

To qualify as a state ARAR under CERCLA and the NCP, a state requirement must be:

- A state law or regulation
- An environmental or facility siting law or regulation
- Promulgated (of general applicability and legally enforceable)
- Substantive (not procedural or administrative)
- More stringent than federal requirements
- Identified in a timely manner
- Consistently applied

To constitute an ARAR, a requirement must be substantive; therefore, only the substantive provisions of requirements identified as ARARs in this analysis are considered to be ARARs. Permits are considered to be procedural or administrative requirements. Provisions of generally relevant federal and state statutes and regulations that were determined to be procedural or nonenvironmental, including permit requirements, are not considered to be ARARs. CERCLA § 121(e)(1), 42 USC § 9621(e)(1), states, "No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely on-site, where such remedial action is selected and carried out in compliance with this section." The term *on-site* is defined for purposes of this ARARs discussion as "the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action" (40 CFR § 300.5).

Nonpromulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the status of ARARs. Such requirements may, however, be useful and are "to be considered" (TBC). TBC (40 CFR § 300.400[g][3]) requirements complement ARARs but do not override them. They are useful for guiding decisions on cleanup levels or methods when regulatory standards are not available.

Pursuant to EPA guidance (EPA, 1988a), ARARs are generally divided into three categories: chemical-specific, location-specific, and action-specific requirements. This classification was developed to aid in

the identification of ARARs; some ARARs do not fall precisely into one group or another. ARARs are identified on a site basis for remedial actions where CERCLA authority is the basis for cleanup.

As the lead federal agency at HPS, the Navy has primary responsibility for identifying federal ARARs at Parcel E. Pursuant to the definition of the term "on-site" in 40 CFR § 300.5, the on-site area is Parcel E.

Identification of potential state ARARs was initiated through Navy requests to the State of California Department of Toxic Substances Control (DTSC), the San Francisco Regional Water Quality Control Board (Water Board), and the San Francisco Bay Conservation and Development Commission (BCDC) (Navy, 2009a). In two sets of consolidated responses received in March 2009 (Water Board, 2009; DTSC, 2009a), potential state ARARs were specified by the DTSC, Water Board, the California Department of Public Health (CDPH), the California Integrated Waste Management Board (CIWMB), California Department of Fish and Game (CDFG), California Air Resources Board, and the Bay Area Air Quality Management District (BAAQMD). In April 2009, additional potential state ARARs were identified by the DTSC on behalf of BCDC (DTSC, 2009b). The solicitation of potential state ARARs is described in Section B1.2.3. The methodology, other general issues, and waste characterization are also discussed below.

B1.2. METHODOLOGY DESCRIPTION

The process of identifying and evaluating potential federal and state ARARs is described in this subsection.

B1.2.1. General

As the lead federal agency, the Navy has primary responsibility for identification of potential ARARs for Parcel E. In preparing this ARARs analysis, the Navy undertook the following measures consistent with CERCLA and the NCP:

Identified federal ARARs for each response action alternative addressed in the FS Report, taking into account site-specific information for Parcel E

Reviewed potential state ARARs identified by the State to determine whether they satisfy CERCLA and NCP criteria that must be met to constitute state ARARs

Evaluated and compared federal ARARs and their State counterparts to determine whether state ARARs are more stringent than federal ARARs or are in addition to the federally required actions

- Reached a conclusion as to which federal and state ARARs are the most stringent and "controlling" ARARs for each alternative

Section 3 of the FS Report discusses the remedial action objectives (RAOs) for (1) soil, soil gas, and shoreline sediment; (2) groundwater; and (3) nonaqueous-phase liquids (NAPL). Parcel E Installation Restoration (IR) Site 03 (IR-03), the former oil reclamation ponds, contains NAPL over an area approximately 1 acre in size. The NAPL is a source of contamination to A-aquifer groundwater and poses a potential risk to aquatic wildlife in San Francisco Bay. Unique site conditions, including highly viscous NAPL that may be over 10 feet thick in some locations (Barajas & Associates, Inc., 2008b), prompted the Navy to evaluate remedial alternatives specific to the NAPL at IR-03; the NAPL alternatives also address soil and groundwater contamination associated with the NAPL source at IR-03. The Parcel E RAOs are presented below.

B1.2.1.1. Soil, Soil Gas, and Shoreline Sediment RAOs

The following RAOs apply to Parcel E soil, soil gas, and shoreline sediment:

Prevent exposure of humans to inorganic and organic chemicals in soil at concentrations exceeding the preliminary remediation goals (PRGs) (in Table 3-1 of the FS Report) for the following exposure pathways:

- Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet below ground surface (bgs) by residents in areas zoned for mixed-use reuse
- Ingestion of homegrown produce by residents in areas zoned for mixed-use reuse
- Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 2 feet bgs by recreational users in areas zoned for open space reuse
- Ingestion of, outdoor inhalation of, and dermal exposure to soil from 0 to 10 feet bgs by construction workers in all areas

Prevent exposure of humans to volatile organic compounds (VOCs) in soil gas at concentrations that would pose unacceptable risk via indoor air inhalation of vapors. The Navy has developed soil gas action levels (SGALs) to guide future vapor mitigation or remediation (ChaduxTt, 2010). A focused soil gas survey is currently being implemented to identify locations where concentrations of chemicals of concern (COCs) in soil gas may exceed SGALs and to evaluate the extent of the VOC area requiring institutional controls.

Prevent exposure of humans to COCs in shoreline sediment at concentrations exceeding the PRGs (in Table 3-2 of the FS Report).

- Prevent exposure of benthic invertebrates, birds, and mammals to chemicals of ecological concern (COECs) in shoreline sediment at concentrations exceeding the PRGs (in Table 3-2 of the FS Report).

B1.2.1.2. Groundwater RAOs

The following RAOs apply to Parcel E groundwater:

- Prevent or minimize exposure of construction worker to VOCs in A-aquifer groundwater by dermal exposure and inhalation of vapors with chemicals exceeding PRGs.
- Prevent or minimize exposure of humans to COCs in the B-aquifer at concentrations exceeding PRGs via the domestic use pathway.
- Prevent or minimize migration of arsenic, copper, lead, nickel, zinc, Aroclor-1254, Aroclor-1260, alpha-chlordane, and 4,4'-DDE (dichlorodiphenyldichloroethene) to prevent discharge that would result in concentrations exceeding corresponding surface water quality criteria for aquatic wildlife.
- Prevent or minimize migration of A-aquifer groundwater containing total petroleum hydrocarbons (TPH) concentrations greater than 1,400 micrograms per liter (µg/L) (where commingled with CERCLA substances) into San Francisco Bay.

B1.2.1.3. NAPL RAOs

The following RAOs apply to NAPL at Parcel E, IR-03:

- Prevent or minimize migration of NAPL to prevent discharge that would result in COEC concentrations greater than the surface water quality criteria for aquatic wildlife.
- Prevent or minimize migration of NAPL to prevent discharge that would result in total TPH groundwater concentrations greater than 1,400 µg/L into San Francisco Bay.

Removal of ubiquitous metals and other chemicals in soil exceeding PRGs could involve excavating most of Parcel E to 10 feet bgs. As evaluated in Section 3.3.2.1.3 of the FS Report, using the framework established in EPA guidance (EPA, 1988) and the NCP (55 Federal Register [Fed. Reg.] 8849, March 8, 1990), such an excavation scenario is not a feasible option to address removal of ubiquitous metals at concentrations exceeding PRGs because of the potentially poor short-term effectiveness, implementation challenges, and high cost. As a result, excavation options focus on removing (1) COCs at concentrations significantly exceeding PRGs (by either 5 or 10 times) and (2) COCs indicative of a source to groundwater contamination that may pose a risk to humans or wildlife. The FS Report identifies the following two location types where COCs are present in soil at concentrations significantly exceeding PRGs:

- Tier 1 locations: locations containing inorganic and organic COCs at concentrations greater than 10 times the PRGs (the Tier 1 action levels)
- Tier 2 locations: locations containing inorganic and organic COCs at concentrations greater than 5 times the PRGs (the Tier 2 action levels)

A focused excavation process would reduce COC concentrations so that remaining incremental risk is within the risk management range (i.e., 10-4 to 10-6) specified in the NCP. Other process options (such as, institutional controls or engineered covers) would address the exposure pathway for any remaining low-level organic chemical concentrations exceeding PRGs, consistent with NCP, 40 CFR § 300.430 (a)(1)(iii)(B). The following alternatives for soil and shoreline sediment are evaluated in the FS Report:

- Alternative S-1: No Action
- Alternative S-2: Covers, Institutional Controls, and Shoreline Protection
- Alternative S-3: Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, Institutional Controls, and Shoreline Protection
- Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection

The following alternatives for groundwater are evaluated in the FS Report:

- Alternative GW-1: No Action
- Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring
- Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls
- Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and Institutional Controls
- Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, Monitored Natural Attenuation, and Institutional Controls

The following alternatives for NAPL are evaluated in the FS Report:

- Alternative N-1: No Action
- Alternative N-2: Source Containment, Long-Term Groundwater Monitoring, and Institutional Controls
- Alternative N-3: Source Removal or Treatment, Containment, Monitored Natural Attenuation, and Institutional Controls
- Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls
- Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, Monitored Natural Attenuation, and Institutional Controls

- Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls
- Alternative N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls

The following sections discuss the identification and evaluation of federal and state ARARs for Parcel E.

B1.2.2. Identifying and Evaluating Federal ARARs

The Navy is responsible for identifying federal ARARs as the lead federal agency under CERCLA and the NCP. The final determination of federal ARARs will be made when the Navy issues the ROD for Parcel E. The federal government implements a number of federal environmental statutes that are the source of potential federal ARARs, either in the form of the statutes or regulations promulgated there under. Examples include the Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), the Toxic Substances Control Act (TSCA), and their implementing regulations, to name a few. See the NCP preamble at 55 Fed. Reg. 8764–8765 (1990) for a more complete listing.

The Navy reviewed the proposed response actions and alternatives against all potential federal ARARs, including, but not limited to, those set forth at 55 Fed. Reg. 8764–8765 (1990) to determine if they are applicable or relevant and appropriate using the CERCLA and NCP criteria and procedures for ARARs identification by lead federal agencies.

B1.2.3. Identifying and Evaluating State ARARs

The process of identifying and evaluating potential state ARARs by the State of California and the Navy is described in this subsection.

B1.2.3.1. Solicitation of State ARARs under NCP

EPA guidance (EPA, 1988b) recommends that the lead federal agency consult with the state when identifying state ARARs for remedial actions. In essence, the CERCLA and NCP requirements at 40 CFR § 300.515 for remedial actions provide that the lead federal agency request that the state identify chemical- and location-specific state ARARs upon completion of site characterization. The requirements also provide that the lead federal agency request identification of all categories of state ARARs (chemical-, location-, and action-specific) upon completion of identification of remedial alternatives for detailed analysis. The state must respond within 30 days of receipt of the lead federal agency requests. The Navy followed the process set forth in 40 CFR § 300.515 and Section 7.6 of the Federal Facility Agreement for remedial actions in seeking State of California assistance with identification of state

ARARs (EPA, DTSC, Water Board, and Navy, 1991). The remainder of this subsection documents the Navy's efforts to date to identify and evaluate state ARARs.

B1.2.3.2. Chronology of Efforts to Identify State ARARs

The following chronology documents the Navy's efforts to date to obtain State of California assistance with identification of state ARARs for the response action at Parcel E. Key correspondence between the Navy and the State of California agencies relating to this effort is included in the Administrative Record for Parcel E.

- The Navy requested state ARARs for Parcel E, from all appropriate State of California agencies, in a letter dated January 16, 2009 (Navy, 2009a).
- The Navy received responses from Water Board on March 5, 2009 (Water Board, 2009).
- The Navy received a consolidated set of responses from DTSC on March 5, 2009 (DTSC, 2009a). These responses specified ARARs from the DTSC, CDPH, CIWMB, CDFG, California Air Resources Board, and the BAAQMD.
- The Navy received additional responses from the DTSC on April 28, 2009, which specified additional ARARs from the San Francisco Bay Plan, developed by BCDC under the authority of the McAteer-Petris Act (California Government Code §§ 66600 through 66682) (DTSC, 2009b).

The Navy has evaluated requirements identified by the State of California agencies and identified the ones that qualify as potential state ARARs for Parcel E.

B1.3. OTHER GENERAL ISSUES

General issues identified during the evaluation of ARARs for Parcel E are discussed in the following subsections.

B1.3.1. General Approach to Federal RCRA Requirements

RCRA is a federal statute passed in 1976 to meet four goals: (1) protection of human health and the environment; (2) reduction of waste; (3) conservation of energy and natural resources; and (4) elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions (LDRs), and technical requirements. RCRA, as amended, contains several provisions that are potential ARARs for CERCLA sites.

Substantive RCRA requirements are applicable to response actions on CERCLA sites if the waste is a RCRA hazardous waste, and either:

- the waste was initially treated, stored, or disposed of after the effective date of the particular RCRA requirement; or
- the activity at the CERCLA site constitutes treatment, storage, or disposal, as defined by RCRA (EPA, 1988a).

The preamble to the NCP indicates that state regulations that are components of a federally authorized or delegated state program are generally considered federal requirements and potential federal ARARs for the purposes of ARARs analysis (55 Fed. Reg. 8666, 8742 [1990]). The State of California received approval for its base RCRA hazardous waste management program on July 23, 1992 (57 Fed. Reg. 32726 [1992]). The State of California "Environmental Health Standards for the Management of Hazardous Waste," set forth in California Code of Regulations (Cal. Code Regs.) Title (tit.) 22, Division (div.) 4.5, were approved by EPA as a component of the federally authorized State of California RCRA program. On September 26, 2001, California received final authorization of its revised State Hazardous Waste Management Program by the EPA (66 Fed. Reg. 49118 [2001]).

The regulations of Cal. Code Regs. tit. 22, div. 4.5, are therefore a source of potential federal ARARs for CERCLA response actions. The exception is when a state regulation is "broader in scope" than the corresponding federal RCRA regulations. In that case, such regulations are not considered part of the federally authorized program or potential federal ARARs. Instead, they are purely state law requirements and potential state ARARs.

The EPA July 23, 1992, notice approving the State of California RCRA program (57 Fed. Reg. 32726 [1992]) specifically indicated that the State regulations addressed certain non-RCRA, state-regulated hazardous wastes that fell outside the scope of federal RCRA requirements. The Cal. Code Regs. tit. 22, div. 4.5, requirements would be potential state ARARs for such non-RCRA, state-regulated wastes.

A key threshold question for the ARARs analysis is whether or not the contaminants at Parcel E constitute federal hazardous waste as defined under RCRA and the State's authorized program or qualify as non-RCRA, state-regulated hazardous wastes. Waste characterization is discussed below in Section B1.4.

B1.4. WASTE CHARACTERIZATION

Selection of ARARs involves the characterization of wastes as described below. This section discusses RCRA hazardous waste determination; California-regulated, non-RCRA hazardous waste determination; and other California waste classifications that are potential ARARs for the alternatives involving excavation.

B1.4.1. RCRA Hazardous Waste Determination

Federal RCRA hazardous waste determination is necessary to determine whether a waste is subject to RCRA requirements at Cal. Code Regs. tit. 22, div. 4.5 and other State requirements at Cal. Code Regs. tit. 23, div. 3, Chapter (ch.) 15. The first step in the RCRA hazardous waste characterization process is to evaluate contaminated media at the site(s) and determine whether the contaminant constitutes a "listed" RCRA waste. The preamble to the NCP states that "… it is often necessary to know the origin of the waste to determine whether it is a listed waste and that, if such documentation is lacking, the lead agency may assume it is not a listed waste" (55 Fed. Reg. 8666, 8758 [1990]).

This approach is confirmed in EPA guidance for CERCLA compliance with other laws (EPA, 1988a), as follows:

> *"To determine whether a waste is a listed waste under RCRA, it is often necessary to know the source. However, at many Superfund sites, no information exists on the source of wastes. The lead agency should use available site information, manifests, storage records, and vouchers in an effort to ascertain the nature of these contaminants. When this documentation is not available, the lead agency may assume that the wastes are not listed RCRA hazardous wastes, unless further analysis or information becomes available that allows the lead agency to determine that the wastes are listed RCRA hazardous wastes."*

RCRA hazardous wastes that have been assigned EPA hazardous waste numbers (or codes) are listed in Cal. Code Regs. tit. 22, §§ 66261.30–66261.33. The lists include hazardous waste codes beginning with the letters "F," "K," "P," and "U."

Knowledge of the exact source of a waste is required for source-specific listed wastes ("K" waste codes). Some knowledge of the nature or source of the waste is required even for listed wastes from nonspecific sources, such as spent solvents ("F" waste codes) or commercial chemical products ("P" and "U" waste codes). These listed RCRA hazardous wastes are restricted to commercially pure chemicals used in particular processes such as degreasing.

"P" and "U" wastes cover only unused and unmixed commercial chemical products, particularly spilled or off-specification products (EPA, 1991). Not every waste containing a "P"- or "U"-listed chemical is a hazardous waste. To determine whether a CERCLA investigation-derived waste contains a "P" or "U" waste, there must be direct evidence of product use. In particular, all the following criteria must be met. The chemicals must be:

- discarded [as described in 40 CFR § 261.2(a)(2)],
- either an off-specification commercial product or a commercially sold grade,

- not used (soil contaminated with spilled unused wastes is a "P "or "U" waste), and
- the sole active ingredient in a formulation.

The second step in the RCRA hazardous waste characterization process is to evaluate potential hazardous characteristics of the waste. The evaluation of characteristic waste is described in EPA guidance as follows (EPA, 1988a):

> *"Under certain circumstances, although no historical information exists about the waste, it may be possible to identify the waste as RCRA characteristic waste. This is important in the event that (1) remedial alternatives under consideration at the site involve on-site treatment, storage, or disposal, in which case RCRA may be triggered as discussed in this section; or (2) a remedial alternative involves off-site shipment. Since the generator (in this case, the agency or responsible party conducting the Superfund action) is responsible for determining whether the wastes exhibit any of these characteristics (defined in 40 CFR §§ 261.21 through 261.24), testing may be required. The lead agency must use best professional judgment to determine, on a site-specific basis, if testing for hazardous characteristics is necessary.*
>
> *In determining whether to test for the toxicity characteristic using the extraction procedures (EP) toxicity test, it may be possible to assume that certain low concentrations of waste are not toxic. For example, if the total waste concentration in soil is 20 times or less the EP toxicity concentration, the waste cannot be characteristic hazardous waste. In such a case, RCRA requirements would not be applicable. In other instances, where it appears that the substances may be characteristic hazardous waste (ignitable, corrosive, reactive, or EP toxic), testing should be performed."*

Hazardous waste characteristics as defined in 40 CFR §§ 261.21 through 261.24 are commonly referred to as ignitability, corrosivity, reactivity, and toxicity. California environmental health standards for the management of hazardous waste set forth in Cal. Code Regs. tit. 22, div. 4.5, were approved by EPA as a component of the federally authorized California RCRA program; therefore, the characterization of RCRA waste is based on the State requirements.

The characteristics of ignitability, corrosivity, reactivity, and toxicity are defined in Cal. Code Regs. tit. 22, §§ 66261.21 through 66261.24. According to Cal. Code Regs. tit. 22, § 66261.24(a)(1)(A), "A waste that exhibits the characteristic of toxicity pursuant to Subsection (a)(1) of this section has the EPA Hazardous Waste Number specified in Table I of this section which corresponds to the toxic contaminant causing it to be hazardous." Table I assigns hazardous waste codes beginning with the letter "D" to wastes that exhibit the characteristic of toxicity; D waste codes are limited to "characteristic" hazardous wastes.

According to Cal. Code Regs. tit. 22, § 66261.10, waste characteristics can be measured by an available standardized test method or be reasonably classified by generators of waste based on their knowledge of

the waste provided that the waste has already been reliably tested or if there is documentation of chemicals used. Soil contamination at Parcel E is not ignitable, corrosive, or reactive, as defined in Cal. Code Regs. tit. 22, § 66261.21–66261.23. This determination was based on knowledge of the nature and concentrations of contaminants encountered during previous removal actions at Parcel E and the adjacent Parcel E-2. It should be noted that during the removal action at the polychlorinated biphenyl (PCB) hotspot area, which extended partially onto Parcel E, various bottles, jars, and containers were encountered and determined to contain ignitable and corrosive wastes; however, these wastes were found within the portion of the excavation on Parcel E-2 approximately 300 feet from the Parcel E boundary (Tetra Tech EC, Inc. [TtECI], 2007a, 2007b, and 2007c).

The requirements at Cal. Code Regs. tit. 22, § 66261.24, list the toxic contaminant concentrations that determine the characteristic of toxicity. The concentration limits are in milligrams per liter (mg/L). These concentration limits are directly comparable with total concentrations in waste groundwater and surface water. For waste soils, these concentrations apply to the extract or leachate produced by the toxicity characteristic leaching procedure (TCLP).

A waste is considered hazardous if contaminants in the wastewater or in the soil TCLP extract equal or exceed the TCLP limits. TCLP testing is required only if total contaminant concentrations in soil equal or exceed 20 times the TCLP limits because TCLP uses a 20-to-1 dilution for the extract (EPA, 1988a).

Based on analytical data collected during a previous removal action at Parcel E IR Site 02 (IR-02) Northwest and Central, there is a potential for excavated soil to be classified as a RCRA characteristic hazardous waste, most likely due to concentrations of lead. For alternatives involving excavation and off-site disposal, the Navy will characterize the excavated soil to determine its appropriate classification. If the Navy determines that this waste is RCRA hazardous waste, the Navy will comply with all applicable requirements for proper off-site disposal, such as packaging, manifesting, and land-disposal restrictions.

B1.4.2. California-Regulated, Non-RCRA Hazardous Waste

A waste determined not to be a RCRA hazardous waste may still be considered a state-regulated, non-RCRA hazardous waste. The State is broader in scope in its RCRA program in determining hazardous waste. Cal. Code Regs. tit. 22, § 66261.24(a)(2) lists the total threshold limit concentrations (TTLC) and soluble threshold limit concentrations (STLC) for non-RCRA hazardous wastes. The State applies its own leaching procedure, the waste extraction test (WET), which uses a different acid reagent and has a different dilution factor (10-fold). Other State requirements may be broader in scope than federal ARARs for identifying non-RCRA wastes regulated by the State. These requirements may be potential ARARs for wastes not covered under federal ARARs. See additional subsections of Cal. Code Regs. tit. 22, § 66261.24. A waste is considered hazardous if its total concentrations exceed the TTLCs or if the extract concentrations from the WET exceed the STLCs.

A WET is required when the total concentrations exceed the STLC but are less than the TTLCs (Cal. Code Regs. tit. 22, div. 4.5, ch. 11, Appendix II [b]).

B1.4.3. Other California Waste Classifications

For waste discharged after July 18, 1997, solid waste classifications at Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230 are used to determine applicability of waste management requirements. These classifications are summarized below.

A "designated waste" under Cal. Code Regs. tit. 27, § 20210, is defined at California Water Code, § 13173. Under California Water Code, § 13173, designated waste is hazardous waste that has been granted a variance from hazardous waste management requirements or nonhazardous waste that consists of or contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives (WQOs) or that could reasonably be expected to affect beneficial uses of the waters of the State.

A nonhazardous solid waste under Cal. Code Regs. tit. 27, § 20220, consists of all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, and other discarded waste (whether of solid or semisolid consistency), provided that such wastes do not contain wastes that must be managed as hazardous wastes or wastes that contain soluble pollutants in concentrations that exceed applicable water quality objectives or could cause degradation of waters of the State.

Under Cal. Code Regs. tit. 27, § 20230, inert waste is that subset of solid waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable WQOs and does not contain significant quantities of decomposable waste.

Section B2. Chemical-Specific ARARs

Chemical-specific ARARs are generally health- or risk-based numerical values or methodologies applied to site-specific conditions that result in the establishment of a cleanup level. Many potential ARARs associated with particular response alternatives (such as closure or discharge) can be characterized as action-specific but include numerical values or methodologies to establish them so they fit in both categories (chemical- and action-specific). To simplify the comparison of numerical values, most action-specific requirements that include numerical values are included in this chemical-specific section and, if repeated in the action-specific section, the discussion refers back to this section.

This section presents chemical-specific ARAR determinations for groundwater, soil, and air. Tables B-1 and B-2 summarize potential federal and state chemical-specific ARARs, respectively.

B2.1. SUMMARY OF CHEMICAL-SPECIFIC ARARS CONCLUSIONS BY MEDIUM

Soil, shoreline sediment, groundwater, surface water, and air are the environmental media potentially affected by the response action. The conclusions for ARARs that pertain to these media are presented in the following sections.

B2.1.1. ARARs Conclusions for Soil

The Navy is evaluating remedial alternatives that would reduce the risk posed by soil to meet the PRGs identified in this FS Report for Parcel E. The remedial alternatives include activities that will generate soil requiring off-site disposal. Potential chemical-specific ARARs are associated with the waste generating activities.

Potential federal and state chemical-specific ARARs pertaining to characterizing excavated soil are:

- RCRA hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Non-RCRA, State-regulated hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (a)(4), 66261.24(a)(2) through (a)(8), 66261.101, 66261.3(a)(2)(C) and (a)(2)(F)
- Designated and nonhazardous solid waste definitions at Cal. Code Regs. tit. 27, §§ 20210 and 20220

The following requirement of TSCA is a potential federal chemical-specific ARAR for PCBs in soil at Parcel E.

- Requirements for risk-based cleanup and disposal of PCB remediation waste at 40 CFR § 761.61(c).

B2.1.2. ARARs Conclusions for Shoreline Sediment

The Navy is evaluating remedial alternatives that would reduce the risk posed by shoreline sediment to meet the PRGs identified in this FS Report for Parcel E. Specifically, the Navy is evaluating a shoreline protection that would require excavation and off-site disposal of some shoreline sediment. Potential federal and state chemical-specific ARARs pertaining to characterizing excavated shoreline sediment are:

- RCRA hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Non-RCRA, State-regulated hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (a)(4), 66261.24(a)(2) through (a)(8), 66261.101, and 66261.3(a)(2)(C) and (a)(2)(F)
- Designated and nonhazardous solid waste definitions at Cal. Code Regs. tit. 27, §§ 20210 and 20220

B2.1.3. ARARs Conclusions for Groundwater

The Navy has concluded groundwater in the A-aquifer underlying Parcel E is not a potential source of drinking water based on federal and state criteria (see Appendix F of the Revised RI Report for Parcel E, Barajas & Associates, Inc., 2008b). In a letter dated September 2003, the Water Board concurred with the Navy's determination that the A-aquifer at HPS is not suitable or potentially suitable as a municipal or domestic water supply and meets exemption criteria in State Water Resources Control Board (SWRCB) Resolution 88-63 and Water Board Resolution 89-39 (Water Board, 2003b; SWRCB, 1988). Because groundwater in the A-aquifer is not a potential source of drinking water, drinking water standards and requirements are not potential ARARs for the A-aquifer.

Based on the Navy's evaluation of federal and state criteria, the B-aquifer underlying Parcel E has a moderate potential beneficial use as drinking water[11]. As a result, the most stringent federal or state drinking water standards and requirements are potential ARARs for the B-aquifer. The COCs in B-aquifer groundwater from the domestic use pathway are 1,4-dichlorobenze, arsenic, manganese, tetrachloroethene, thallium, TCE, and vinyl chloride.

[1] The Navy's determination that the B-aquifer has a moderate potential for use as potable water was presented in Appendix F of the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008b). It should be noted that Section 3.6 of the Revised RI Report incorrectly states that both the A- and B-aquifers at Parcel E have a low potential for use as potable water supplies.

The substantive provisions of the following requirements are the most stringent of the potential federal and state chemical-specific ARARs and TBCs for groundwater at Parcel E.

- RCRA groundwater protection standards in Cal. Code Regs. tit. 22, §§ 66264.94(a)(1), (a)(3), (c), (d), and (e) for the A-aquifer. These sections are relevant for achieving the lowest concentration limit in the A-aquifer based on unacceptable risk from the vapor intrusion pathway.
- Federal maximum contaminant levels (MCLs) for tetrachloroethene and TCE as promulgated by EPA under SDWA at 40 CFR § 141.61(a), for the B-aquifer.
- Federal MCL for arsenic, as promulgated by EPA under the SDWA at 40 CFR § 141.62(b), for the B-aquifer.
- Federal maximum contaminant level goal (MCLG) for thallium, as promulgated by EPA under the SDWA at 40 CFR § 141.51(b), for the B-aquifer.
- State primary MCLs for 1,4-dichlorobenzene and vinyl chloride, as set forth in Cal. Code Regs. tit. 22, § 64444, for the B-aquifer.
- The substantive provisions of California Water Code §§ 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Water Quality Control Act, as enabling legislation as implemented through the beneficial uses, WQOs, waste discharge requirements (WDRs), and promulgated policies of the Comprehensive Water Quality Control Plan for the San Francisco Bay Region (referred to as the "Basin Plan") (Water Board, 2007).
- The substantive provisions for groundwater relating to beneficial uses, WQOs, WDRs, and promulgated policies in Chapters 2 and 3 of the Basin Plan (Water Board, 2007), except for the municipal and domestic supply designation for the A-aquifer.
- SWRCB Resolution 88-63, identifying exceptions to potential sources of drinking water.

These potential ARARs pertain to specific scenarios identified below.

- Containment of in-place waste at Parcel E IR-02 and IR-03, for which federal MCLs, federal MCLGs, and State primary MCLs are potential ARARs for groundwater in the B-aquifer downgradient of the point of compliance (POC). The POC for Parcel E IR-02 and IR-03 is consistent with Cal. Code Regs. tit. 22, § 66264.95 (see discussion on page B-32 under "Point of Compliance" heading).
- Clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which (1) federal MCLs, federal MCLGs, and State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plumes, and (2) the concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, § 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plumes.
- Clean closure of IR-03, for which (1) federal MCLs, federal MCLGs, and State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plume emanating from IR-03, and (2) the concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, § 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plume emanating from IR-03.

B2.1.4. ARARs Conclusions for Surface Water

The only surface water bodies at Parcel E consist of intertidal wetlands along the shoreline. Groundwater at Parcel E has the potential to discharge to the bay. The Navy has identified the substantive provisions of (1) the California Toxics Rule (CTR) (40 CFR § 131.38) and (2) Table 3-3 of the Basin Plan as potentially applicable chemical-specific ARARs for surface water at Parcel E, to be met at the interface of A-aquifer groundwater and the bay. In this FS Report, the Navy is evaluating groundwater monitoring as a component of the groundwater and NAPL alternatives (aside from the no action alternatives). This will allow the Navy to monitor any direct release of contamination to the bay.

B2.1.5. ARARs Conclusions for Air

There are no potential chemical-specific air ARARs for inhalation of VOCs from soil or groundwater. Risks from inhalation of vapors originating in VOC-contaminated soil or groundwater are addressed under the soil gas RAO (Section B1.2.1.1).

B2.2. DETAILED DISCUSSION OF CHEMICAL-SPECIFIC ARARS BY MEDIUM

The following subsections provide a detailed discussion of federal and state ARARs by medium.

B2.2.1. Soil ARARs

The only potential chemical-specific ARARs for soil pertain to characterizing any waste generated in implementing various alternatives for off-site disposal, such as excavation and off-site disposal of soil. These potential federal and state chemical-specific ARARs are discussed below.

The key threshold question for soil ARARs is whether or not the wastes and soil exceeding screening criteria at Parcel E would be classified as hazardous waste. The wastes and soil may be classified as a federal hazardous waste as defined by RCRA and the state-authorized program or as non-RCRA, state regulated hazardous waste. If wastes and soil are determined to be hazardous waste, the appropriate requirements apply.

B2.2.1.1. Federal ARARs

RCRA Requirements

The federal RCRA requirements at 40 CFR Part 261 do not apply in California because the State RCRA program is authorized. The authorized State RCRA requirements are therefore considered potential federal ARARs. The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste; whether the waste was initially treated, stored, or disposed after the effective date of the particular RCRA requirement; and whether the activity at the site constitutes treatment, storage, or disposal as defined by RCRA. However, RCRA requirements may be relevant and appropriate even if

they are not applicable. Examples include activities that are similar to the definition of RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

The determination of whether a waste is a RCRA hazardous waste can be made by comparing the site waste with the definition of RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potential ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the TCLP. The maximum concentrations allowable for the TCLP listed in § 66261.24(a)(1)(B) are potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values, it is determined to be a characteristic RCRA hazardous waste. As described in Section B1.4.1, the determination of whether a waste is RCRA hazardous is also based on the characteristics of ignitability, corrosivity, and reactivity.

Some soil alternatives will result in generation of waste for off-site disposal. If the Navy determines that this waste is RCRA hazardous waste, the Navy will comply with all applicable requirements for proper off-site disposal, such as packaging, manifesting, and LDRs. RCRA LDRs at Cal. Code Regs. tit. 22, § 66268.1(f) prohibit the placement of hazardous waste on land unless (1) it is treated in accordance with the treatment standards of Cal. Code Regs. tit. 22, § 66268.40, and the underlying hazardous constituents meet the Universal Treatment Standards at Cal. Code Regs. tit. 22, § 66268.48; (2) it is treated to meet the alternative soil treatment standards of Cal. Code Regs. tit. 22, § 66268.49; or (3) a treatability variance is obtained under Cal. Code Regs. tit. 22, § 66268.44. The on-site response actions considered under the soil alternatives do not trigger RCRA LDRs, as discussed in Sections B4.1.2.1 and B4.1.3.1.

During the previous removal action performed at IR-02 Northwest and Central, which was designed to remove debris and other materials with radioactivity above the radiological remedial objectives (RROs), additional chemical data was collected that identified RCRA hazardous waste in the area (TtECI, 2007c). The waste characterization data were not collected to support off-site disposal during the removal action but rather were collected to support the analysis of remedial alternatives in this FS report; this decision was consistent with recommendations presented in EPA guidance (EPA, 1988a). The excavated soil that was verified to be below the RROs, but contained elevated concentrations of various metals (most notably lead) characteristic of RCRA hazardous waste, was used as backfill. However, these backfilling procedures did not constitute placement or disposal of RCRA hazardous waste because the material was managed and consolidated within the CERCLA area of contamination (TtECI, 2007c). As a result, the removal action at IR-02 did not trigger the applicability of RCRA disposal requirements, such as landfill closure, minimum technology, or LDRs (EPA, 1988a). RCRA closure requirements are evaluated as potential relevant and appropriate ARARs in Section B4.1.2.1.

Toxic Substances Control Act

TSCA regulates the storage and disposal of PCBs. These requirements have both action- and chemical-specific aspects. They address storage and disposal activities based on PCB concentrations. Therefore, they may be discussed in both this section and Section B4. Under TSCA, EPA has promulgated 40 CFR § 761.61(a), (b) and (c) requirements that provide cleanup and disposal options for PCB remediation waste. The options include (1) self-implementing on-site cleanup and disposal, (2) performance-based disposal, and (3) risk-based disposal. The self-implementing cleanup provisions are not binding on cleanups conducted under other authorities, including actions conducted under CERCLA §§ 104 or 106; therefore, they are not applicable ARARs for actions at CERCLA sites. In the preamble of the final rule for 40 CFR Part 761, however, EPA indicates that it anticipates that the final rule "will be a potential ARAR at CERCLA sites where PCBs are present. EPA expects that CERCLA cleanups would typically comply with the substantive requirements of one of the three options, provided by Section 761.61, upon completion of the cleanups" (63 Fed. Reg. 35, 407, June 29, 1998). Therefore, 40 CFR § 761.61(c) is potentially relevant and appropriate at CERCLA sites where PCB contamination is present.

Risk-Based Option. The requirements at 40 CFR § 761.61(c) for risk-based disposal are mostly procedural requiring EPA approvals. The substantive provisions are at § 761.61(c)(2), which requires that the risk-based sampling, cleanup, and disposal will not pose an unreasonable risk of injury to health or the environment.

The substantive provisions of 40 CFR § 761.61(c) are potential relevant and appropriate federal chemical-specific ARARs for PCB-contaminated soil at Parcel E.

B2.2.1.2. State ARARs

RCRA Requirements

State RCRA requirements included within the EPA-authorized RCRA program for California are considered potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Fed. Reg. 60848). Cal. Code Regs. tit. 22, div. 4.5 requirements that are part of the State-approved RCRA program would be potential state ARARs for non-RCRA, State-regulated hazardous wastes.

The site waste characteristics need to be compared with the definition of non-RCRA, State-regulated hazardous waste. The requirements for non-RCRA, State-regulated waste are defined at Cal. Code Regs. tit. 22, § 66261.24(a)(2). Section 66261.24(a)(2) lists the TTLCs and STLCs. The site waste may be compared with these thresholds to determine whether waste meets the definition of non-RCRA, State-

regulated hazardous waste. The Navy will determine whether any waste it generates meets the characteristics for a non-RCRA, State-regulated hazardous waste prior to off-site disposal.

Title 23 California Code of Regulations, Division 3, Chapter 15

The requirements at this section define a hazardous waste that is covered by the Chapter 15 requirements. These are not more stringent than federal or State RCRA ARARs for identifying hazardous waste, so they are not chemical-specific ARARs.

Section 2550.4 of Chapter 15 has also been identified by the State as a potential ARAR for soil cleanup levels for hazardous waste. This section is essentially the same as federal ARARs identified at Cal. Code Regs. tit. 22, § 66264.94(a)(1)(3), (c), (d), and (e). Therefore, Section 2550.4 is not an ARAR for soil cleanup levels at Parcel E.

Title 27 California Code of Regulations, Division 2, Subdivision 1

Former requirements at Cal. Code Regs. tit. 23, div. 3, ch. 15 were repealed and recodified at Cal. Code Regs. tit. 27, div. 2, Subdivision 1, and became effective July 18, 1997. The following sections of Cal. Code Regs. tit. 27, div. 2, Subdivision 1 define waste characteristics for discharge of waste to land. These requirements may be applicable for soil left in place that was discharged after the effective date of the requirements. They are not potentially applicable to discharges before that date, but may be relevant and appropriate. Because industrial operations at HPS ceased before July 18, 1997, these requirements were evaluated to determine whether they were relevant and appropriate for the response action at Parcel E.

Cal. Code Regs. tit. 27, §§ 20210 and 20220 are State definitions for designated waste and nonhazardous waste, respectively. These may be ARARs for waste that meets the definitions. These waste classifications determine State classification and siting requirements for discharging waste to land. The Navy will determine if excavated soil meets the definition of designated or nonhazardous solid waste at the time it is generated and will dispose of the soil in an appropriate landfill.

The substantive provisions of Cal. Code Regs. tit. 27, §§ 20210 and 20220 are potential relevant and appropriate state chemical-specific ARARs for soil at Parcel E.

Cal. Code Regs. tit. 27, § 20400(a), (c), (d), (e), and (g) have been identified by the State as potential monitoring and cleanup concentration limit ARARs for waste soil other than hazardous waste. This section is also not more stringent than federal ARARs at Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3), (c), (d), and (e). Therefore, Cal. Code Regs. tit. 27, § 20400 is not an ARAR for soil at Parcel E.

B2.2.2. Shoreline Sediment ARARs

Similar to the potential soil ARARs identified in Section B2.2.1, the only potential chemical-specific ARARs for shoreline sediment pertain to characterizing any waste generated in implementing various alternatives for off-site disposal, such as excavation and off-site disposal of shoreline sediment prior to installing shoreline protection. These potential federal and state chemical-specific ARARs are discussed below.

A threshold question for shoreline sediment ARARs is whether or not the shoreline sediment either in situ or excavated would be classified as federal hazardous waste as defined by RCRA or as non-RCRA, state-regulated, hazardous waste. Contaminated shoreline sediments that are subject to a permit that has been issued under Section 404 of the CWA or under Section 103 of the Marine Protection, Research, and Sanctuaries Act (also known as the Ocean Dumping Act) are excluded from the definition of federal hazardous waste under the Dredged Material Exclusion of 40 CFR § 261.4(g). Permits under either law will govern management of shoreline sediments destined for off-site discharge into waters of the United States. The excavated shoreline sediments are not proposed for off-site discharge into waters of the United States, but rather will be staged and characterized in an upland area prior to off-site disposal. In accordance with 63 Fed. Reg. § 65874, discharge of contaminated sediments that occurs in upland areas that have no return flow to waters of the United States is not subject to the exclusion of 40 CFR § 261.4(g). Therefore, if these sediments are determined to be hazardous waste, the appropriate RCRA requirements will apply.

B2.2.2.1. Federal ARARs

RCRA Hazardous Waste and Land Disposal Restriction Requirements

While EPA proposed national sediment criteria in 1998 to set pollution thresholds that sediments could not exceed, those criteria were withdrawn after consultation with the U.S. Army Corps of Engineers (USACE). Accordingly, the only federal ARARs for sediments are RCRA hazardous waste and LDRs and water quality standards and National Recommended Water Quality Criteria (NRWQC) under the Clean Water Act (CWA). The applicability of RCRA requirements depends on whether the sediments contain listed or characteristic RCRA hazardous waste; whether the waste was initially treated, stored, or disposed after the effective date of the particular RCRA requirement; and whether the activity at the site constitutes generation, treatment, storage, or disposal as defined by RCRA. Excavation of sediments containing RCRA hazardous waste constitutes generation of waste, to which RCRA requirements apply. RCRA requirements may also be relevant and appropriate even if they are not applicable. Examples include activities that are similar to those defined as RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

Determination of whether a waste is a RCRA hazardous waste can be made by comparing site waste to the definition of RCRA hazardous waste. RCRA requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potential ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the TCLP. The maximum concentrations allowable for the TCLP listed in Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B) are potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values it is determined to be a characteristic RCRA hazardous waste. See Section B1.4.1 for a more complete discussion of hazardous waste determination.

For alternatives that involve excavation of shoreline sediment for off-site disposal, the Navy will determine if excavated shoreline sediment meets the definition of RCRA hazardous waste at the time it is generated. If the Navy determines that this waste is RCRA hazardous waste, the Navy will comply with all applicable requirements for proper off-site disposal, such as packaging, manifesting, and land-disposal restrictions.

National Oceanic and Atmospheric Administration Toxicity-Based Thresholds

The National Oceanic and Atmospheric Administration (NOAA) developed effects range-low (ER-L) and effects range-median (ER-M) toxicity-based thresholds for sediment (Long and Morgan 1991; Long et al. 1995). NOAA derived these values using data from estuarine and marine sediment using modeling techniques, as well as laboratory and field studies. For each chemical, the chemical concentrations associated with observed biological effects were sorted. The ER-L for a given chemical is the concentration associated with the lower 10th percentile in the data. The ER-M is the median concentration. The ER-L and ER-M values may be used to predict the potential for adverse biological effects. Adverse biological effects include mortality or sublethal effects (such as reduced growth or reduced reproductive success). While ER-Ls and ER-Ms have been applied to CERCLA sites, the current trend is away from using them even as screening tools. They are viewed cautiously because they represent only probabilities that reported levels of contaminants can be associated with adverse biological effects. They do not establish any level of contamination that actually causes toxicity to benthic or upper trophic organisms in a given environment. Therefore, ER-Ls and ER-Ms may be used as screening tools, but they are inappropriate for direct use as PRGs.

The response action for offshore sediment at HPS has been previously evaluated for Parcel F (Barajas & Associates, Inc., 2008a). The response action being evaluated for Parcel E includes contaminated shoreline sediment along the narrow intertidal zone between the offshore area (Parcel F) and the onshore portions of Parcel E. Risk evaluations summarized in the Revised RI Report indicate that chemicals in this intertidal shoreline sediment pose a risk to humans and wildlife (Barajas & Associates, Inc., 2008b).

The PRGs established for shoreline sediment are based primarily on ambient values (Water Board, 1998 and 2003a) but, for certain chemicals, may be adjusted upward based on ER-M values.

B2.2.2.2. State ARARs

RCRA Requirements

State RCRA requirements included within the EPA-authorized RCRA program for California are considered potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Fed. Reg. 60848). Cal. Code Regs. tit. 22, div. 4.5 requirements that are part of the State-approved RCRA program would be potential state ARARs for non-RCRA, State-regulated hazardous wastes. The Navy will determine whether any excavated shoreline sediment it generates meets the characteristics for a non-RCRA, State-regulated hazardous waste prior to off-site disposal.

Title 27 California Code of Regulations, Division 2, Subdivision 1

The substantive provisions of Cal. Code Regs. tit. 27, §§ 20210 and 20220 are potential relevant and appropriate state chemical-specific ARARs for shoreline sediment at Parcel E. The Navy will determine if excavated shoreline sediment meets the definition of designated or nonhazardous solid waste at the time it is generated and will dispose of the soil in an appropriate landfill.

B2.2.3. Groundwater ARARs

The hydrostratigraphy of Parcel E consists of a four distinct units, including three water-bearing units and one aquitard. The shallowest water-bearing unit is referred to as the A-aquifer. The A-aquifer is separated from the deeper water-bearing unit, referred to as the B-aquifer, by the Bay Mud aquitard in most locations across Parcel E. Flow in the third water-bearing unit, the bedrock water-bearing zone (WBZ), generally occurs in localized, discontinuous fractures located below the upper weathered portions of bedrock. As discussed in Section 2.2.7.1 of the FS Report, the presence of laterally continuous layers of silt and clay within the B-aquifer sediments serve to hydraulically isolate the uppermost portions of the B-aquifer (that are interconnected with the A-aquifer) from the lower portions of the B-aquifer. Groundwater monitoring has been limited to the uppermost B-aquifer, and no monitoring has been required in the lower portions of the B-aquifer or the bedrock WBZ (see Section 2.2.7.1 of the FS Report). The A-aquifer and uppermost B-aquifer present at HPS are potentially affected by contamination from Parcel E.

B2.2.3.1. Federal ARARs

Federal Groundwater Classification

Under the SDWA and RCRA, a significant issue in identifying ARARs for groundwater is whether groundwater at the site can be classified as a source of drinking water. The EPA groundwater policy is set forth in the preamble to the NCP (55 Fed. Reg. 8666, 8752–8756 [1990]). This policy uses the protocols in the EPA's "Guidelines for Groundwater Classification Under the EPA Groundwater Protection Strategy" (EPA, 1986). Under this policy, groundwater is classified in one of three categories (Class I, II, or III) based on ecological importance, replaceability, and vulnerability. Class I groundwater is irreplaceable groundwater currently used by a substantial population or groundwater that supports a vital habitat. Class II consists of groundwater currently used or that might be used as a source of drinking water in the future. Class III groundwater is groundwater that cannot be used for drinking water because of its poor quality (such as high salinity or widespread, naturally occurring contamination) or insufficient quantity. EPA guidelines define Class III groundwater as groundwater with total dissolved solids (TDS) concentrations over 10,000 mg/L and a yield of less than 150 gallons per day (gpd) (EPA, 1986). Class III groundwater can also be classified based on economic or technological treatability tests, as well as quality or quantity.

The beneficial use evaluation using the EPA groundwater classification criteria indicated that approximately 40 percent of the A-aquifer is Class III groundwater and is not suitable for a drinking water supply or other beneficial use (Barajas & Associates, Inc., 2008b). The remaining 60 percent qualifies as Class II groundwater; however, based on the evaluation of site-specific factors (SSFs) discussed below, the A-aquifer is not suitable for use as a drinking water source and MCLs will not be considered ARARs for this response action.

The Navy evaluated the suitability of the A- and B-aquifers as potential drinking water sources based on eight SSFs developed in conjunction with EPA (Barajas & Associates, Inc., 2008b). The SSFs are (1) aquifer thickness; (2) measured TDS concentrations; (3) actual groundwater yield; (4) depth to groundwater; (5) proximity to saltwater and the potential for saltwater intrusion; (6) quality of the underlying water-bearing units; (7) existence of institutional controls on well construction or aquifer use; and (8) information on historic and current use of the aquifer. In addition, the Navy evaluated the cost of cleanup to MCLs. The Navy's evaluation of the A- and B-aquifer based on these SSFs, as presented in Appendix F of the Revised RI Report (Barajas & Associates, Inc., 2008b), is summarized below.

<u>A-Aquifer Drinking Water Source Evaluation</u>

Aquifer thickness. The saturated thickness of the unconsolidated materials that form the A-aquifer averages approximately 10 feet in the potentially potable area. Assuming an average porosity of

25 percent, this translates to approximately 207 acre-feet of available water in the A-aquifer for all of Parcel E, which is a relatively small groundwater resource.

Measured TDS concentrations. The statistical evaluation of TDS data indicated that the average TDS concentration in the A-aquifer at Parcel E is about 10,300 mg/L, which is relatively high for use as a source of drinking water.

Groundwater yield. Aquifer test results revealed pumping rates ranging from 1,720 to 72,000 gpd (Tetra Tech EM Inc. [TtEMI], Levine-Fricke-Recon, and Uribe & Associates, 1997; TtEMI, 2004). These results indicate that the A-aquifer could potentially provide a sustainable yield meetings the federal criterion of 150 gpd.

Depth to groundwater. Depth to groundwater at Parcel E averages about 8 feet, and the A-aquifer is typically 10 to 20 feet thick. This shallow depth is insufficient to ensure a well seal of at least 20 feet in accordance with the model well ordinance from the California Department of Water Resources (DWR) (Bulletins 74-81 and 74-90 [DWR, 1981 and 1990]).

Proximity to saltwater and potential for saltwater intrusion. Long-term groundwater extraction from wells located in areas where groundwater exhibits high salinity, or areas that are located close to the bay, could result in degradation of water quality as nearby saltwater is drawn toward the production wells to replace the extracted groundwater. Because much of Parcel E is located close to the bay or to areas with elevated TDS concentrations in groundwater, it is likely that long-term groundwater extraction would cause saltwater intrusion and ongoing degradation of the A-aquifer.

Quality of underlying water-bearing units. The water-bearing unit underlying the A-aquifer at Parcel E is the B-aquifer. The statistical analysis of TDS concentrations in the uppermost B-aquifer indicated that the average TDS concentration is 5,064 mg/L. In addition, spatial analysis of the B-aquifer data indicated that TDS concentrations are elevated near the shoreline, similar to the A-aquifer.

Existence of regulatory controls on well construction and aquifer use. The City and County of San Francisco (CCSF) requires that permits be obtained from the Department of Public Health prior to installation of any domestic use groundwater wells within the city limits. Groundwater wells in use for irrigation currently exist on the west side of CCSF. The CCSF's Public Utilities Commission has proposed a project to install groundwater extraction wells in the CCSF's west side basin and to use the water to supplement the CCSF's public drinking water supply by up to 2 million gallons per day. No groundwater extraction wells are currently in use on the CCSF's east side for domestic water purposes. The CCSF's Public Utilities Commission has not proposed installing any groundwater extraction wells on the east side of the CCSF.

Historic and current uses of the aquifer. The A-aquifer groundwater at HPS has never been and is not currently being used as a drinking water source. The CCSF currently obtains its municipal water supply from the Hetch Hetchy watershed in the Sierra Nevada Mountains and plans to continue using the Hetch Hetchy watershed as a drinking water source in the future.

Cost of cleanup to federal drinking water standards. The A-aquifer contains fill material derived from the Franciscan Formation and is also composed of weathered bedrock in some locations. HGALs were derived for naturally occurring metals in the A-aquifer. The HGAL for arsenic exceeded its respective federal drinking water standard MCL. The cost to reduce concentrations of naturally occurring arsenic below MCLs would likely be prohibitive, and it may be technically impracticable to do so.

Based on EPA's groundwater classification criteria and the evaluation of these SSFs, groundwater in the A-aquifer is not considered suitable for potential use as a drinking water source.

B-Aquifer Drinking Water Source Evaluation

Aquifer thickness. The saturated thickness of the unconsolidated materials and the weathered bedrock zone that form the upper B-aquifer have an average thickness of about 30 to 40 feet in the potentially potable area (TDS <10,000 mg/L). Assuming an average effective porosity of 25 percent, about 1,087 acre-feet of water is available in the B-aquifer for all of Parcel E, which is not a large groundwater resource.

Measured TDS concentrations. The average TDS concentration in the B-aquifer at Parcel E is about 5,000 mg/L, which is relatively high for use as a source of drinking water. However, the TDS content of B-aquifer groundwater beneath Parcel E would generally be below 3,000 mg/L.

Groundwater yield. Monitoring well purging and sampling data collected during groundwater sampling events suggested that B-aquifer wells could potentially provide a sustainable yield that would meet both the federal criterion of 150 gpd and the State criterion of 200 gpd.

Depth to groundwater. The depth to the B-aquifer ranges from about 20 to 25 feet, and the aquifer is about 30 feet thick. These conditions are adequate to ensure a well seal of at least 20 feet for an individual domestic well, but are insufficient to ensure a well seal of 50 feet for a community water supply well in accordance with the model well ordinance from the DWR (Bulletins 74-81 and 74-90 [DWR, 1981 and 1990]).

Proximity to saltwater and potential for saltwater intrusion. Because much of Parcel E is located close to San Francisco Bay, or areas with elevated TDS concentrations in groundwater, it is likely that long-term groundwater extraction would cause saltwater intrusion and ongoing degradation of the B-aquifer.

Quality of underlying water-bearing units. The water-bearing unit underlying the B-aquifer at Parcel E is the bedrock WBZ. Insufficient data exists to evaluate the B-aquifer with respect to this SSF.

Existence of regulatory controls on well construction and aquifer use. The CCSF requires that permits be obtained from the Department of Public Health prior to installation of any domestic use groundwater wells within the city limits. Groundwater wells in use for irrigation currently exist on the west side of CCSF. The CCSF's Public Utilities Commission has proposed a project to install groundwater extraction wells in the CCSF's west side basin and to use the water to supplement the CCSF's public drinking water supply by up to 2 million gallons per day. No groundwater extraction wells are currently in use on the CCSF's east side for domestic water purposes. The CCSF's Public Utilities Commission has not proposed installing any groundwater extraction wells on the east side of the CCSF.

Historical and current uses of the aquifer. The B-aquifer groundwater at HPS has never been and is not currently being used as a drinking water source. The CCSF currently obtains its municipal water supply from the Hetch Hetchy watershed in the Sierra Nevada Mountains and plans to continue using the Hetch Hetchy watershed as a drinking water source in the future.

Cost of cleanup to federal drinking water standards. B-aquifer groundwater beneath Parcel E is not significantly affected by site activities. The Revised RI Report did not identify any B-aquifer plumes at Parcel E. Several chemicals were previously detected in the B-aquifer at concentrations exceeding MCLs, but were not persistent over time. Based on these historic detections, the human health risk assessment identified several COCs in the B-aquifer (Barajas & Associates, Inc., 2008b).

Based on EPA's groundwater classification criteria and the evaluation of these SSFs, groundwater in the B-aquifer is considered to have a moderate potential for use as a drinking water source (Barajas & Associates, Inc., 2008b). The potential federal ARARs resulting from the drinking water source evaluation are specified in detail below (see paragraphs under the headings titled "Safe Drinking Water Act," "RCRA Groundwater Protection Standards," and "Point of Compliance").

Safe Drinking Water Act

EPA has promulgated drinking water standards for public water supply systems pursuant to its authority under the SDWA. These drinking water standards consist of primary and secondary MCLs and MCLGs. These standards are applicable requirements for drinking water quality "at the tap" of the end users of the regulated public water supply systems. They are not directly applicable to in-situ groundwater and therefore do not qualify as applicable federal ARARs for groundwater response actions. However, they may be relevant and appropriate requirements for such actions.

EPA provided policy guidance in the 1990 NCP preamble directing that the EPA guidelines for groundwater classification (EPA, 1986) be followed in determining when federal primary MCLs may be relevant and

appropriate for groundwater response actions (see 55 Fed. Reg. §§ 8666, 8752–8756 [1990]). The intent of this policy is to focus CERCLA cleanup efforts based on groundwater quality (classification).

For portions of the A-aquifer that are Class III groundwater, MCLs are neither applicable nor relevant and appropriate and are not used to determine preliminary response action goals (EPA, 1986; 55 Fed. Reg. §§ 8666, 8752–8756 [1990]). Based on the analysis of the SSFs summarized above, portions of the A-aquifer that are Class II groundwater are not considered suitable for potential use as a drinking water source. Therefore, MCLs are not potential ARARs for the A-aquifer at Parcel E.

Groundwater in the B-aquifer is Class II groundwater with a moderate potential for use as a source of drinking water. MCLs for the B-aquifer are found at 40 CFR §§ 141.61(a) and 141.62(b). Although MCLs are developed using cost and technical considerations, EPA considers them to be protective of human health as well. Federal MCLs are potential relevant and appropriate ARARs for the B-aquifer.

EPA has also developed MCLGs to serve as guidance for establishing MCLs. MCLGs for organic chemicals are promulgated at Title 40 CFR § 141.50. MCLGs for inorganic chemicals are promulgated at Title 40 CFR § 141.51. An MCLG is set at a level where no adverse health effects may arise, with a margin of safety. An MCL is required to be set as close as possible to its corresponding MCLG, taking into consideration the best technology, treatment techniques, and other factors, including cost. For noncarcinogens, MCLs generally are set equal to MCLGs. MCLGs for carcinogens are set at zero.

The NCP states that MCLGs that are set at levels above zero should be considered to be relevant and appropriate requirements for groundwater that are potential sources of drinking water (40 CFR § 300.430[e][2][I][B] and 55 Fed. Reg. §§ 8666, 8750–8754 [1990]). The Navy evaluated MCLGs as potential relevant and appropriate requirements. The table below lists the COCs identified for the B-aquifer, the federal MCL (if any), and the federal MCLG (if any). The human health risk assessment identified these COCs in the B-aquifer based on these historic detections; however, none of these COCs currently exceeds its federal MCL in the B-aquifer.

COC	Federal MCL	Citation	Federal MCLG	Citation
1,4-Dichlorobenzene	75 µg/L	40 CFR § 141.61(a)	75 µg/L	40 CFR § 141.50(b)
Arsenic	10 µg/L	40 CFR § 141.62(b)	Zero	40 CFR § 141.51(b)
Manganese	--	None	--	None
Tetrachloroethene	5 µg/L	40 CFR § 141.61(a)	Zero	40 CFR § 141.50(a)
Thallium	2 µg/L	40 CFR § 141.62(b)	0.5 µg/L	40 CFR § 141.51(b)
Trichloroethene	5 µg/L	40 CFR § 141.61(a)	Zero	40 CFR § 141.50(a)
Vinyl chloride	2 µg/L	40 CFR § 141.61(a)	Zero	40 CFR § 141.50(a)

Notes:

-- No promulgated MCL (or MCLG) for this chemical

Thallium and 1,4-dichlorobenzene (referred to as para-dichlorobenzene in 40 CFR § 141.61[a]) are the only COCs for the B-aquifer with nonzero MCLGs. The MCLG for thallium is more stringent than the MCL.

Therefore, the Navy has determined that the MCLG, not the MCL, is the relevant and appropriate requirement. The MCLG for 1,4-dichlorobenzene is set at a level equal to the MCL. The Navy has determined that the MCLG for 1,4-dichlorobenzene is not the relevant and appropriate requirement because it is not more stringent than the MCL.

However, the MCL for arsenic and MCLG for thallium are lower than the likely background conditions for these metals. This conclusion is based on the following information:

- Arsenic, as well as numerous other metals (including iron, manganese, and nickel), are components of the Franciscan Formation bedrock and bedrock-derived fill that underlies HPS (see Section 2.2.6 of the FS Report).
- The B-aquifer in the northern portion of Parcel E is hydraulically connected to the A-aquifer, which was constructed using bedrock-derived fill, and groundwater from the A-aquifer may flow into the northernmost portion of the B-aquifer (see Section 2.2.7 of the FS Report).
- HGALs were derived for naturally occurring metals in the A-aquifer (PRC Environmental Management, Inc., 1996). The HGAL for arsenic (27.3 µg/L) exceeds the MCL (10 µg/L), and the HGAL for thallium (12.97 µg/L) exceeds the MCLG (0.5 µg/L).

Generally, CERCLA and the State of California do not require cleanup of groundwater to below background conditions. The Navy compared the MCL for arsenic and the MCLG for thallium with the HGALs and, because the HGALs are greater than the corresponding MCLs, the Navy used the HGALs as the basis for the PRG for B-aquifer groundwater.

Secondary MCLs are nonenforceable federal contaminant levels intended as guidelines for the states. Because they are nonenforceable, federal secondary MCLs are not ARARs.

Although the point of compliance for MCLGs and MCLs under the SDWA is at the tap, EPA has determined that for CERCLA remedies, nonzero MCLGs or MCLs should be obtained throughout the contaminated plume or at and beyond the edge of the waste management area, when waste is left in place (55 Fed. Reg. §§ 8666, 8753 [1990]). Based on the drinking water source evaluation summarized above, federal MCLs and MCLGs are potential federal ARARs for the following scenarios:

- Containment of in-place waste at Parcel E IR-02 and IR-03, for which federal MCLs and MCLGs are potential ARARs for groundwater in the B-aquifer downgradient of the POC. The POC for groundwater plumes at Parcel E IR-02 and IR-03 is discussed below (under “Point of Compliance” heading).
- Clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which federal MCLs and MCLGs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plumes.
- Clean closure of IR-03, for which federal MCLs and MCLGs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plume emanating from IR-03.

RCRA Hazardous Waste Requirements

Similar to the requirements discussed for soil and shoreline sediment (Sections B2.2.1.1 and B2.2.2.1), the RCRA requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potential ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the TCLP. The maximum concentrations allowable for the TCLP listed in Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B) are potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values, it is determined to be a characteristic RCRA hazardous waste (Section B1.4.1).

RCRA Groundwater Protection Standards

Groundwater concentration limits for RCRA-regulated units are promulgated at Cal. Code Regs. tit. 22, § 66264.94. For corrective action programs, Cal. Code Regs. tit. 22, § 66264.94(c) states that the concentrations of chemicals must not exceed the background level of that chemical in groundwater or, if achieving background is shown to be technologically or economically infeasible, some concentration limit greater than background that is set as part of the corrective action program. Cal. Code Regs. tit. 22, § 66264.94(e) states that in no event shall a concentration limit greater than background exceed other applicable statutes or regulations (such as an MCL) or the lowest concentration demonstrated to be technologically and economically achievable.

Consistent with the drinking water source evaluation summarized above, the A-aquifer is not a potential source of drinking water; therefore, MCLs are not applicable regulations and are not potential ARARs for the A-aquifer. The lowest concentration determined to be technologically and economically achievable is a potential ARAR for the A-aquifer where there is potential risk from vapor intrusion. In general, economic feasibility is an objective balancing of the incremental benefit of attaining further reductions in the concentrations of COCs with the incremental cost of achieving those reductions. Therefore, the lowest feasible concentration limits are based on the site risk. The lowest concentration limit greater than background that is technologically and economically achievable for the A-aquifer is based on unacceptable risk from the vapor intrusion pathway.

The requirements at Cal. Code Regs. tit. 22, § 66264.94 are not applicable to groundwater because there is no RCRA-regulated unit at Parcel E. However, because wastes at the site are similar or identical to RCRA hazardous wastes, substantive provisions of Cal. Code Regs. tit. 22, § 66264.94(a)(1), (a)(3), (c), (d), and (e) are relevant and appropriate, and are therefore potential federal ARARs for portions of A-aquifer groundwater at Parcel E where there is potential risk from vapor intrusion. Specifically, concentration limits based on unacceptable risk from the vapor intrusion pathway are potential ARARs for the following scenarios:

- Clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which the concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, § 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plumes.
- Clean closure of IR-03, for which the concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, § 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plume emanating from IR-03.

The POC for groundwater plumes at Parcel E is discussed below (under "Point of Compliance" heading).

Point of Compliance

The origins of EPA policy on the POC regulatory mechanism can be traced to early EPA RCRA regulations for groundwater monitoring and corrective action at RCRA-regulated units set forth in 40 CFR Part 264, Subpart F (40 CFR § 264.95 and 47 Fed. Reg. §§ 32273, 3229 [26 July 1982]). The cited preamble to these regulations clearly states that groundwater cleanup standard and corrective action requirements apply at and beyond the POC at the downgradient edge of regulated units.

EPA followed the RCRA regulatory model and adopted the POC when it established its CERCLA groundwater cleanup policy in the 1990 NCP. EPA's CERCLA policy, set forth in the NCP preamble states that "EPA believes that remediation levels should generally be attained throughout the contaminated plume or at and beyond the edge of the waste management area, when waste is left in place" (55 Fed. Reg. §§ 8666, 8753 [08 March 1990]). The NCP preamble on the same page discusses groundwater cleanup levels and states that "Such restoration may be achieved by attaining MCLs or non-zero MCLGs in the ground water itself, excluding the area underneath any waste left in place."

The policy reflected in the NCP preamble language quoted above was issued to accommodate both scenarios, where (1) complete clean closure is selected as a remedial action using the nine NCP remedy selection criteria and cleanup throughout the contaminant plume is an appropriate cleanup goal; and (2) the remedy selected under those criteria support leaving some waste in place and containing it in conjunction with a POC either for cost reasons or technical feasibility limitations on complete treatment.

In accordance with the NCP preamble, certain circumstances may occur where a plume of groundwater contamination is caused by releases from several distinct sources that are in close geographical proximity. In such cases, the most cost-effective groundwater cleanup strategy may be to address the problem as a whole rather than on a source-by-source basis and to draw a common POC that encompasses all the sources of release (55 Fed. Reg. 8753, 08 March 1990).

Consistent with EPA's policy as set forth in the NCP preamble, State of California regulations contain the following POC provisions:

- Cal. Code Regs. tit. 22, § 66264.95 indicates that the POC at which the protection standards apply is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit.
- Cal. Code Regs. tit. 23, § 2550.5 and Cal. Code Regs. tit. 27, § 20405(a) both specify that the POC is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit.

The POC provisions at Cal. Code Regs. tit. 22, § 66264.95 are potential relevant and appropriate ARARs for the scenario involving containment of in-place waste at Parcel E IR-02 and IR-03. Containment of in-place waste at Parcel E IR-02 and IR-03 is an element of all remedial alternatives except the "no action" alternatives (for soil, groundwater, and NAPL) and Alternative N-6 (which involves clean closure of NAPL at IR-03).

Waste has been identified throughout IR-02 and IR-03, and this waste is the primary source of contamination to groundwater (see Sections 4.3.9, 4.3.10, and 4.3.11 of the Revised RI Report [Barajas & Associates, Inc., 2008b]). Based on these findings, IR-02 and IR-03 is considered a contiguous waste management unit. Consistent with the circumstances stated in the NCP preamble, the site conditions warrant defining a common POC downgradient of the contaminant sources at IR-02 and IR-03. It is the Navy's position that designation of the POC at the downgradient edge of IR-02 and IR-03 (see Figure B-1) would be appropriate and is supported by CERCLA, the NCP, and the site-specific conditions at IR-02 and IR-03. The Navy believes that contamination at IR-02 and IR-03 upgradient of the POC would be adequately contained by the remedial action to ensure compliance with the RAOs and adequately protect human health and the environment.

The POC provisions at Cal. Code Regs. tit. 22, § 66264.95 are not potential relevant and appropriate ARARs for the scenario involving clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03 (see Figure B-1). Clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03 is an element of all groundwater remedial alternatives except the "no action" alternative. In addition, the POC provisions at Cal. Code Regs. tit. 22, § 66264.95 are not potential relevant and appropriate ARARs for the scenario involving clean closure of IR-03 (identified in Alternative N-6). Consistent with the circumstances stated in the NCP preamble, the potential ARARs for the clean closure scenarios apply throughout the contaminated groundwater plumes.

B2.2.3.2. State ARARs

The State identified the following potential chemical-specific ARARs for groundwater at Parcel E:

- Primary and secondary MCLs set forth in Cal. Code Regs. tit. 22 § 64431 (MCLs – Inorganic Chemicals), § 64444 (MCLs – Organic Chemicals), and § 64449 (a) (Secondary MCLs)
- SWRCB Resolutions 68-16, 88-63, and 92-49

- Basin Plan, Chapters 2, 3, and 4
- Porter-Cologne Water Quality Control Act (Porter-Cologne Act), California Water Code §§ 13304.1(a), 13307.1(c), and 13243

The Navy's conclusions regarding potential state ARARs are discussed below.

Primary and Secondary State MCLs

Primary and secondary State MCLs are set forth in Cal. Code Regs. tit. 22, as listed below.

- § 64431 (Maximum Contaminant Levels – Inorganic Chemicals)
- § 64444 (Maximum Contaminant Levels – Organic Chemicals)
- § 64449 (a) (Secondary Maximum Contaminant Levels)

The Water Board has concurred with the Navy's determination that groundwater in the A-aquifer is not a potential source of drinking water (Water Board, 2003b). Therefore, drinking water standards, such as primary and secondary State MCLs, are not potential ARARs for the A-aquifer. The Navy considers groundwater in the B-aquifer to have moderate potential as a drinking water source, thus the substantive provisions of the standards in Cal. Code Regs. tit. 22 §§ 64431, 64444, and 64449(a) constitute potential relevant and appropriate state ARARs for the B-aquifer.

The table below lists the COCs identified for the B-aquifer, the State primary MCL (if any), and the secondary MCL (if any). The table also compares the State primary and secondary MCLs with the federal MCLs and MCLGs, and identifies the most stringent MCL or MCLG. The human health risk assessment identified these COCs in the B-aquifer based on these historic detections; however, none of these COCs, with the exception of manganese, currently exceeds its State MCL in the B-aquifer.

COC	Federal MCL	Federal MCLG	State Primary MCL	State Secondary MCL	Most Stringent MCL
1,4-Dichlorobenzene	75 µg/L	75 µg/L	5 µg/L	--	5 µg/L
Arsenic	10 µg/L	--	10 µg/L	--	10 µg/L
Manganese	--	--	--	50 µg/L	50 µg/L
Tetrachloroethene	5 µg/L	Zero	5 µg/L	--	5 µg/L
Thallium	2 µg/L	0.5 µg/L	2 µg/L	--	0.5 µg/L
Trichloroethene	5 µg/L	Zero	5 µg/L	--	5 µg/L
Vinyl chloride	2 µg/L	Zero	0.5 µg/L	--	0.5 µg/L

Notes:
-- No promulgated MCL (or MCLG) for this chemical

The State primary MCLs for 1,4-dichlorobenzene and vinyl chloride are more stringent than the corresponding federal MCLs. Therefore, the Navy has determined that the State primary MCLs, not the federal MCLs, are the relevant and appropriate requirements for these chemicals. Based on the drinking water source evaluation summarized in Section B2.2.3.1, State primary MCLs are potential state ARARs for the following scenarios:

- Containment of in-place waste at Parcel E IR-02 and IR-03, for which State primary MCLs are potential ARARs for groundwater in the B-aquifer downgradient of the POC. The POC for groundwater plumes at Parcel E IR-02 and IR-03 is discussed in Section B2.2.3.1 (under "Point of Compliance" heading).
- Clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plumes.
- Clean closure of IR-03, for which State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plume emanating from IR-03.

As presented in the table above, manganese is the only COC in the B-aquifer with a secondary MCL, and there is no other promulgated drinking water standard for manganese. Therefore, the Navy evaluated the secondary MCL for manganese at Cal. Code Regs. tit. 22, § 64449(a) as a potential ARAR for the B-aquifer. The secondary MCL for manganese is a taste and odor threshold that is applicable at the tap and is not a potentially applicable ARAR for groundwater cleanup. The Navy evaluated the secondary MCL for manganese as potentially relevant and appropriate for cleanup of B-aquifer groundwater because, as discussed previously, the B-aquifer has moderate potential to be used as a drinking water source. However, the State secondary MCL for manganese is significantly lower than the likely background conditions for manganese. This conclusion is based on the following information:

- Manganese, as well as numerous other metals (including arsenic, iron, and nickel), are components of the Franciscan Formation bedrock and bedrock-derived fill that underlies HPS (see Section 2.2.6 of the FS Report).
- The B-aquifer in the northern portion of Parcel E is hydraulically connected to the A-aquifer, which was constructed using bedrock-derived fill, and groundwater from the A-aquifer may flow into the northernmost portion of the B-aquifer (see Section 2.2.7 of the FS Report).
- HGALs were derived for naturally occurring metals in the A-aquifer (PRC Environmental Management, Inc., 1996). The HGAL for manganese (8,140 µg/L) significantly exceeds the State secondary MCL (50 µg/L) by more than two orders of magnitude.

CERCLA and the State of California do not require cleanup of groundwater to below background conditions. The Navy compared the State secondary MCL for manganese with the HGAL and, because the HGAL is greater than the State secondary MCL, the Navy used the HGAL as the basis for the PRG for B-aquifer groundwater. Further, it should be noted that State secondary MCLs address taste and odor issues

for community water systems. As discussed in the drinking water source evaluation above, B-aquifer conditions at Parcel E are insufficient to ensure a well seal of 50 feet for a community water supply well (Barajas & Associates, Inc., 2008b). Based on these considerations, the Navy determined that the secondary MCL for manganese is not relevant and appropriate for cleanup of B-aquifer groundwater.

SWRCB Resolution 88-63, Adoption of Policy, "Sources of Drinking Water"

SWRCB Resolution 88-63 establishes criteria to help the Water Board identify potential sources of drinking water (SWRCB, 1988). According to this resolution, all groundwater in California is considered suitable or potentially suitable for domestic or municipal freshwater supply except in cases where any one of the following water quality and production criteria is met.

- TDS exceeds 3,000 mg/L (or electrical conductivity is greater than 5,000 micromhos per centimeter), and the Water Board does not reasonably expect the groundwater to be a public supply system.
- Groundwater is contaminated, either by natural processes or by human activity unrelated to a specific pollution incident, and cannot reasonably be treated for domestic use either by best management practices or best economically available treatment practices.
- Groundwater does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gpd.

SWRCB Resolution 88-63 was incorporated into and became part of the Basin Plan in 1989. The Navy has determined that the substantive provisions of this policy are potential state ARARs for Parcel E, but may not be controlling ARARs for reasons discussed below.

The Navy has concluded that, according to the criteria contained in SWRCB Resolution 88-63, groundwater in the A-aquifer is not a potential drinking water source and groundwater in the B-aquifer has a moderate potential for use as a drinking water source. Water Board has concurred with the Navy's conclusion that groundwater in the A-aquifer is not a potential source of drinking water (Water Board, 2003b). The potential state ARARs resulting from the drinking water determination are specified under the heading titled "Primary and Secondary State MCLs."

Basin Plan

The Navy accepts the substantive provisions for groundwater in Chapters 2 and 3 of the Basin Plan, including beneficial use, WQOs, and waste discharge requirements, as potential state ARARs. The beneficial uses designated for Parcel E groundwater, except the domestic and municipal supply designation for the A-aquifer, are potentially applicable ARARs for this FS Report.

The Water Board prepared and implemented the Basin Plan to protect and enhance the quality of the waters in the San Francisco Bay region. The Basin Plan establishes location-specific beneficial uses and

WQOs for surface water and groundwater of the region and is the basis of the Water Board's regulatory programs. The Basin Plan includes both numerical and narrative WQOs for specific groundwater subbasins. The WQOs are intended to protect the beneficial uses of the waters of the region and to prevent nuisance.

Beneficial use and reuse of water are key aspects of the Basin Plan for the San Francisco Bay Region. Parcel E groundwater has the following existing and potential beneficial use designations (Water Board, 2007):

- Municipal and domestic supply
- Industrial process supply
- Industrial service supply
- Agricultural supply

According to the Basin Plan, site-by-site determinations of the freshwater replenishment beneficial use will be made. Freshwater replenishment has been determined to be a beneficial use of the groundwater at Parcel E.

The Navy has determined that despite the municipal and domestic supply designation, the only beneficial use of groundwater in the A-aquifer is freshwater replenishment of San Francisco Bay. The Water Board has concurred with the Navy's determination that groundwater in the A-aquifer is not a potential source of drinking water (Water Board, 2003b). The Navy considers groundwater in the B-aquifer to have moderate potential as a drinking water source. The potential state ARARs resulting from this determination are specified under the heading titled "Primary and Secondary State MCLs."

The State also identified Chapter 4 of the Basin Plan as a potential ARAR. Chapter 4 is procedural in nature and describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies. Chapter 4 of the Basin Plan does not constitute an ARAR because it does not establish or contain substantive environmental "standards, requirements, criteria, or limitations" (CERCLA § 121 [Title 42 USC § 9621]) and is not in itself directive in intent.

Porter-Cologne Act

The Porter-Cologne Act became Division 7 of the California Water Code in 1969. The Porter-Cologne Act requires each regional board to formulate and adopt basin plans for all areas within the region (California Water Code § 13240). It also requires each regional board to establish WQOs that will protect the beneficial uses of the water basin (California Water Code § 13241) and to prescribe waste discharge requirements that would implement the basin plan for any discharge of waste to the waters of the State (California Water Code § 13263[a]).

Other sections of the Porter-Cologne Water Quality Control Act include California Water Code § 13243, which allows regional boards to specify conditions or areas where waste discharge is not permitted. California Water Code § 13269 provides the regional boards authority for waivers for reports or compliance with requirements as long as it is not against the public interest. California Water Code § 13360 specifies circumstances for regional boards to order compliance in a specific manner.

The Navy accepts the substantive provisions of California Water Code §§ 13240, 13241, 13243, 13263(a), 13269, and 13360 of the Porter-Cologne Water Quality Control Act as enabling legislation as implemented through the beneficial uses, WQOs, waste discharge requirements, and promulgated policies of the Basin Plan as potential state ARARs. Although on-site CERCLA response actions are exempt from permit requirements under CERCLA § 121(e), the Navy considers the substantive requirements of the General Permit to be a TBC and a means of ensuring compliance with potential ARARs, such as MCLs, promulgated policy of the Basin Plan, and SWRCB Resolution 68-16 (SWRCB, 1968).

California Water Code § 13304 sets forth enforcement authority and an enforcement process (orders issued by the State) and is procedural in nature. California Water Code § 13307.1(c) is also procedural in nature and pertains to the State's issuance of closure letters for sites subject to cleanup or abatement orders pursuant to California Water Code § 13304. Therefore, California Water Code §§ 13304 and 13307.1(c) do not constitute ARARs because they do not establish or contain substantive environmental "standards, requirements, criteria, or limitations" (CERCLA § 121 [Title 42 USC § 9621]) and are not in themselves directive in intent. Through its enforcement authority and procedures, substantive state environmental standards set forth in other statutes, regulations, plans, and orders are enforced. In addition, California Water Code § 13304 is no more stringent than the substantive requirements of the potential state ARARs identified above or potential federal ARARs for groundwater.

SWRCB Resolutions No. 92-49 and 68-16

SWRCB Resolution 92-49 (as amended on April 21, 1994, and October 2, 1996) is titled "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code Section 13304" (SWRCB, 1992). This resolution contains policies and procedures for the regional boards that apply to all investigations and cleanup and abatement activities for all types of discharges subject to California Water Code § 13304.

SWRCB Resolution 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (SWRCB, 1994), establishes the policy that high-quality waters of the State "shall be maintained to the maximum extent possible" consistent with the "maximum benefit to the people of the state." It provides that, whenever the existing quality of water is better than the required applicable water quality policies, such existing high-quality water will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water

quality less than that prescribed in the policies. It also states that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high-quality waters will be required to meet waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to ensure that (1) pollution or a nuisance will not occur and (2) the highest water quality consistent with maximum benefit to the people of the State will be maintained (SWRCB, 1968).

Cleanup to below background water quality conditions is not required by SWRCB under the Porter-Cologne Act. SWRCB Resolution 92-49 II.F.1 provides that regional boards may require cleanup and abatement to "conform to the provisions of the Resolution No. 68-16 of the State Water Board, and the Water Quality Control Plans of the State and the Water Boards, provided that under no circumstances shall these provisions be interpreted to require cleanup and abatement, which achieves water quality conditions that are better than background conditions."

The Navy's and State of California's positions on the applicability of SWRCB Resolutions 68-16 and 92-49 to Parcel E groundwater are summarized below.

Navy's Position Regarding SWRCB Resolutions 92-49 and 68-16

The Navy recognizes that the key substantive requirements of Cal. Code Regs. tit. 22, § 66264.94 (and the identical requirements of Cal. Code Regs. tit. 23, § 2550.4 and Section III.G of SWRCB Resolution 92-49) require cleanup to background levels of chemicals unless such restoration proves to be technologically or economically infeasible and alternative cleanup levels of chemicals will not pose a substantial present or potential hazard to human health or the environment. In addition, the Navy recognizes that these provisions are more stringent than corresponding provisions of 40 CFR § 264.94 and, although they are federally enforceable via the RCRA program authorization, they are also independently based on state law to the extent that they are more stringent than the federal regulations.

The Navy has also determined that SWRCB Resolution 68-16 is not a chemical-specific ARAR for determining response action goals; however, SWRCB Resolution 68-16 is an action-specific ARAR for regulating discharged treated groundwater back into the aquifer. The Navy has determined that further migration of already-contaminated groundwater is not a discharge governed by the language in Resolution 68-16. More specifically, the language of SWRCB Resolution 68-16 indicates that it is prospective in intent, applying to new discharges to maintain existing high-quality waters. It is not intended to apply to restoration of waters that are already degraded.

The Navy's position is that SWRCB Resolutions 68-16 and 92-49 and Cal. Code Regs. tit. 23, § 2550.4 do not constitute chemical-specific ARARs for this Parcel E response action because they are State requirements and are not more stringent than federal ARAR provisions of Cal. Code Regs. tit. 22, § 66264.94. The NCP set forth in 40 CFR § 300.400(g)(4) provides that only state standards more

stringent than federal standards may be ARARs [see also CERCLA § 121(d)(2)(A)(ii) at 42 USC § 9621(d)(2)(A)(ii)].

The substantive technical standard in the equivalent State requirements (Cal. Code Regs. tit. 23, div. 3, Chapter 15, and SWRCB Resolutions 92-49 and 68-16) is identical to the substantive technical standard in Cal. Code Regs. tit. 22, § 66264.94. This section of Cal. Code Regs. tit. 22 will likely be applied in a manner consistent with equivalent provisions of other regulations, including SWRCB Resolutions 92-49 and 68-16.

State of California's Position Regarding SWRCB Resolutions 92-49 and 68-16

The State does not agree with the Navy's determination that SWRCB Resolutions 92-49 and 68-16 and certain provisions of Cal. Code Regs. tit. 23, div. 3, ch. 15 are not ARARs for this response action. SWRCB has interpreted the term "discharges" in the California Water Code to include the movement of waste from soils to groundwater and from contaminated to uncontaminated water (SWRCB, 1994). However, the State agrees that the proposed action would comply with SWRCB Resolutions 92-49 and 68-16, and compliance with the Cal. Code Regs. tit. 22 provisions should result in compliance with the Cal. Code Regs. tit. 23 provisions. The State does not intend to dispute the ROD, but reserves its rights if implementation of the Cal. Code Regs. tit. 22 provisions is not as stringent as State implementation of Cal. Code Regs. tit. 23 provisions. Because Cal. Code Regs. tit. 22 regulation is part of the State's authorized hazardous waste control program, it is also the State's position that Cal. Code Regs. tit. 22, § 66264.94 is a state ARAR and not a federal ARAR (United States v. State of Colorado, 990 F.2d 1565 [1993]).

Whereas the Navy and the State of California have not agreed on whether SWRCB Resolutions 92-49 and 68-16 and Cal. Code Regs. tit. 23, § 2550.4 are ARARs for this response action, this FS Report documents each of the parties' positions on the resolutions but does not attempt to resolve the issue.

RCRA Requirements

State RCRA requirements included within the EPA-authorized RCRA program for California are considered potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Fed. Reg. 60848). Cal. Code Regs. tit. 22, div. 4.5 requirements that are part of the State-approved RCRA program would be potential state ARARs for non-RCRA, State-regulated hazardous wastes. The Navy will determine whether any groundwater it extracts during groundwater monitoring meets the characteristics for a non-RCRA, State-regulated hazardous waste prior to off-site disposal.

Title 23 California Code of Regulations, Division 3, Chapter 15

The requirements at this section define a hazardous waste that is covered by the Chapter 15 requirements. These are not more stringent than federal or State RCRA ARARs for identifying hazardous waste, thus they are not chemical-specific ARARs.

Section 2550.4 of Chapter 15 has also been identified by the State as a potential ARAR for groundwater cleanup levels for hazardous waste management units. This section is essentially the same as federal ARARs identified at Cal. Code Regs. tit. 22, § 66264.94(a)(1)(3), (c), (d), and (e). Therefore, § 2550.4 is not an ARAR for groundwater cleanup levels at Parcel E.

Title 27 California Code of Regulations, Division 2, Subdivision 1

Cal. Code Regs. tit. 27, §§ 20400(a), (c), (d), (e), and (g) have been identified by the State as potential monitoring and cleanup concentration limit ARARs for waste management units other than hazardous waste. This section is also not more stringent than federal ARARs at Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3), (c), (d), and (e). Therefore, Cal. Code Regs. tit. 27, § 20400 is not an ARAR for groundwater at Parcel E.

B2.2.4. Surface Water ARARs

The Navy evaluated federal and State surface water criteria as potential ARARs for surface water bodies at Parcel E, which (as discussed in Section 2 of the FS Report) consist of intertidal wetlands along the shoreline. In addition, A-aquifer groundwater discharges to San Francisco Bay. For the A-aquifer, the Navy has determined that the State standards promulgated in Table 3-3 of the Basin Plan and the federal standards promulgated in the CTR are potential ARARs for Parcel E to be met at the interface of A-aquifer groundwater and the bay.

CERCLA § 121(d)(2)(A) states that every remedial action shall require a level or standard of control which at least attains water quality criteria established under CWA §§ 304 or 303, where such criteria are relevant and appropriate under the circumstances of the release or threatened release. Under CWA § 304, EPA has published the NRWQC. Under CWA § 303, EPA has promulgated the water quality standards referred to as the National Toxics Rule and the CTR. In addition, Water Board promulgated WQOs for toxic pollutants in surface water with salinities greater than 10 parts per thousand (ppt) in Table 3-3 of the Basin Plan. All of these standards apply to surface water; none of them apply to groundwater. Therefore, these potential surface water ARARs would be applied to the interface of A-aquifer groundwater with San Francisco Bay. These potential surface water ARARs would also be applied to surface water bodies (e.g., tidal wetlands) at Parcel E.

For the B-aquifer, the Navy has identified federal and State MCLs as potential ARARs, as discussed above in Sections B2.2.3.1 and B2.2.3.2. These ARARs also would be protective of the discharge of

B-aquifer groundwater to permeable zones underlying the bay; therefore, CWA §§ 304 and 303 surface water criteria are not identified as potential ARARs for the interface of the B-aquifer groundwater and the bay.

B2.2.4.1. Federal ARARs

Water Quality Standards

EPA promulgated a rule on May 18, 2000, to fill a gap in California water quality standards that was created in 1994 when a State court overturned the State's water quality control plans that contained water quality criteria for priority toxic pollutants. The rule is commonly called the CTR. The rule is codified at 40 CFR § 131.38. These federal criteria are legally applicable in the State of California for inland surface waters and enclosed bays and estuaries for all purposes and programs under the CWA. The water quality standards at 40 CFR § 131.38 are potential applicable federal ARARs for inland surface water and the interface of A-aquifer groundwater and San Francisco Bay. The Navy has identified the CTR as potential ARARs for surface water bodies and the interface of A-aquifer groundwater and San Francisco Bay because these standards are better suited to HPS Parcel E than national standards. The CTR standards will be applied to surface water bodies and the interface of the A-aquifer and the bay for those chemicals that do not have standards promulgated in Table 3-3 of the Basin Plan. In addition, some inorganic chemicals have ambient concentrations established that are referred to as HGALs. CERCLA and the State of California do not require cleanup to below background conditions. The Navy will compare the CTR standards with the established HGALs, and if the HGAL is greater than the CTR standard, the Navy will meet the HGAL at the interface of the A-aquifer groundwater and the bay.

On December 22, 1992, EPA promulgated federal water quality standards under the authority of the federal CWA § 303(c)(2)(B), 33 USC Chapter 26, § 1313(c)(2)(B), to establish water quality standards required by the CWA where the State of California and other states had failed to do so (57 Fed. Reg. 60848 [1992]). These standards have been amended over the years in the Fed. Reg., including amendments of the National Toxics Rule (60 Fed. Reg. 22228 [1995]). These water quality standards, as amended, are codified at 40 CFR § 131.36. The Navy has determined that these are not potential ARARs for the interface of A-aquifer groundwater and surface water because there are better-suited standards promulgated in Table 3-3 of the Basin Plan and the CTR.

Additional and revised water quality standards for salinity for the San Francisco Bay and Sacramento-San Joaquin Delta Estuary were codified at 40 CFR § 131.37. The Navy has determined that these are not potential ARARs for HPS Parcel E because they apply salinity criteria at locations in Suisun Bay and the Sacramento-San Joaquin Delta Estuary, which are located more than 30 miles northeast of HPS. .

Water Quality Criteria

Section 304(a)(1) of the CWA [33 USC § 1314(a)(1)] directs EPA to publish and periodically update the NRWQC. These standards are intended to protect human health and aquatic wildlife from contamination in surface water. The NRWQC are updated in the Fed. Reg. The latest list of the NRWQC dated 2006 is available on the website at: http://www.epa.gov/waterscience/criteria/ wqcriteria.html. If criteria are not listed for a pollutant, EPA does not have any NRWQC.

These criteria reflect the latest scientific knowledge on the identifiable effects of pollutants on public health and welfare, aquatic wildlife, and recreation. These criteria serve as guidance to states in adopting water quality standards under CWA § 303(c) [33 USC § 1313(c)] that protect aquatic life from acute and chronic effects.

NRWQC may be potentially relevant and appropriate for surface water depending on the designated use and whether the criteria are intended to be protective of that use. NRWQC may be used to establish cleanup goals for surface water that is considered a potential source of drinking water only in the absence of promulgated MCLs or MCLGs. However, if the surface water's designated beneficial use requires protection of aquatic life, the NRWQC may be more stringent than the MCL, MCLG, or other cleanup standard for non-drinking water sources and the more stringent standard would be the controlling ARAR. The Navy has determined that NRWQC are not potential ARARs for surface water bodies or the interface of A-aquifer groundwater with San Francisco Bay because other standards are better suited to Parcel E, including State standards in Table 3-3 of the Basin Plan and federal standards developed for the State of California codified in CTR, as discussed below.

In addition, the Navy has determined that NRWQC are not potential ARARs for in-situ groundwater at Parcel E. The applicability of surface water criteria to groundwater is discussed in CERCLA § 121(d)(2)(B)(i) [42 USC § 9621(d)(2)(B)(i)], 40 CFR § 300.430(e), and the NCP preamble [55 Fed. Reg. 8666, 8754–8755 (1990)]. Although the NRWQC are nonenforceable guidelines, they may be potentially relevant and appropriate for groundwater only in the absence of promulgated MCLs or MCLGs. In such cases, the NRWQC may be adjusted to reflect only drinking water use and be used as cleanup goals for the response action. Groundwater in the A-aquifer is not a current or potential drinking water source, and MCLs are available and have been identified as potential ARARs for the B-aquifer.

B2.2.4.2. State ARARs

Basin Plan

In Chapter 3, Table 3-3, of the Basin Plan, Water Board established WQOs for chemicals in surface water with salinities equal to or greater than 10 ppt, many of them based on the CTR. These WQOs apply to all marine waters within the region, except for the South Bay below Dumbarton Bridge. These WQOs apply

to San Francisco Bay, which meets the salinity threshold. These WQOs were identified by Water Board as potential state ARARs. The Navy has identified Table 3-3 of the Basin Plan as a potential ARAR for the bay because it is a State promulgation for the specific pollutants and the water bodies (the wetlands and bay) at HPS Parcel E. The Navy will meet the WQOs promulgated in Table 3-3 of the Basin Plan in the bay at a point past the interface of the A-aquifer (or surface water bodies) and the bay unless that standard is lower than an established HGAL. If the WQOs promulgated in Table 3-3 of the Basin Plan are lower than an established HGAL, then, because CERCLA and the State of California do not require cleanup to below background conditions, the Navy will meet the HGAL. For chemicals that do not have a WQO promulgated in Table 3-3 of the Basin Plan, the Navy will comply with the standards promulgated in the CTR, as discussed above in Section B2.2.4.1.

B2.2.5. Air ARARs

There are no potential chemical-specific air ARARs for inhalation of VOCs from soil or groundwater. Risks from inhalation of vapors originating in VOC-contaminated soil or groundwater are addressed under the soil gas RAO (Section B1.2.1.1). ARARs for air are discussed in greater detail under action-specific requirements.

Section B3. Location-Specific ARARs

Potential location-specific ARARs are identified and discussed in this section. The discussions are presented based on various attributes of the site location, such as whether it contains wetlands.

B3.1. SUMMARY OF LOCATION-SPECIFIC ARARs

This section discusses potential location-specific ARARs based on various attributes of Parcel E's location. Eight protected resource categories are associated with location-specific ARARs: (1) cultural resources; (2) wetlands protection; (3) floodplain management; (4) hydrologic resources; (5) biological resources; (6) coastal resources; (7) other natural resources; and (8) geologic characteristics. Cultural resources, coastal resources, wetlands protection, and biological resources are the resource categories relating to location-specific requirements potentially affected by the response action at Parcel E. The ARARs that pertain to these resources are presented in the following section. Tables B-3 and B-4 summarize potential federal and state location-specific ARARs, respectively.

B3.1.1. ARARs Conclusions for Cultural Resources

No structures within Parcel E have been identified as qualifying for placement on the National Register of Historic Places (National Register) (TtEMI, 1998a and 1998b). However, Enclosure 2 of the Memorandum of Agreement (MOA) among the Navy, the Advisory Council on Historic Preservation (ACHP), and the State Historic Preservation Office (SHPO) identified archaeologically sensitive zones at HPS (Navy, ACHP, and SHPO, 2000). Based on this archaeological inventory, an historic shellmound site may be present along Crisp Avenue in the northwest portion of Parcel E (north of IR-75, a formerly used defense site). Alternatives S-2 through S-4 evaluate construction of covers in this area. The Navy has identified the substantive provisions of § 106 of the National Historic Preservation Act (NHPA) (16 USC § 470–470x-6) as a potential location-specific ARAR. Future CERCLA actions in this area will comply with the substantive provisions of § 106 of the NHPA and its implementing regulations at 36 CFR Part 800 during future CERCLA action in the archaeologically sensitive areas identified in the MOA.

B3.1.2. ARARs Conclusions for Coastal Resources

Portions of Parcel E contain coastal resources, and Alternatives S-2 through S-4 evaluate the construction of shoreline protection. Therefore, the Navy has concluded that the federal Coastal Zone Management Act (CZMA) and the San Francisco Bay Plan are potential ARARs. All shoreline construction in the bay

will be carried out in a manner consistent to the maximum extent practicable with the San Francisco Bay Plan.

B3.1.3. ARARs Conclusions for Wetlands Protection

Wetlands, as defined at 40 CFR § 230.3(t), are areas that are inundated by water frequently enough to support vegetation typically adapted for life in saturated soil conditions. Wetlands include swamps, marshes, bogs, and similar areas. Adjacent wetlands are wetlands that border, are contiguous to, or neighbor wetlands and include wetlands separated by man-made dikes or barriers, natural river berms, beach dunes, and the like. Five small, discontinuous tidal wetlands, totaling about 0.73 acres in size, are located along the Parcel E shoreline (Barajas & Associates, Inc., 2008b; Shaw Environmental, Inc., 2009). These wetlands are located adjacent to San Francisco Bay and, consistent with the decisions of the U.S. Supreme Court (Rapanos v. United States and Carabell v. United States, 2006), are considered waters of the United States that are regulated under CWA § 404. These wetlands are hereafter referred to as "jurisdictional wetlands." Implementation of Alternatives S-2 through S-4 would necessitate the removal of the jurisdictional wetlands at Parcel E because these areas contain contaminated soil and shoreline sediment that pose a risk to humans and wildlife. If any jurisdictional wetlands are destroyed or impaired, the Navy will mitigate and restore the wetlands in accordance with the substantive requirements of Executive Order 11990, which is cited at Title 33 of the Code of Federal Regulations (33 CFR) § 320.4(b)(1), the CWA § 404, and the San Francisco Bay Plan.

B3.1.4. ARARs Conclusions for Biological Resources

The Migratory Bird Treaty Act (16 USC §§ 703 through 712) prohibits the pursuit, hunting, capturing, and killing or attempting to take, capture, or kill any migratory bird at any time. Because migratory birds have been observed at Parcel E, the substantive provisions of this act are potential ARARs.

The American peregrine falcon (*Falco peregrinus)*, a fully protected species under California Fish and Game Code § 3511, was observed during previous surveys at Parcel E. The Navy accepts California Fish and Game Code § 3511 as a state ARAR subject to the following conditions. The State of California, through CDFG's Office of Spill Prevention and Response (OSPR), concurs that this statute addresses prohibited conduct but does not provide for or prescribe affirmative measures to avoid a "taking." Notwithstanding the absence of specific affirmative measures in the statute, the Navy will implement reasonable measures to ensure adequate protection of ecological receptors during response action construction following issuance of a CERCLA decision document pursuant to the Navy's obligations under CERCLA to select removal or remedial actions that are protective of human health and the environment (see Section 121[b][1] of CERCLA). The Navy will coordinate with the State of California, through CDFG-OSPR, prior to implementation of such reasonable measures. The Navy understands that the State of California reserves the right to conduct periodic site visits during removal or remedial activities to confirm implementation of avoidance measures.

B3.2. DETAILED DISCUSSION OF LOCATION-SPECIFIC ARARs

The following subsections provide a detailed discussion of federal and state ARARs by location-specific resources. Pertinent and substantive provisions of the potential ARARs listed and described below were reviewed to evaluate whether they are potential federal or state ARARs for this FS Report.

B3.2.1. Cultural Resources ARARs

This section discusses the location-specific ARARs for cultural resources.

B3.2.1.1. Federal ARARs

National Historic Preservation Act of 1966, as Amended

Pursuant to §§ 106 and 110(f) of the NHPA (16 U.S.C. § 470–470x-6, and its implementing regulations [36 CFR Part 800]) as amended, CERCLA remedial actions are required to take into account the effects of remedial activities on any historic properties included on or eligible for inclusion on the National Register. The National Register is a list of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. § 110(f) of the NHPA of 1966 as amended, requires that before approval of any federal undertaking that may directly and adversely affect any National Historic Landmark, the head of the responsible federal agency will, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to the landmark, and will afford the Advisory Council a reasonable opportunity to comment on the undertaking.

The substantive requirements of 36 CFR Part 800 that are potential applicable federal location-specific ARARs are summarized below.

1. Identify the geographic area potentially affected by the undertaking (area of potential effects under 36 CFR § 800.4[a]). The Navy is undertaking environmental restoration activities at various Installation Restoration sites located throughout HPS under CERCLA. HPS is currently divided into 10 parcels for Base Realignment and Closure Act conveyance purposes. Parcel E is a geographic area that will be subject to environmental restoration activities.
2. Identify historic properties within the area of potential effects (36 CFR § 800.4[b]). No buildings or structures in Parcel E have been determined to meet the eligibility requirements of the National Register. However, an archaeological inventory, appended to the MOA among the Navy, the ACHP, and the SHPO (Navy, ACHP, and SHPO, 2000), identified an historic shellmound site may be present along Crisp Avenue in the northwest portion of Parcel E (Figure B-2).
3. Evaluate the historic significance of the properties (36 CFR § 800.4[c]). Shellmounds (also referred to as midden deposits) are refuse heaps consisting primarily of the shells of edible mollusks intermingled with evidence of human occupancy. Shellmounds in close proximity to the former bayshore characterize nearly all identified San Francisco Bay area prehistoric

archaeological sites. These shell mounds contain evidence for environmental influences on bay area prehistoric human land use, specific subsistence practice, and alterations in those practices in response to environmental fluctuations (Alvarez, 1992).

4. Identify and take into account the possible effects of CERCLA remedial alternatives on the eligible historic properties (36 CFR § 800.4[d]). The Navy has determined that none of the remedial alternatives evaluated in this FS Report will have an effect on the potential shellmound site in the northwest portion of Parcel E (Figure B-2). Remedial alternatives do not involve intrusive activities in this area. This FS Report documents the Navy's finding of no historic properties affected.
5. Identify and take into account adverse effects of proposed remedial alternatives on historic properties (36 CFR § 800.4[d]). The Navy does not need to apply the criteria of adverse effects because it has determined that the remedial alternatives evaluated in this FS Report will not affect any historic property.
6. Resolution of adverse effects (36 CFR § 800.5). In the event that the Navy and the SHPO and/or ACHP disagree regarding the finding of any adverse effect, and if the Navy is unable to resolve these issues to the satisfaction of SHPO and/or the ACHP, the Navy will take the SHPO and/or ACHP comments into account and address them in decision document responsiveness summaries in a manner consistent with the substantive requirements of 36 CFR §§ 800.6 and 800.7.

The substantive requirements of 36 CFR Part 800 are being and will continue to be addressed by the Navy in the CERCLA remedial action selection process in lieu of the procedural requirements set forth in 36 CFR Part 800. More specifically, the Navy shall focus the CERCLA process by actively seeking the expertise and comments of the SHPO, ACHP, and other interested parties to ensure the substantive requirements of the NHPA and 36 CFR Part 800 are being adequately addressed.

These entities shall be provided with the opportunity to review and comment on the Navy's findings regarding the potential shellmound site in the Proposed Plan for Parcel E (Figure B-2). Any comments received from these entities will be addressed in the Responsiveness Summary, which will be included with the ROD. The Navy will also be available to meet and discuss alternatives, any adverse effects, and historic mitigation, with SHPO, ACHP, and stakeholders through open house presentations and the formal public notice and comment period associated with the Proposed Plan, ROD, and Remedial Design (RD) and Remedial Action.

B3.2.1.2. State ARARs

No state ARARs have been identified for cultural resources.

B3.2.2. Coastal Resources ARARs

This section discusses the location-specific ARARs for coastal resources.

B3.2.2.1. Federal ARARs

Coastal Zone Management Act *(16 USC §§ 1451 through 1464)*

The CZMA (16 USC §§ 1451 through 1464) specifically excludes federal lands from the coastal zone [16 USC § 1453(l)]; therefore, the CZMA is not potentially applicable to Parcel E. The CZMA will be evaluated as a potentially relevant and appropriate requirement. CZMA § 1456(c)(1)(A) requires each federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone to conduct its activities in a manner that is consistent to the maximum extent practicable with enforceable policies of approved state management programs. A state coastal zone management program is developed under state law guided by the CZMA and its accompanying implementing regulations in Title 15 of the Code of Federal Regulations Part 930. A state program sets forth objectives, policies, and standards to guide public and private uses of lands and water in the coastal zone. California's approved coastal management program includes the San Francisco Bay Plan (BCDC, 2008).

The Navy has identified the substantive provisions of the CZMA and the San Francisco Bay Plan as potential ARARs because some alternatives evaluated in this FS Report contemplate shoreline protection that would affect coastal resources. The Navy has evaluated the proposed shoreline protection relative to the substantive provisions of the CZMA and the San Francisco Bay Plan. This evaluation, presented in Appendix D, demonstrates that the proposed shoreline protection can be designed in a manner to comply with the substantive provisions of the CZMA and the San Francisco Bay Plan.

Clean Water Act (33 USC § 1344)

Parcel E contains waters of the United States (including wetlands) that are subject to CWA § 404 jurisdiction and that would be affected by the shoreline protection proposed under Alternatives S-2 through S-4; therefore, the Navy has also identified CWA § 404, as promulgated in 40 CFR Part 230 and 33 CFR Part 320, as a potential federal action-specific ARAR for alternatives that would affect the waters of the United States in and adjacent to Parcel E. This potential ARAR, which includes numerous action-specific requirements, is discussed further in Section B4.1.2.1. of this appendix. The Navy has evaluated the proposed shoreline protection relative to the substantive provisions of the CWA § 404. This evaluation, presented in Appendix D, demonstrates that the proposed shoreline protection can be designed in a manner to comply with the substantive provisions of the CWA § 404.

B3.2.2.2. State ARARs

McAteer-Petris Act and the San Francisco Bay Plan

The BCDC administers the CZMA within San Francisco Bay. California's approved coastal management program includes the San Francisco Bay Plan developed by BCDC (2008). The BCDC was formed under the authority of the McAteer-Petris Act, California Government Code §§ 66600 through 66682, which authorizes the BCDC to regulate activities within the bay and the shoreline (100 feet landward from the shoreline) in conformity with the policies of the Bay Plan. The McAteer-Petris Act and the Bay Plan were developed primarily to halt uncontrolled development and filling of the bay. Their broad goals include reducing bay fill and disposal of dredged material in the bay, maintaining marshes and mudflats to the fullest extent possible to conserve wildlife and abate pollution, and protecting the beneficial uses of the bay. The federal CZMA, which requires compliance with approved state coastal zone management program, is a potential ARAR. Therefore, the substantive provisions of the McAteer-Petris Act and the Bay Plan are potential ARARs for Parcel E. This potential ARAR, which includes numerous action-specific requirements, is discussed further in Section B4.1.2.2. of this appendix. The Navy has evaluated the proposed shoreline protection relative to the substantive provisions of the McAteer-Petris Act and the San Francisco Bay Plan. This evaluation, presented in Appendix D, demonstrates that the proposed shoreline protection can be designed in a manner to comply with the substantive provisions of the McAteer-Petris Act and the San Francisco Bay Plan.

B3.2.3. Wetlands Protection ARARs

This section discusses the location-specific ARARs for wetlands protection.

B3.2.3.1. Federal ARARs

Clean Water Act (33 USC § 1344)

As discussed in Section B3.1.3, Parcel E contains five discontinuous jurisdictional wetlands and Alternatives S-2 through S-4 would potentially require filling of the wetlands; therefore, the Navy has also identified the substantive requirements of CWA § 404, as promulgated in 40 CFR Part 230 and 33 CFR Part 320, as a potential federal action-specific ARAR for alternatives that would affect the wetland or the shoreline. The discussion of this potential ARAR is included in Section B4.1.2.1.

B3.2.3.2. State ARARs

There are no additional state location-specific ARARs for wetlands protection for Parcel E. Alternatives that involve shoreline protection would comply with the McAteer-Petris Act and the San Francisco Bay Plan described in Section B3.2.2.

B3.2.4. Biological Resources ARARs

This section discusses the location-specific ARARs for biological resources.

B3.2.4.1. Federal ARARs

Endangered Species Act of 1973

The Federal Endangered Species Act (FESA) of 1973 (16 USC §§ 1531 through 1543) provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction. The FESA defines an endangered species and provides for the designation of critical habitats. Critical habitat is a specific geographical area that is deemed essential for the conservation of a listed species, as designated by the Secretary of Interior or Secretary of Commerce under the FESA. Under Section 7(a) of the FESA (16 USC § 1536[a][2]), federal agencies shall carry out conservation programs for threatened and endangered species. Federal agencies may not fund, authorize, or carry out any action that is likely to jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. Also, it is unlawful under Section 9 of the FESA for any person, including federal agencies, to "take" any listed fish or wildlife species (16 USC § 1538[a][1][B]) or remove, maliciously damage, or destroy any listed plant species (16 USC § 1538[a][2][B]). "Take" is defined broadly and includes, but is not limited to, harassing, harming, or killing (16 USC § 1532[19]). Incidental take may be authorized for the limited circumstances outlined in 16 USC § 1536(b)(4) and only when not associated with a finding of jeopardy or adverse modification. The Endangered Species Committee may grant an exemption for agency action when there are no reasonable and prudent alternatives to agency action and reasonable mitigation and reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are not sufficient to avoid a finding of jeopardy or adverse modification (16 USC § 1536[h]). The substantive requirements at 16 USC §§ 1531–1543 are potentially ARARs for CERCLA sites that have listed species or designated critical habitats. The administrative requirements of FESA, including the Section 7 consultation process and the associated production of Biological Assessment and Biological Opinion documents and the Section 10 permit requirements, are not ARARs[1]. Compliance with the substantive requirements of FESA requires the Navy to determine whether listed species and designated critical habitat are present at the CERCLA site and to identify reasonable and prudent mitigation measures to avoid "takes" of listed species and allow the response action to be undertaken without jeopardizing the continued existence of a listed species or resulting in the destruction or adverse modification of designated critical habitat. If the Navy determines that endangered species or critical habitat are not present or will clearly not be affected by the

[1] See *CERCLA Compliance with Other Laws Manual, part II* (page 4-12, EPA, 1989), which provides guidance that FESA consultation is not a requirement for CERCLA actions conducted entirely on site. Also, see preamble to NCP final rule, 55 Fed. Reg. 8756, 8757 (1990), which explains the distinction between substantive and administrative requirements.

proposed response actions (without having to implement mitigation measures), then no further action is required.

No threatened or endangered species are known to inhabit Parcel E or its immediate vicinity. The American peregrine falcon has been observed at Parcel E (TtEMI, Levine-Fricke-Recon, and Uribe & Associates, 1997); this species was delisted as a federally endangered species in 1999. Therefore, the FESA is not a potential ARAR.

Migratory Bird Treaty Act of 1972

The Migratory Bird Treaty Act (16 USC §§ 703 through 712) prohibits the pursuit, hunting, capturing, and killing or attempting to take, capture, or kill any migratory bird at any time, using any means or manner. This act also prohibits the possession, sale, export, and import of any migratory bird or any part of a migratory bird, as well as nests and eggs. A list of migratory birds that this requirement applies to is presented at 50 CFR § 10.13. It is the Navy's position that this act is not legally applicable to Navy actions; however, the Department of Defense recently signed (July 2006) a Memorandum of Understanding with the United States Fish and Wildlife Service (Department of Defense and U.S. Fish and Wildlife Service 2006). The Migratory Bird Treaty Act will continue to be evaluated as a potentially relevant and appropriate requirement for Navy CERCLA response actions.

Because migratory birds have been observed at Parcel E, the Migratory Bird Treaty Act is a potential relevant and appropriate ARAR.

B3.2.4.2. State ARARs

The following sections of the California Fish and Game Code have been identified by the State as potential ARARs.

California Endangered Species Act

The California Endangered Species Act is set forth in the Cal. Fish & Game Code §§2050–2116. The substantive provisions in Cal. Fish & Game Code § 2080 prohibit the "take" of California endangered or threatened species. "Take" is defined in Cal. Fish & Game Code § 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." California Fish and Game Code § 2080 is not an ARAR because endangered species are not present at the site. The American peregrine falcon, which is present at the site, is no longer protected under California Fish and Game Code § 2080.

California Fish and Game Code §§ 2050–2068 include CDFG policy and legislative findings and definitions for significant natural areas. These sections are procedural and do not present a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation" as defined by

CERCLA § 121(d)(2)(A). Therefore, the substantive requirements of California Fish and Game Code §§ 2050–2068 are not potential ARARs.

Endangered or Rare Native Plants

California Fish and Game Code § 1908 states, "No person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the commission determines to be an endangered native plant or rare native plant." California Fish and Game Code § 1901 defines "native plant" as a plant growing in a wild uncultivated state that is normally found native to the plant life of this state. A species, subspecies, or variety is endangered when its prospects of survival and reproduction are in immediate jeopardy from one or more causes. A species, subspecies, or variety is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens.

California Fish and Game Code § 1908 is not an ARAR because none of the pertinent rare and endangered plant species are present at the site.

California Fish and Game Code § 1900, which was also specified by the State, does not specify any substantive requirements and is therefore not an ARAR.

Fully Protected Species

Cal. Fish & Game Code § 3511: This section states that fully protected birds or parts thereof may not be taken or possessed at any time. The list of fully protected birds includes American peregrine falcon (*Falco peregrinus anatum*), California brown pelican, California black rail (*Laterallus jamaicensis coturniculus*), California clapper rail (*Rallus longirostris obsoletus*), California condor (*Gymnogyps californianus*), California least tern (*Sterna albifrons browni*), golden eagle (*Aquila chrysaetos*), greater sandhill crane (*Grus canadensis tabida*), light-footed clapper rail (*Rallus longirostris levipes*), southern bald eagle (*Haliaeetus leucocephalus leucocephalus*), trumpeter swan (*Cygnus buccinator*), white-tailed kite (*Elanus leucurus*), and Yuma clapper rail (*Rallus longirostris yumanensis*). Cal. Fish & Game Code § 3511 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. The American peregrine falcon is protected under Cal. Fish & Game Code § 3511. The substantive provisions of Cal. Fish & Game Code § 3511 meet the pertinent NCP criteria under 40 CFR § 300.400(g)(2)(viii) and are relevant and appropriate because the American peregrine falcon is present at the site (and the white-tailed kite is potentially present at the site) and protection of this vulnerable resource allows it to be "used" in the sense that it continues to provide its unique value to the State of California. The Navy accepts Cal. Fish & Game Code § 3511 as a state ARAR subject to the following conditions. The State of California, through CDFG-OSPR, concurs that this statute addresses prohibited conduct but does not provide for or prescribe affirmative measures to

avoid a "taking." Notwithstanding the absence of specific affirmative measures in the statute, the Navy will implement reasonable measures to ensure adequate protection of ecological receptors during response action construction following issuance of a CERCLA decision document pursuant to the Navy's obligations under CERCLA to select removal or remedial actions that are protective of human health and the environment (see Section 121[b][1] of CERCLA). The Navy will coordinate with the State, through CDFG-OSPR, prior to implementation of such reasonable measures. The Navy understands that the State of California reserves the right to conduct periodic site visits during removal or remedial activities to confirm implementation of avoidance measures.

Cal. Fish & Game Code § 4700 states that fully protected mammals or parts thereof may not be taken or possessed at any time. Fully protected mammals include Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*); bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (ss. *Ovis canadensis nelsoni*); northern elephant seal (*Mirounga angustirostris*); Guadalupe fur seal (*Arctocephalus townsendi*); ring-tailed cat (genus *Bassariscus*); Pacific right whale (*Eubalaena sieboldi*); salt-marsh harvest mouse (*Reithrodontomys raviventris*); southern sea otter (*Enhydra lutris nereis*); and wolverine (*Gulo luscus*). Cal. Fish & Game Code § 4700 is not an ARAR because none of the pertinent fully protected mammals are present at the site.

Cal. Fish & Game Code § 5050 states that fully protected reptiles and amphibians or parts thereof may not be taken or possessed at any time. Fully protected reptiles and amphibians include blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*), limestone salamander (*Hydromantes brunus*), and black toad (*Bufo boreas exsul*). Cal. Fish & Game Code § 5050 is not an ARAR because none of the pertinent fully protected reptile and amphibian species are present at the site.

California Fish and Game Code § 3005 and § 3503 and Cal. Code Regs. Tit. 14 § 460

The following requirements were identified by the State as potential ARARs.

California Fish and Game Code § 3005(a): This section prohibits the taking of birds and mammals, including taking by poison.

Cal. Fish & Game Code § 3503: This section prohibits the take, possession, or needless destruction of the nest or eggs of any bird except as otherwise provided.

- Cal. Code Regs. tit. 14 §460 prohibits the take of the Fisher, marten, river otter, desert kit fox, and red fox.

California Fish and Game Code §§ 3005(a) and 3503 and Cal. Code Regs. tit. 14 § 460 are not applicable because the United States of America has not waived sovereign immunity in the FESA for these State of California requirements. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that

these requirements are not "relevant and appropriate" because they do not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and are not well suited to the site based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP[2]. CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment, including environmental receptors. In contrast, the purpose of these State requirements is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as a CERCLA remedial action. The focus on intentional conduct is not well suited to the circumstances at CERCLA sites. In summary, the purposes of these State requirements and the actions that they regulate do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP.

Although these requirements are not ARARs, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process. The Navy's ecological risk assessment process takes into account representative receptors for the site, and final remediation and cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. In addition, any species that are present and are federal and/or State endangered, threatened, or fully protected species will be addressed by ARARs related to those designations. The legal position presented above was set forth in correspondence between the Navy and the CDFG (Navy, 2009b and 2010; CDFG, 2009).

California Fish and Game Code § 5650(a), (b), and (c)

Cal. Fish & Game Code § 5650(a), (b) and (c) prohibits depositing or placing, where it can pass into waters of the state, any petroleum products, factory refuse, sawdust, shavings, slabs or edgings, and any substance deleterious to fish, plant life, or bird life. Section 5650(b) of the Cal. Fish & Game Code states that this section does not apply to a discharge or a release that is expressly authorized pursuant to, and in compliance with, the terms and conditions of a waste discharge requirement pursuant to Cal. Water Code § 13263 or a waiver issued pursuant to Cal. Water Code § 13269, subdiv. (a), issued by the SWRCB or RWQCB after a public hearing, or that is expressly authorized pursuant to, and in compliance with, the terms and conditions of a federal permit for which the SWRCB or RWQCB has, after a public hearing, issued a water quality certification pursuant to Cal. Water Code § 13160. Cal. Fish & Game Code § 5650 is not applicable because the United States of America has not waived sovereign immunity for this State

[2] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsections 300.400(g)(2)(i) through (viii) for each potential state ARAR. The factors are to be examined "where pertinent" with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

of California requirement. While no direct deposition of material is expected to enter into or affect waters of the State, the substantive portions of this standard will be complied with as an ARAR. Response actions along the Parcel E shoreline will be conducted in such a way as to ensure that materials dug up will not be released into the water column.

Other California Fish and Game Code Requirements

The following requirements were identified by the State as potential ARARs.

California Fish and Game Code § 1601: This section defines terminology used in California Fish and Game Code §§ 1602-1616, which pertains to construction that will either (1) divert or obstruct the natural flow of surface water or (2) release debris, waste, or other road pavement material into rivers, streams, or lakes.

- California Fish and Game Code § 1603: This section identifies procedural requirements that follow a determination by the State on whether a construction activity may substantially adversely affect an existing fish and wildlife resource.

California Fish and Game Code §§ 1601 and 1603 do not specify any substantive requirements and are therefore not ARARs.

Section B4. Action-Specific ARARs

Potential action-specific ARARs are identified below for each alternative considered for remedial action at Parcel E. Tables B-5 and B-6 summarize potential federal and state action-specific ARARs, respectively.

B4.1. REMEDIAL ALTERNATIVES FOR SOIL AND SHORELINE SEDIMENT

The Navy is evaluating four alternatives for soil and shoreline sediment at Parcel E.

B4.1.1. Alternative S-1: No Action

There is no need to identify action-specific ARARs for the no-action alternative because ARARs apply only to "any removal or remedial action conducted entirely on-site" and "no action" is not a removal or remedial action [CERCLA § 121(e), 42 USC § 9621(e)]. Cleanup standards for selection of a CERCLA remedy, including the requirement to meet ARARs, are not triggered by the no action alternative (EPA, 1988b); therefore, a discussion of compliance with ARARs is not appropriate for this alternative.

B4.1.2. Alternative S-2: Covers, Institutional Controls, and Shoreline Protection

Alternative S-2 uses covers, institutional controls, and shoreline protection to meet ARARs and RAOs. Based on the ubiquitous nature of metals and some organic chemicals at concentrations exceeding PRGs at Parcel E, the cover alternative would be applied parcel-wide. Existing covers, such as concrete building foundations and asphalt parking lots following appropriate rehabilitation, are considered adequate for this alternative. New covers are considered for construction only in areas where there are no existing covers. In addition, the Navy would construct shoreline protection features to prevent contaminated shoreline sediment and soil from entering San Francisco Bay, and to integrate with the surface covers for onshore soil.

B4.1.2.1. Federal ARARs

Covers

The Navy has identified the following potential relevant and appropriate federal action-specific ARARs for construction of covers throughout Parcel E (to address ubiquitous metals and other COCs).

- Final cover requirement to accommodate lateral and vertical shear forces generated by the maximum credible earthquake at Cal. Code Regs. tit. 22, § 66264.310(a)(5).
- Final cover maintenance requirements and final cover run-on and runoff controls contained in Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4).
- Survey benchmark maintenance required in Cal. Code Regs. tit. 22, § 66264.310(b)(5).
- Storm water discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4).

Pursuant to CERCLA § 121 (e) (42 USC § 9621[e]), on-site response actions are exempt from permit requirements, including a National Pollutant Discharge Elimination System Permit. The State of California's General Construction Storm Water Permit (SWRCB Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ) is such a permit. Although not an ARAR in itself, the Navy will implement the substantive provisions of this permit to comply with federal CWA ARARs, including those at 40 CFR §§ 122.44(k)(2) and (4), and water quality state ARARs for discharge to surface water. The federal and state ARARs require best management practices and meeting the substantive numeric effluent limit and action level requirements. Although procedural requirements do not qualify as CERCLA ARARs, the Navy shall voluntarily prepare a CERCLA storm water plan as a component of CERCLA remedial design to address the substantive provisions.

In addition, the Navy has identified the following potential relevant and appropriate federal action-specific ARARs for construction of a low-permeability cover in a portion of IR-02 Northwest and Central (to minimize infiltration and enhance the groundwater remedy; see Figure 4-1 in FS report):

- Compaction: Cal. Code Regs. tit. 22, § 66264.228(e)(1). This section requires that, if waste is to remain in a unit, the unit shall be compacted before any portion of the final cover is installed.
- Post-closure water entry requirement that the final cover be designed to prevent the downward entry of water into the closed landfill throughout a period of at least 100 years at Cal. Code Regs. tit. 22, § 66264.310(a)(1).
- Leachate collection and removal requirements at Cal. Code Regs. tit. 22, § 66264.310(b)(2), if needed based on results of groundwater monitoring.

Institutional Controls

There are no potential federal ARARs for institutional controls.

Shoreline Protection

The potential federal action-specific ARARs for constructing covers throughout Parcel E, exclusive of those potential federal action-specific ARARs for constructing low-permeability covers, are also potential ARARs for the shoreline protection contemplated under this alternative. In addition, construction of the

shoreline protection would require dredging sediment from the shoreline of the bay. This dredged material would be temporarily stored on site awaiting permanent off-site disposal. The Navy has identified the following potential federal action-specific ARARs under RCRA for the storage of dredged material prior to off-site disposal:

- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Temporary staging pile requirements at 40 CFR § 264.554 (d)(1)(i) through (ii), (d)(2), (e), (f), (h), (i), (j), and (k). These requirements are applicable to excavated shoreline sediment that meets the definition of RCRA hazardous waste and relevant and appropriate to excavated soil that does not meet the definition of RCRA hazardous waste.

These requirements are applicable for dredged material that meets the definition of RCRA hazardous waste or non-RCRA, State-regulated hazardous waste. For example, the dredged material may meet the definition of a non-RCRA, State-regulated hazardous waste if it contains a TTLC wet weight of PCBs greater than or equal to 50 milligrams per kilogram as defined in Cal. Code Regs. tit. 22, § 66261.24(a)(2)(B). These requirements are relevant and appropriate requirements for dredged material that does not meet the definition of RCRA hazardous waste or non-RCRA, State-regulated hazardous waste. Complying with these potential RCRA ARARs would also be protective for any chemical contamination in the dredged sediment. The sediment would then be characterized for appropriate off-site disposal according to the potential chemical-specific ARARs for waste generated in implementing the alternatives discussed in Section B2.

Regulations at 40 CFR § 264.554 allow relief from LDRs for temporary storage (less than 2 years) of remediation waste on contiguous property. Placing hazardous remediation wastes in a staging pile does not trigger LDRs or minimum technology requirements. In addition, physical operations such as mixing, sizing, or blending that are intended to prepare wastes for subsequent management or treatment are allowed to occur in staging piles regardless of whether they technically meet the RCRA definition of treatment. Any hazardous substance, pollutant, or contaminant that is shipped off site as a result of the implementation of this alternative will be shipped to a facility in compliance with 42 USC § 9621(d)(3) and EPA's off-site rule at 40 CFR § 300.440.

The Navy has also identified the Clean Air Act requirement at BAAQMD Regulation 6-302, which requires source emissions to not equal or exceed 20 percent opacity, as a potentially applicable federal action-specific ARAR for construction of the shoreline protection.

Construction of the shoreline protection would discharge fill material into jurisdictional waters, as discussed in Sections B3.2.2 and B3.2.3. The discharge of fill material into the waters of the United States, including jurisdictional wetlands and the bay, is regulated under CWA § 404; therefore, the Navy has identified CWA § 404 as a potential federal action-specific ARAR. CWA § 404 governs the

discharge of dredged and fill material into waters of the United States, the definition of which was clarified by the U.S. Supreme Court (Rapanos v. United States and Carabell v. United States, 2006) to include traditional navigable waters, as well as wetlands and non-navigable tributaries of traditional navigable waters that meet specific criteria. Both EPA and USACE have jurisdiction over discharge of dredged and fill material into waters of the United States. EPA's § 404 guidelines are promulgated in 40 CFR Part 230, and the USACE's guidelines are promulgated in 33 CFR Part 320.

Construction of the shoreline protection would result in the discharge of fill material into the jurisdictional wetlands and the bay. Pursuant to 33 CFR § 323.2(e), fill material is defined as any material placed in waters of the United States where the material has the effect of replacing any portion of a water of the United States with dry land. Construction of the shoreline protection would result in the complete filling in of jurisdictional wetlands, the loss of which would be replaced by the Navy. The Navy has identified the substantive provisions of the following requirements, contained in 33 CFR and 40 CFR, as potentially applicable ARARs for the discharge of fill material:

- 33 CFR § 320.4. This section presents general policies for evaluating permit applications for proposed discharge of dredged or fill material into waters of the United States (Note: Only substantive provisions of this regulation are considered ARARs; CERCLA response actions are exempt from permit requirements pursuant to Section 121[e] of CERCLA).
- 33 CFR § 330.1(e)(3). This section identifies terms and conditions under the nationwide permit program for discharges into wetlands.
- 40 CFR § 230.10. This section describes specific restrictions on the discharge of dredged or fill material into waters of the United States.
- 40 CFR § 230.11. This section identifies the factual determinations necessary for making a finding of compliance with 40 CFR § 230.10.
- 40 CFR §§ 230.20–230.25, 230.31, 230.32, 230.41, 230.42, and 230.53. These sections identify relevant factors to consider when evaluating the potential impacts of a discharge of fill material.
- 40 CFR §§ 230.70–230.77. These sections identify potential actions to minimize adverse impacts of a discharge of fill material.
- 40 CFR § 230.93. This section identifies general requirements for compensatory mitigation to offset losses from unavoidable impacts to waters of the United States.
- 40 CFR §§ 230.94(c), 230.95, 230.96, and 230.97. These sections identify required content for mitigation plans, including ecological performance standards and monitoring and management requirements.

The Navy has evaluated the proposed shoreline protection relative to the substantive provisions of the above requirements. This evaluation, presented in Appendix D, demonstrates that the proposed shoreline protection can be designed in a manner to comply with the substantive provisions of the above requirements. The Navy would discharge fill material into the jurisdictional wetlands at Parcel E in a

manner consistent with the Nationwide General Permit 38 (Cleanup of Hazardous and Toxic Waste) available under the USACE Nationwide Permit program at 33 CFR Part 330. Nationwide Permit 38 is contained in 67 Fed. Reg. 2020, Appendix B. The Navy is not required to first obtain authorization from the USACE, either through an individual permit or by filing a notice of intent to discharge under a general permit because CERCLA § 121(e) does not require permits for remedial actions conducted entirely on site. Instead, the Navy will comply with the substantive provisions of the Nationwide Permit 38, including general conditions contained in 67 Fed. Reg. 2020, Appendix C as a means of complying with CWA § 404 (33 USC § 1344) and its implementing regulations (40 CFR Part 230 and 33 CFR Part 320). These conditions include requirements to delineate the wetland, discharge suitable material, and mitigate the loss of the wetland by creating a new wetland that provides a functional replacement for the wetland loss. The Navy will mitigate the loss of the wetlands at Parcel E using on-site compensatory mitigation to be implemented in conjunction with the remedy for Parcel E-2 (Shaw Environmental, Inc., 2009). The final details of the plan for wetland mitigation will be included in the remedial design for Parcel E-2.

B4.1.2.2. State ARARs

Covers

The Navy has reviewed the regulations and requirements identified by the State in its response to the Navy's request for ARARs. This analysis resulted in the following potential relevant and appropriate state action-specific ARARs and TBCs for construction of covers throughout Parcel E (to address ubiquitous metals and other COCs):

- The requirement that public agencies comply with Cal. Code Regs. tit. 27 to the extent feasible when taking action to clean up unauthorized releases at Cal. Code Regs. tit. 27, § 20090(d)
- Permanent monument requirements at Cal. Code Regs. tit. 27, § 20950(d)
- Erosion and related damage prevention requirements at Cal. Code Regs. tit. 27, § 21090(c)(4)
- Aerial photographic survey, or alternative survey, requirements at Cal. Code Regs. tit. 27, § 21090(e)(1) and (e)(3)
- Final cover and alternative final cover standards at Cal. Code Regs. tit. 27, § 21140(a) and (b)
- Final slope requirements at Cal. Code Regs. tit. 27, § 21145(a)
- Drainage and erosion control system requirements at Cal. Code Regs. tit. 27, § 21150(a)
- Stormwater discharge requirements under SWRCB General Permit for Stormwater Discharges 09-09-DWQ and 10-14-DWQ (TBC; see Section B4.1.2.1)

In addition, the following requirement is a potentially applicable State requirement for covering soils with naturally occurring asbestos:

- Toxic control measures for airborne asbestos during construction, grading, quarrying, and surface mining operations at Cal. Code Regs. tit. 17, § 93105.

Also, the Navy has identified the following potential relevant and appropriate state action-specific ARARs for construction of a low-permeability cover in a portion of IR-02 Northwest and Central (to minimize infiltration and enhance the groundwater remedy; see Figure 4-1 in FS report):

- Capping permeability requirements at Cal. Code Regs. tit. 27, §§ 20320 (c) and (d).
- Erosion control requirements at Cal. Code Regs. tit. 27, §§ 20365(c) and (d)).
- Post-closure requirement that the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality at Cal. Code Regs. tit. 27, §§ 20950(a).
- Foundation layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(1).
- Erosion-resistant layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(3).
- Final cover design, grading, and maintenance requirements at Cal. Code Regs. tit. 27, § 21090(b)(1)
- Emergency response requirements at Cal. Code Regs. tit. 27, § 21130.
- Site security requirements at Cal. Code Regs. tit. 27, §§ 21135(f) and (g).
- Structure removal requirements at Cal. Code Regs. tit. 27, § 21137.
- Final grading requirements at Cal. Code Regs. tit. 27, § 21142(a).
- Leachate collection and control requirements at Cal. Code Regs. tit. 27, § 21160(a) and (c).
- Post-closure requirement that the post-closure maintenance and monitoring extend for no less than 30 years following closure at Cal. Code Regs. tit. 27, § 21180(a).

The content requirements for the post-closure maintenance plan and the final closure plan are specified in Cal. Code Regs. tit. 27, §§ 21800(c) and 21830, respectively. These reporting requirements are not substantive and are therefore not ARARs; however, these requirements will be used by the Navy as TBCs in developing the post-closure maintenance plan and the final closure plan.

The capping permeability requirements at Cal. Code Regs. tit. 27, § 20324(g)(1) and the low hydraulic conductivity layer requirements at Cal Code Regs. tit. 27, § 21090(a)(2) are not relevant and appropriate because a specific engineered alternative was identified that is consistent with the performance goal and that affords equivalent protection against water quality impairment. Under Cal. Code Regs. tit. 27, § 21090(a), the Water Board can allow any alternative final cover that it finds will continue to isolate the waste from precipitation and irrigation waters at least as well as would a final cover built in accordance with applicable prescriptive standards. An evaluation of two engineered alternatives is provided in Appendix P of the Remedial Investigation/FS Report for Parcel E-2 (Engineering/Remediation Resources

Group, Inc. and Shaw Environmental, Inc., 2011). Based on this evaluation, the engineered alternatives are readily implementable and will exceed the applicable performance standards.

Institutional Controls

The substantive provisions of the several State statutes and regulations, as discussed in the paragraphs below, have been accepted by the Navy as potentially relevant and appropriate state ARARs for implementing institutional controls and entering into a Covenant to Restrict Use of Property with DTSC.

The substantive provisions of Cal. Civ. Code § 1471 are the following general narrative standard: ". . . to do or refrain from doing some act on his or her own land . . . where . . . : (c) Each such act relates to the use of land and each such act is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials, as defined in Section 25260 of the Health and Safety Code." This narrative standard would be implemented through incorporation of restrictive environmental covenants in the deed at the time of transfer. These covenants would be recorded with the Covenant to Restrict Use of Property and run with the land.

The substantive provisions of California Health and Safety Code § 25202.5 are the general narrative standard to restrict "present and future uses of all or part of the land on which the . . . facility . . . is located . . . ." These substantive provisions will be implemented by incorporation of restrictive environmental covenants in the Covenant to Restrict Use of Property at the time of transfer for purposes of protecting present and future public health and safety.

California Health and Safety Code §§ 25222.1 and 25355.5(a)(1)(C) provide the authority for the State to enter into voluntary agreements to establish land use covenants with the owner of property. The substantive requirements of the following California Health and Safety Code § 25222.1 provisions are relevant and appropriate: (1) the general narrative standard: "restricting specified uses of the property, . . ." and (2) ". . . the agreement is irrevocable, and shall be recorded by the owner, . . . as a hazardous waste easement, covenant, restriction or servitude, or any combination thereof, as appropriate, upon the present and future uses of the land." The substantive requirements of the following California Health and Safety Code § 25355.5(a)(1)(C) provisions are relevant and appropriate: ". . .execution and recording of a written instrument that imposes an easement, covenant, restriction, or servitude, or combination thereof, as appropriate, upon the present and future uses of the land."

The Navy would comply with these relevant and appropriate substantive requirements of California Health and Safety Code §§ 25222.1 and 25355.5(a)(1)(C) by incorporating CERCLA use and activity restrictions into the Navy's deed of conveyance in the form of restrictive covenants under the authority of California Civil Code § 1471 and into the environmental restrictive covenant and agreement. The substantive provisions of California Health and Safety Code §§ 25222.1 and 25355.5 (a)(1)(C) may be

interpreted in a manner that is consistent with the substantive provisions of California Civil Code § 1471. The covenants would be recorded with the deed and run with the land.

Land-use restriction requirements for hazardous waste property are set forth in California Health and Safety Code § 25232(b)(1)(A)–(E). These include prohibitions on residences, hospitals for humans, schools for persons under 21 years of age, daycare centers, or any permanently occupied human habitation. Although Parcel E has not been designated as hazardous waste property, these prohibitions are relevant and appropriate at Parcel E where they are necessary to provide adequate protection of human health and the environment. California Health and Safety Code § 25233(c) sets forth relevant and appropriate substantive criteria for granting variances from the uses prohibited in California Health and Safety Code § 25232(b) based on specified environmental and health criteria.

California Health and Safety Code § 25234 sets forth the following relevant and appropriate substantive criteria for the removal of a land-use restriction on the grounds that "… the waste no longer creates a significant existing or potential hazard to present or future public health or safety."

In addition to being implemented through the Covenant to Restrict Use of Property between the Navy and DTSC, the potentially relevant and appropriate portions of California Health and Safety Code §§ 25202.5, 25222.1, 25232(b)(1)(A)-(E), 25233(c), 25234, and 25355.5(a)(1)(C) and California Civil Code § 1471 would also be implemented through the deed between the Navy and the transferee.

DTSC promulgated a regulation on April 19, 2003, regarding "Requirements for Land-Use Covenants" at Cal. Code Regs., tit. 22, § 67391.1. The substantive provisions of this regulation have been determined to be relevant and appropriate state ARARs by the Navy.

EPA Region 9 agrees that the substantive portions of the State statutes and regulations referenced in this section are ARARs. EPA Region 9 specifically considers subsections (a), (b), (d), and (e) of Cal. Code Regs., tit. 22 § 67391.1, to be ARARs for this FS Report. DTSC's position is that all of the State statutes and regulations referenced in this section are ARARs.

Shoreline Protection

The potential state action-specific ARARs for constructing covers throughout Parcel E, exclusive of those potential state action-specific ARARs for constructing low-permeability covers, are also potential ARARs for the shoreline protection contemplated under this alternative. In addition, the substantive provisions of the policies contained within Parts III and IV of the San Francisco Bay Plan and Cal. Code Regs. tit 14 § 10700 are potential ARARs for the shoreline protection contemplated under this alternative. The substantive provisions that qualify as ARARs pertain to protection of specific coastal resources (specifically tidal marshes and tidal flats) and identify specific conditions under which fill material may be placed in San Francisco Bay.

B4.1.3. Alternative S-3: Excavation and Off-Site Disposal of Tier 1 Locations, Followed by Covers, Institutional Controls, and Shoreline Protection

Alternative S-3 includes excavation of Tier 1 Locations with off-site disposal at a permitted disposal facility. This alternative also provides for the covers, institutional controls and shoreline protection discussed for Alternative S-2. Tier 1 locations are defined, for the purposes of this FS Report, as locations containing inorganic and organic COCs at concentrations greater than 10 times the PRGs (the Tier 1 action levels). Alternative S-3 provides a permanent remedy to remove Tier 1 locations where excavation is feasible. Remaining low-risk contaminated soil is addressed by covers and institutional controls. The covers under this alternative would be used to prevent exposure to potential unacceptable risk posed by other COCs in soil (such as ubiquitous metals at concentrations above PRGs).

B4.1.3.1. Federal ARARs

Excavation and Off-Site Disposal

The Navy has identified the following potentially applicable action-specific ARARs for excavation and off-site disposal:

- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Temporary staging pile requirements at 40 CFR § 264.554 (d)(1)(i) through (ii), (d)(2), (e), (f), (h), (i), (j), and (k). These requirements are applicable to excavated soil that meets the definition of RCRA hazardous waste and relevant and appropriate to excavated soil that does not meet the definition of RCRA hazardous waste.
- Stormwater discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4) (see Section B4.1.2.1).

Regulations at 40 CFR § 264.554 allow relief from LDRs for temporary storage (less than 2 years) of remediation waste on contiguous property. Placing hazardous remediation wastes in a staging pile does not trigger LDRs or minimum technology requirements. In addition, physical operations such as mixing, sizing, or blending that are intended to prepare wastes for subsequent management or treatment are allowed to occur in staging piles regardless of whether they technically meet the RCRA definition of treatment. Any hazardous substance, pollutant, or contaminant that is shipped off site as a result of the implementation of this alternative will be shipped to a facility in compliance with 42 USC § 9621(d)(3) and EPA's off-site rule at 40 CFR § 300.440.

In addition, the Navy has identified the following potential applicable federal action-specific ARARs under the Clean Air Act (42 U.S.C. § 7401 et seq.) for excavation:

- The requirement that source emissions not equal or exceed 20 percent opacity for a period or periods more than 3 minutes in any hour under BAAQMD Regulation 6-302.

Covers

The potential federal action-specific ARARs for constructing covers are identified in Alternative S-2, Section B4.1.2.1.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

Shoreline Protection

The potential federal action-specific ARARs for the shoreline protection are identified in Alternative S-2, Section B4.1.2.1.

B4.1.3.2. State ARARs

Excavation and Off-Site Disposal

The Navy has reviewed the regulations and requirements identified by the State in its response to the Navy's request for ARARs. This analysis resulted in the Navy accepting the following potential applicable state ARARs and TBCs:

- The requirement to accurately characterize wastes under Cal. Code Regs. tit. 27, § 20200(c).
- The discharge requirements for designated waste to Class I or Class II waste management units at Cal. Code Regs. tit. 27 § 20210.
- The discharge requirements for nonhazardous solid to classified units at Cal. Code Regs. tit. 27, §§ 20220(b), (c), and (d).
- Stormwater discharge requirements under SWRCB General Permit for Stormwater Discharges 99-08-DWQ and 10-14-DWQ (TBC; see Section B4.1.2.1).

The Navy has accepted the substantive provisions of the following potentially applicable State Clean Air Act ARAR requiring dust mitigation measures for construction and grading in areas of naturally occurring asbestos for all soil excavations:

- The asbestos airborne toxics control measure for construction, grading, quarrying, and surface mining operations at Cal. Code Regs. tit. 17, § 93105.

In addition, Cal. Code Regs. tit. 17, § 93105(e)(4)(G) requires that upon completion of the project, the disturbed surfaces in areas of naturally occurring asbestos must be stabilized using one or more of the following methods:

- A vegetative cover
- Placement of at least 3 inches of non-asbestos-containing material
- Paving
- Any other measure deemed sufficient to prevent wind speeds of 10 miles per hour or greater from causing visible dust emissions

The soil excavations will be covered with a non-asbestos-containing soil cover or paving that will comply with this potential ARAR.

Covers

The potential state action-specific ARARs for constructing covers are identified in Alternative S-2, Section B4.1.2.2.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Alternative S-2, Section B4.1.2.2.

Shoreline Protection

The potential state action-specific ARARs for the shoreline protection are identified in Alternative S-2, Section B4.1.2.2.

B4.1.4. Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection

Alternative S-4 includes excavation of Tier 1 and Tier 2 locations with off-site disposal at a permitted disposal facility, and soil vapor extraction (SVE) for Building 406. Tier 2 locations are defined, for the purposes of this FS Report, as soil containing inorganic and organic COCs at concentrations equal to or greater than 5 times the PRGs. This alternative also provides for the covers, institutional controls, and shoreline protection discussed in Alternative S-2. Soil containing inorganic and organic COCs at concentrations greater than or equal to 5 times the PRGs (the Tier 2 action levels) would be excavated

where feasible to reduce the concentrations of these COCs in the environment. Alternative S-4 provides a permanent remedy to remove Tier 1 and Tier 2 locations where excavation is feasible. Remaining low-risk contaminated soil would be addressed by covers and institutional controls. The covers under this alternative would be used to prevent exposure to potential unacceptable risk posed by other COCs in soil (such as ubiquitous metals at concentrations above PRGs).

B4.1.4.1. Federal ARARs

Excavation and Off-Site Disposal

The potential federal action-specific ARARs for excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.1.

Covers

The potential federal action-specific ARARs for constructing covers are identified in Alternative S-2, Section B4.1.2.1.

Soil Vapor Extraction

Any waste generated during implementation of the SVE system would be disposed of off site at an appropriate facility. The potential federal action-specific ARARs identified for excavation and off-site disposal of soil are potential ARARs for the waste generated during implementation of the SVE system. These potential ARARs are identified in Alternative S-3, Section B4.1.3.1.

In addition, the Navy has identified the following potentially applicable federal action-specific ARARs from the Clean Air Act for operating a SVE system:

- The requirement to use the best available control technology for new emission sources contained in BAAQMD Regulation 2-2-301
- The requirements for SVE systems contained in BAAQMD Regulation 8-47

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

Shoreline Protection

The potential federal action-specific ARARs for the shoreline protection are identified in Alternative S-2, Section B4.1.2.1.

B4.1.4.2. State ARARs

Excavation and Off-Site Disposal

The potential state action-specific ARARs for excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.2.

Covers

The potential state action-specific ARARs for constructing covers are identified in Alternative S-2, Section B4.1.2.2.

Soil Vapor Extraction

Any waste generated during implementation of the SVE system would be disposed of off site at an appropriate facility. The potential state action-specific ARARs identified for excavation and off-site disposal of soil are potential ARARs for the waste generated during implementation of the SVE system. These potential ARARs are identified in Alternative S-3, Section B4.1.3.2.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Alternative S-2, Section B4.1.2.2.

Shoreline Protection

The potential state action-specific ARARs for the shoreline protection are identified in Alternative S-2, Section B4.1.2.2.

B4.2. REMEDIAL ALTERNATIVES FOR GROUNDWATER

The Navy is evaluating five alternatives for groundwater at Parcel E.

B4.2.1. Alternative GW-1: No Action

There is no need to identify action-specific ARARs for the no-action alternative because ARARs apply only to “any removal or remedial action conducted entirely on-site” and “no action” is not a removal or remedial action [CERCLA § 121(e), 42 USC § 9621(e). Cleanup standards for selection of a CERCLA remedy, including the requirement to meet ARARs, are not triggered by the no action alternative (EPA, 1988b); therefore, a discussion of compliance with ARARs is not appropriate for this alternative.

B4.2.2. Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring

Alternative GW-2 consists of institutional controls and long-term groundwater monitoring. Institutional controls would be implemented in areas where humans could be exposed to COCs at concentrations that pose a health risk. Long-term groundwater monitoring would serve a two-fold purpose. It would (1) provide awareness of the size and behavior of COC plumes, helping to ensure that contaminants do not migrate beyond controlled areas; and (2) provide baseline information on the size and behavior of COEC plumes to be used in preventing contaminant discharge to the bay.

B4.2.2.1. Federal ARARs

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

Groundwater Monitoring

The Navy has identified the substantive provisions of the following requirements as potential relevant and appropriate federal action-specific ARARs for long-term groundwater monitoring:

- Constituent of concern requirements identified in Cal. Code Regs. tit. 22, § 66264.93
- Point of compliance requirements identified in Cal. Code Regs. tit. 22, § 66264.95
- The requirement to establish a sufficient number of monitoring points at Cal. Code Regs. tit. 22, § 66264.97(b)(1)(A), (b)(1)(D)(1) and (2)
- Monitoring well construction requirements at Cal. Code Regs. tit. 22, § 66264.97(b)(4), (5), (6), and (7)
- Sample collection requirements at Cal. Code Regs. tit. 22, § 66264.97(e)(6), (e)(12)(A)(3), (e)(12)(B), (e)(13), and (e)(15)
- The requirement to implement a corrective action monitoring program that demonstrates the effectiveness of the corrective action program at Cal. Code Regs. tit. 22, § 66264.100(d)

The Navy has identified the following potentially applicable federal action-specific ARARs for the disposal of any investigation-derived waste generated during implementation of long-term groundwater monitoring.

- The requirement to determine if generated waste is hazardous at Cal. Code Regs. tit. 22, §§ 66262.10(a) and 66262.11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).

Any hazardous substance, pollutant, or contaminant that is shipped off site as a result of the implementation of this alternative will be shipped to a facility in compliance with 42 USC § 9621(d)(3) and EPA's off-site rule at 40 CFR § 300.440.

B4.2.2.2. State ARARs

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

Groundwater Monitoring

The Navy has reviewed the regulations and requirements identified by the State in its response to the Navy's request for ARARs, and has identified the following potential state ARAR for this alternative, which the Navy determined was more stringent than the federal ARARs for long-term groundwater monitoring:

- The requirement that public agencies comply with tit. 27 to the extent feasible when taking action to clean up unauthorized releases at Cal. Code Regs. tit. 27, §20090(d)

The following potentially applicable state action-specific ARARs for the disposal of any investigation-derived waste generated during implementation of long-term groundwater monitoring.

- The requirement to accurately characterize wastes under Cal. Code Regs. tit. 27, § 20200(c).
- The discharge requirements for designated waste to Class I or Class II waste management units at Cal. Code Regs. tit. 27 § 20210.
- The discharge requirements for nonhazardous solid to classified units at Cal. Code Regs. tit. 27, §§ 20220(b), (c), and (d).

B4.2.3. Alternative GW-3A: Groundwater Containment, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-3A consists of: (1) groundwater containment, (2) in-situ bioremediation (ISB) (both anaerobic and aerobic), (3) monitored natural attenuation (MNA), and (4) institutional controls. This alternative addresses plumes in nearshore areas using groundwater containment and addresses organic chemicals through anaerobic and aerobic ISB. Groundwater would be monitored during the bioremediation and natural attenuation phases of this alternative. Institutional controls for this alternative would be similar to those discussed for Alternative GW-2. Institutional controls would be implemented prior to active remediation and would remain in effect for as long as COC concentrations exceed their remediation goals.

B4.2.3.1. Federal ARARs

Groundwater Containment

The proposed groundwater containment option, a vertical slurry wall, would involve excavating a narrow trench below the water table, backfilling with a soil bentonite mixture, and disposing of the excess soil off-site. The Navy identified the following potential federal action-specific ARARs for this activity:

- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary staging pile requirements at 40 CFR § 264.554 (d)(1)(i) through (ii), (d)(2), (e), (f), (h), (i), (j), and (k). These requirements are applicable to excavated soil that meets the definition of RCRA hazardous waste and relevant and appropriate to excavated soil that does not meet the definition of RCRA hazardous waste.
- The requirement that source emissions not equal or exceed 20 percent opacity for a period or periods more than 3 minutes in any hour under BAAQMD Regulation 6-302.

Any hazardous substance, pollutant, or contaminant that is shipped off site as a result of the implementation of this alternative will be shipped to a facility in compliance with 42 USC § 9621(d)(3) and EPA's off-site rule at 40 CFR § 300.440.

Groundwater extraction is sometimes combined with physical barriers such as slurry walls. Groundwater extraction is not contemplated in the FS Report, but the RD will refine the proposed groundwater containment system. If deemed necessary in the RD, extracted groundwater would be collected, stored temporarily on site, characterized, treated (if necessary), and discharged to a publicly owned sanitary sewer system. These activities would comply with the substantive provisions of the following potential federal action-specific ARARs:

- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Pretreatment standards contained in 40 CFR Part 403.

In-Situ Bioremediation

The Navy has identified the following potential federal action-specific ARAR under the Underground Injection Control Program of the SDWA.

- The prohibition against constructing, operating, maintaining, converting, plugging, abandoning, or conducting any other injection in a manner that allows movement of fluid containing any contaminant into underground sources of drinking water. This prohibition applies if the presence of the contaminant may violate any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons at 40 CFR § 144.12(a).

The substrate or slurry would be injected into the groundwater through a Class V injection well. Class V injection wells are authorized by rule under 40 CFR § 144.24(a), so a specific permit is not required. Basic information about the Class V well is required under 40 CFR § 144.83. The requirement to compile and submit this basic information is procedural and therefore cannot be an ARAR. The Navy will use the basic information requirements at 40 CFR § 144.83 as TBCs for complying with the substantive requirement of the potential federal ARAR at 40 CFR § 144.12(a).

The Navy would generate investigation-derived waste from the construction of groundwater wells in implementing the in-situ treatment. Potential federal ARARs for the characterization of investigation-derived waste were identified in Section B4.2.2.1.

RCRA §3020(a), which bans hazardous waste disposal by underground injection above a formation that contains an underground source of drinking water, does not apply to this action. It does not apply because injecting either proposed treatment material into the groundwater is not considered injecting hazardous waste.

The substantive provisions of 40 CFR § 144.12 [excluding the reporting requirements in §§ 144.12(b) and 144.12(c)(1)] are potential applicable federal action-specific ARARs.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the MNA component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.2.3.2. State ARARs

Groundwater Containment

This Navy accepts the following potential applicable state ARARs for excavation associated with constructing a groundwater containment system:

- The requirement to accurately characterize wastes under Cal. Code Regs. tit. 27, § 20200(c).
- The discharge requirements for designated waste to Class I or Class II waste management units at Cal. Code Regs. tit. 27 § 20210.
- The discharge requirements for nonhazardous solid to classified units at Cal. Code Regs. tit. 27, §§ 20220(b), (c), and (d).
- The asbestos airborne toxics control measure for construction, grading, quarrying, and surface mining operations at Cal. Code Regs. tit. 17, § 93105.

In-Situ Bioremediation

There are no potential state ARARs for injecting treatment materials into the groundwater. However, the Navy would generate investigation-derived waste from the construction of groundwater wells in implementing the in-situ treatment. Potential state ARARs for the characterization of investigation-derived waste were identified in Section B4.2.2.2.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the MNA component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.2.4. Alternative GW-3B: Groundwater Containment, In-Situ Bioremediation, Zero-Valent Iron Reduction, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-3B consists of: (1) groundwater containment, (2) anaerobic and aerobic ISB, (3) in-situ chemical reduction using zero-valent iron (ZVI), (4) MNA, and (5) institutional controls. This alternative attempts to more efficiently achieve remediation compared to Alternative GW-3A by using ZVI to address the VOC concentrations at the Building 406 TCE plume, which contains the highest and most laterally extensive VOC concentrations at Parcel E. Otherwise, this alternative is identical to Alternative

GW-3A. As with Alternative GW-3A, groundwater would be monitored during the in-situ and natural attenuation phases of this alternative and institutional controls would be applied.

B4.2.4.1. Federal ARARs

Groundwater Containment

The potential federal action-specific ARARs for groundwater containment are identified in Alternative GW-3A, Section B4.2.3.1.

In-Situ Bioremediation

The potential federal action-specific ARARs for in-situ bioremediation are identified in Alternative GW-3A, Section B4.2.3.1.

In-Situ Zero-Valent Iron Reduction

The potential federal action-specific ARARs for in-situ ZVI reduction are identical to those identified for ISB (see Alternative GW-3A, Section B4.2.3.1).

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the monitored natural attenuation component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.2.4.2. State ARARs

Groundwater Containment

The potential state action-specific ARARs for groundwater containment are identified in Alternative GW-3A, Section B4.2.3.2.

In-Situ Bioremediation

The potential state action-specific ARARs for ISB are identified in Alternative GW-3A, Section B4.2.3.2.

In-Situ Zero-Valent Iron Reduction

The potential state action-specific ARARs for in-situ ZVI reduction are identical to those identified for ISB (see Alternative GW-3A, Section B4.2.3.2).

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the monitored natural attenuation component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.2.5. Alternative GW-4: Groundwater Containment, In-Situ Bioremediation, Air Sparging, Monitored Natural Attenuation, and Institutional Controls

Alternative GW-4 consists of: (1) groundwater containment, (2), ISB, (3) air sparging, (4) MNA, and (5) institutional controls. This alternative considers air sparging to address the Building 406 TCE plume and, with the inclusion of SVE, is intended to enhance and integrate soil and groundwater remediation at Building 406. This alternative would only be implemented if the SVE alternative for soil (Alternative S-4) is selected for implementation. This alternative is identical to Alternatives GW-3A and GW-3B in all other respects.

B4.2.5.1. Federal ARARs

Groundwater Containment

The potential federal action-specific ARARs for groundwater containment are identified in Alternative GW-3A, Section B4.2.3.1.

In-Situ Bioremediation

The potential federal action-specific ARARs for ISB are identified in Alternative GW-3A, Section B4.2.3.1.

Air Sparging

The potential ARARs identified in Section B4.1.4.1 for SVE are potential federal ARARs for the air sparging component of this alternative.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the MNA component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.2.5.2. State ARARs

Groundwater Containment

The potential state action-specific ARARs for groundwater containment are identified in Alternative GW-3A, Section B4.2.3.2.

In-Situ Bioremediation

The potential state action-specific ARARs for ISB are identified in Alternative GW-3A, Section B4.2.3.2.

Air Sparging

The potential ARARs identified in Section B4.1.4.2 for SVE are potential state ARARs for the air sparging component of this alternative.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the MNA component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.3. REMEDIAL ALTERNATIVES FOR NAPL

As discussed in Section B1.2.1, the unique site conditions at IR-03, including highly viscous NAPL present over a 1-acre area and at thicknesses over 10 feet, prompted the Navy to evaluate six remedial alternatives specific to NAPL. These NAPL alternatives also address soil and groundwater contamination associated with the NAPL source at IR-03.

B4.3.1. Alternative N-1: No Action

There is no need to identify action-specific ARARs for the no-action alternative because ARARs apply only to "any removal or remedial action conducted entirely on-site" and "no action" is not a removal or remedial action [CERCLA § 121(e), 42 USC § 9621(e). Cleanup standards for selection of a CERCLA remedy, including the requirement to meet ARARs, are not triggered by the no action alternative (EPA, 1988b); therefore, a discussion of compliance with ARARs is not appropriate for this alternative.

B4.3.2. Alternative N-2: Source Containment, Long-Term Groundwater Monitoring, and Institutional Controls

Alternative N-2 consists of source containment, long-term groundwater monitoring, and institutional controls. Source containment would be achieved by (1) limiting infiltration and direct exposure with an engineered cover, and (2) isolating the NAPL source and contaminated groundwater with a vertical subsurface barrier. Long-term groundwater monitoring would serve a two-fold purpose. It would (1) provide awareness of the size and behavior of COC plumes, helping to ensure that chemicals do not migrate beyond controlled areas; and (2) provide baseline information on the size and behavior of COEC plumes to be used in preventing contaminant discharge to San Francisco. Institutional controls would be implemented in areas where humans could be exposed to COCs at concentrations that pose a health risk.

B4.3.2.1. Federal ARARs

Source Containment

An engineered cover is contemplated as a final closure component for IR-03 (former oil reclamation ponds). The Navy evaluated closure and post-closure standards for surface impoundments as potential action-specific ARARs for the engineered cover at IR-03. Cal. Code Regs. tit. 27 § 20164 defines a surface impoundment as "a waste management unit which is a natural topographic depression, excavation, or diked area, which is designed to contain liquid wastes or wastes containing free liquids, and which is not an injection well." The closure and post-closure standards for surface impoundments are similar to those for former landfills contained in Cal. Code Regs. tit. 22, 40 CFR Part 258, Cal. Code Regs. tit. 23, and Cal. Code Regs. tit. 27. Because the former oil reclamation ponds ceased operation prior to the effective date of any of these sets of similar but not identical regulations, they are not applicable ARARs. Therefore, the Navy reviewed these regulations to determine whether any were potentially relevant to the proposed remedial alternatives and then whether they were appropriate relative to the site-specific conditions. The criteria used in determining whether these regulations were relevant and appropriate were specified in Section B1.1.

Because these regulations contain overlapping requirements, the Navy compared Cal. Code Regs. tit. 22, 40 CFR Part 258, Cal. Code Regs. tit. 23, and Cal. Code Regs. tit. 27 and identified the most stringent, or controlling, potential ARARs. When federal and state regulations are considered to be equally stringent, federal regulations are selected as controlling ARARs. Based on this evaluation, the Navy identified the substantive provisions of the following requirements as potential federal action-specific ARARs for the engineered cover at IR-03.

- Compaction: Cal. Code Regs. tit. 22, § 66264.228(e)(1). This section requires that, if waste is to remain in a unit, the unit shall be compacted before any portion of the final cover is installed.
- Post-closure water entry requirement that the final cover be designed to prevent the downward entry of water into the closed landfill throughout a period of at least 100 years at Cal. Code Regs. tit. 22, § 66264.310(a)(1).
- Final cover requirement to accommodate lateral and vertical shear forces generated by the maximum credible earthquake at Cal. Code Regs. tit. 22, § 66264.310(a)(5).
- Final cover maintenance requirements and final cover run-on and runoff controls contained in Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4).
- Leachate collection and removal requirements at Cal. Code Regs. tit. 22, § 66264.310(b)(2), if needed based on results of groundwater monitoring.
- Survey benchmark maintenance required in Cal. Code Regs. tit. 22, § 66264.310(b)(5).
- Storm water discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4) (see Section B4.1.2.1).

The groundwater containment option contemplated for IR-03 is similar to the one evaluated under Alternative GW-3A. Therefore, the potential federal action-specific ARARs for groundwater containment are identified in Alternative GW-3A, Section B4.2.3.1.

Groundwater Monitoring

The potential federal action-specific ARARs for groundwater monitoring are identified in Section B4.2.2.1.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.3.2.2. State ARARs

Source Containment

The Navy identified the substantive provisions of the following requirements as potential state action-specific ARARs for the engineered cover at IR-03.

- The requirement that public agencies comply with Cal. Code Regs. tit. 27 to the extent feasible when taking action to clean up unauthorized releases at Cal. Code Regs. tit. 27, § 20090(d).
- Capping permeability requirements at Cal. Code Regs. tit. 27, §§ 20320 (c) and (d).
- Erosion control requirements at Cal. Code Regs. tit. 27, §§ 20365(c) and (d) and 21090(c)(4).
- Post-closure requirement that the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality at Cal. Code Regs. tit. 27, §§ 20950(a).
- Permanent monument requirements at Cal. Code Regs. tit. 27, § 20950(d).
- Foundation layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(1).
- Erosion-resistant layer requirement at Cal. Code Regs. tit. 27, § 21090(a)(3).
- Final cover design, grading, and maintenance requirements at Cal. Code Regs. tit. 27, § 21090(b)(1).
- Erosion and related damage prevention requirements at Cal. Code Regs. tit. 27, § 21090(c)(4).
- Aerial photographic survey, or alternative survey, requirements at Cal. Code Regs. tit. 27, § 21090(e)(1) and (e)(3).
- Emergency response requirements at Cal. Code Regs. tit. 27, § 21130.
- Site security requirements at Cal. Code Regs. tit. 27, §§ 21135(f) and (g).
- Structure removal: Cal. Code Regs. tit. 27, § 21137.
- Final cover and alternative final cover standards at Cal. Code Regs. tit. 27, § 21140 (a) and (b).
- Final grading requirements at Cal. Code Regs. tit. 27, § 21142(a).
- Final slope requirements at Cal. Code Regs. tit. 27, § 21145(a).
- Drainage and erosion control system requirements at Cal. Code Regs. tit. 27, § 21150(a).
- Leachate collection and control requirements at Cal. Code Regs. tit. 27, § 21160(a) and (c).
- Post-closure requirement that the post-closure maintenance and monitoring extend for no less than 30 years following closure at Cal. Code Regs. tit. 27, § 21180(a).
- Stormwater discharge requirements under SWRCB General Permit for Stormwater Discharges 99-08-DWQ and 10-14-DWQ (TBC; see Section B4.1.2.1).

The content requirements for the post-closure maintenance plan and the final closure plan are specified in Cal. Code Regs. tit. 27, §§ 21800(c) and 21830, respectively. These reporting requirements are not substantive and are therefore not ARARs; however, these requirements will be used by the Navy as TBCs in developing the post-closure maintenance plan and the final closure plan.

The capping permeability requirements at Cal. Code Regs. tit. 27, § 20324(g)(1) and the low hydraulic conductivity layer requirements at Cal Code Regs. tit. 27, § 21090(a)(2) are not relevant and appropriate because a specific engineered alternative was identified that is consistent with the performance goal and that affords equivalent protection against water quality impairment. Under Cal. Code Regs. tit. 27, § 21090(a), the Water Board can allow any alternative final cover that it finds will continue to isolate the waste from precipitation and irrigation waters at least as well as would a final cover built in accordance with applicable prescriptive standards. An evaluation of two engineered alternatives is provided in Appendix P of the Remedial Investigation/FS Report for Parcel E-2 (Engineering/Remediation Resources Group, Inc. and Shaw, Environmental, Inc. 2011). Based on this evaluation, the engineered alternatives are readily implementable and will exceed the applicable performance standards.

The groundwater containment option contemplated for IR-03 is similar to the one evaluated under Alternative GW-3A. Therefore, the potential state action-specific ARARs for groundwater containment are identified in Alternative GW-3A, Section B4.2.3.2.

Groundwater Monitoring

The potential state action-specific ARARs for groundwater monitoring are identified in Section B4.2.2.2.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.3.3. Alternative N-3: Source Removal or Treatment, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-3 consists of a combination of source removal or treatment, containment, MNA, and institutional controls. The NAPL source would be removed or treated using multiple process options including excavation with off-site disposal, in-situ stabilization, and thermally enhanced extraction with off-site disposal. These actions would remove or treat the NAPL source to extent practical, but residual concentrations of chemicals posing a risk to humans and wildlife are expected to remain in the subsurface based on the nature and extent of NAPL contamination. The migration of these chemicals would be controlled through the containment portion of this remedial alternative. Remediation of any residual contamination would occur through MNA. Institutional controls for this alternative would be similar to those discussed for Alternative N-2. Institutional controls would be implemented prior to active remediation and would remain in effect for as long as COC concentrations exceed their remediation goals.

B4.3.3.1. Federal ARARs

Source Removal by Thermally Enhanced NAPL Extraction

There are no potential federal ARARs for heating the subsurface to mobilize NAPL for extraction. However, the Navy has identified the following potential federal ARARs for the dual-phase (vapor and water) extraction process proposed for NAPL removal.

- The requirement to use the best available control technology for new emission sources contained in BAAQMD Regulation 2-2-301.
- The requirements for soil vapor extraction systems contained in BAAQMD Regulation 8-47.
- RCRA hazardous waste identification requirements at Cal. Code Regs. tit. 22, § 66262.10(a) and 11.
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b).
- Temporary tank requirements for treatment or storage of hazardous remediation waste in Cal. Code Regs. tit. 22, § 66264.553(b), (d), (e), and (f).
- Pretreatment standards contained in 40 CFR Part 403.

Any waste generated in implementing the thermal treatment system or NAPL removal would be disposed of off site at an appropriate facility. The potential federal action-specific ARARs identified for excavation and off-site disposal of soil are potential ARARs for the waste generated in implementing the thermal treatment system or NAPL removal. These potential ARARs are identified in Alternative S-3, Section B4.1.3.1.

Source Removal by Excavation and Off-Site Disposal

The potential federal action-specific ARARs for source removal by excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.1.

Source Treatment by In-Situ Mixing

The in-situ mixing option contemplated for IR-03 would involve similar activities to the slurry wall construction evaluated under Alternative GW-3A. Therefore, the potential federal action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.1.

Containment

The potential federal action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.2.3.1. The potential federal action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.2.3.1.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the MNA component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.3.3.2. State ARARs

Source Removal by Thermally Enhanced NAPL Extraction

There are no potential state ARARs for heating the subsurface to mobilize NAPL for extraction. However, any waste generated in implementing the thermal treatment system or NAPL removal would be disposed of off-site at an appropriate facility. The potential state action-specific ARARs identified for excavation and off-site disposal of soil are potential ARARs for the waste generated in implementing the thermal treatment system or NAPL removal. These potential ARARs are identified in Alternative S-3, Section B4.1.3.2.

Source Removal by Excavation and Off-Site Disposal

The potential state action-specific ARARs for source removal by excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.2.

Source Treatment by In-Situ Mixing

The in-situ mixing option contemplated for IR-03 would involve similar activities to the slurry wall construction evaluated under Alternative GW-3A. Therefore, the potential state action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.2.

Containment

The potential state action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.3.2.2. The potential state action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.2.3.2.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the MNA component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.3.4. Alternative N-4A: Source Removal or Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-4A consists of source removal or treatment, followed by groundwater treatment (by aerobic ISB), containment, MNA, and institutional controls. This alternative considers the addition of ISB to remediate the remaining VOCs and semivolatile organic compounds (SVOCs) in groundwater following removal or treatment of the NAPL source. Otherwise, this alternative is identical to Alternative N-3. As with Alternative N-3, groundwater would be monitored during the in-situ and natural attenuation phases of this alternative and institutional controls would be applied and would remain in effect for as long as COC concentrations exceed their remediation goals.

B4.3.4.1. Federal ARARs

Source Removal by Thermally Enhanced NAPL Extraction

The potential federal action-specific ARARs for thermally enhanced NAPL extraction are identified in Section B4.3.3.1.

Source Removal by Excavation and Off-Site Disposal

The potential federal action-specific ARARs for source removal by excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.1.

Source Treatment by In-Situ Mixing

The potential federal action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.1.

In-Situ Bioremediation

The potential federal action-specific ARARs for ISB are identified in Alternative GW-3A, Section B4.2.3.1.

Containment

The potential federal action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.3.2.1. The potential federal action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.3.2.1.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the MNA component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.3.4.2. State ARARs

Source Removal by Thermally Enhanced NAPL Extraction

The potential state action-specific ARARs for thermally enhanced NAPL extraction are identified in Section B4.3.3.2.

Source Removal by Excavation and Off-Site Disposal

The potential state action-specific ARARs for source removal by excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.2.

Source Treatment by In-Situ Mixing

The potential state action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.2.

In-Situ Bioremediation

The potential state action-specific ARARs for ISB are identified in Alternative GW-3A, Section B4.2.3.2.

Containment

The potential state action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.3.2.2. The potential state action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.2.3.2.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the MNA component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.3.5. Alternative N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-4B consists of source removal or treatment, followed by groundwater treatment (by steaming), containment, MNA, and institutional controls. Following removal of the NAPL source, this alternative assumes the thermal remediation system would further heat the groundwater to boil (or steam) and then extract the remaining VOCs and SVOCs in groundwater. Otherwise, this alternative is identical to Alternative N-3. As with Alternative N-3, groundwater would be monitored during the in-situ and natural attenuation phases of this alternative and institutional controls would be applied and would remain in effect for as long as COC concentrations exceed their remediation goals.

B4.3.5.1. Federal ARARs

Source Removal by Thermally Enhanced NAPL Extraction with Steaming

The potential federal action-specific ARARs for thermally enhanced NAPL extraction are identified in Section B4.3.3.1. There are no additional ARARs for the additional heating and removal associated with the steaming process.

Source Removal by Excavation and Off-Site Disposal

The potential federal action-specific ARARs for source removal by excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.1.

Source Treatment by In-Situ Mixing

The potential federal action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.1.

Containment

The potential federal action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.3.2.1. The potential federal action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.3.2.1.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the MNA component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.3.5.2. State ARARs

Source Removal by Thermally Enhanced NAPL Extraction with Steaming

The potential state action-specific ARARs for thermally enhanced NAPL extraction are identified in Section B4.3.3.2. There are no additional ARARs for the additional heating and removal associated with the steaming process.

Source Removal by Excavation and Off-Site Disposal

The potential state action-specific ARARs for source removal by excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.2.

Source Treatment by In-Situ Mixing

The potential state action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.2.

Containment

The potential state action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.3.2.2. The potential state action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.2.3.2.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the MNA component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.3.6. Alternative N-5: Source Removal by Excavation and NAPL Extraction/Treatment, In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls

Alternative N-5 consists of a combination of source removal by excavation in the unsaturated zone, followed by NAPL extraction or treatment in the saturated zone, groundwater treatment by aerobic ISB, containment, MNA, and institutional controls. Alternative N-5 is identical to Alternative N-4A, but includes the excavation of all potential source material in the unsaturated zone. Groundwater would be monitored during the in-situ and natural attenuation phases of this alternative and institutional controls would be applied and would remain in effect for as long as COC concentrations exceed their remediation goals.

B4.3.6.1. Federal ARARs

Excavation and Off-Site Disposal (Unsaturated Zone Soil or Saturated Zone NAPL/Soil)

The potential federal action-specific ARARs for excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.1.

Source Removal by Thermally Enhanced NAPL Extraction

The potential federal action-specific ARARs for thermally-enhanced NAPL extraction are identified in Section B4.3.3.1.

Source Treatment by In-Situ Mixing

The potential federal action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.1.

In-Situ Bioremediation

The potential federal action-specific ARARs for ISB are identified in Section B4.2.3.1.

Containment

The potential federal action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.3.2.1. The potential federal action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.3.2.1.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the MNA component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.3.6.2. State ARARs

Excavation and Off-Site Disposal (Unsaturated Zone Soil or Saturated Zone NAPL/Soil)

The potential state action-specific ARARs for excavation and off-site disposal are identified in Alternative S-3, Section B4.1.3.2.

Source Removal by Thermally Enhanced NAPL Extraction

The potential state action-specific ARARs for thermally enhanced NAPL extraction are identified in Section B4.3.3.2.

Source Treatment by In-Situ Mixing

The potential state action-specific ARARs for source treatment by in-situ mixing are identified in Alternative GW-3A, Section B4.2.3.2.

In-Situ Bioremediation

The potential state action-specific ARARs for ISB are identified in Section B4.2.3.2.

Containment

The potential state action-specific ARARs for the engineered cover at IR-03 are identified in Section B4.3.2.2. The potential state action-specific ARARs for groundwater containment at IR-03 are identified in Section B4.2.3.2.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the MNA component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

B4.3.7. Alternative N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls

Alternative N-6 consists of a combination of source removal by excavation in the unsaturated and saturated zones, followed by MNA and institutional controls. Alternative N-6 considers excavating to and below the groundwater table with the objective of removing the entire NAPL source and achieving clean closure of IR-03. Groundwater would be monitored following excavation as the aquifer recovers, and institutional controls would be applied as long as COC concentrations exceed their remediation goals.

B4.3.7.1. Federal ARARs

Excavation and Off-Site Disposal

The potential federal action-specific ARARs for excavation and off-site disposal are identified in Section B4.1.3.1. In addition, potential federal action-specific ARARs for groundwater extraction, which is required to excavate below the water table as contemplated under this alternative, are identified in Alternative GW-2, Section B4.2.2.1.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.1 for groundwater monitoring are potential federal ARARs for the MNA component of this alternative.

Institutional Controls

There are no potential federal action-specific ARARs for institutional controls.

B4.3.7.2. State ARARs

Excavation and Off-Site Disposal

The potential state action-specific ARARs for excavation and off-site disposal are identified in Section B4.1.3.2. In addition, potential state action-specific ARARs for groundwater extraction, which is required to excavate below the water table as contemplated under this alternative, are identified in Alternative GW-2, Section B4.2.2.2.

Monitored Natural Attenuation

The potential ARARs identified in Section B4.2.2.2 for groundwater monitoring are potential state ARARs for the MNA component of this alternative.

Institutional Controls

The potential state action-specific ARARs for institutional controls are identified in Section B4.1.2.2.

Section B5. References

Alvarez, S., 1992. "Prehistoric Overview." *Tar Flat, Rincon Hill and the Shore of Mission Bay: Archaeological Research Design and Treatment Plan for SF-480 Terminal Separation Rebuild*. M. and A. Praetzellis, eds. Prepared for CALTRANS. Prepared by the Anthropological Studies Center, Sonoma State University, Rohnert Park.

Barajas & Associates, Inc., 2008a. "Final Feasibility Study Report for Parcel F, Hunters Point Shipyard, San Francisco, California." April 30.

Barajas & Associates, Inc., 2008b. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Bay Conservation and Development Commission, 2008. "San Francisco Bay Plan." February.

California Department of Fish and Game (CDFG), 2009. Letter regarding California Department of Fish and Game Laws and Regulations. From Wendy Johnson, CDFG. To Rex Callaway and Michael Waters, Department of the Navy. December 3.

CDFG, 2011. "State and Federally Listed Endangered and Threatened Animals of California." Available Online at: <http://www.dfg.ca.gov/wildlife/species/list.html>. January.

California Department of Water Resources (DWR), 1981. "Water Well Standards: State of California." Bulletin 74-81. December.

DWR, 1991. "California Well Standards." Bulletin 74-90. June.

ChaduxTt, 2010. "Final Memorandum, Approach for Developing Soil Gas Action Levels for Vapor Intrusion Exposure at Hunters Point Shipyard, San Francisco, California." April 30.

Department of the Navy (Navy), 2009a. Letter regarding Identification of State Applicable or Relevant and Appropriate Requirements for the Feasibility Study at Parcel E, Hunters Point Shipyard. From Keith Forman, Navy. To Thomas Lanphar, DTSC, and Erich Simon, San Francisco Regional Water Quality Control Board. January 16.

Navy, 2009b. Letter regarding California Department of Fish and Game Laws and Regulations. From Rex Callaway and Michael Waters, Navy. To Wendy Johnson, CDFG. June 16.

Navy, 2010. Letter regarding California Department of Fish and Game Laws and Regulations. From Rex Callaway and Michael Waters, Navy. To Wendy Johnson, CDFG. April 29.

Navy, the Advisory Council on Historic Preservation, and State Historic Preservation Office, 2000. "Memorandum of Agreement Among the United States Navy, the Advisory Council on Historic Preservation and the California State Historic Preservation Office Regarding the Interim Leasing and Disposal of Historic Properties on the Former Hunters Point Naval Shipyard, San Francisco, California."

Department of Toxic Substances Control, 2009a. Letter regarding Identification of State Applicable or Relevant and Appropriate Requirements for the Draft Feasibility Study for Parcel E, Hunters Point Shipyard, San Francisco, California. From Ryan Miya, DTSC. To Keith Forman, Navy. March 5.

Department of Toxic Substances Control, 2009b. Letter regarding San Francisco Bay Conservation and Development Commission ARARs Request Response for the Parcel E Draft Feasibility Study, Hunters Point Shipyard, San Francisco, California. From Ryan Miya, DTSC. To Keith Forman, Navy. April 28.

Engineering/Remediation Resources Group, Inc. and Shaw Environmental, Inc., 2011. "Final Remedial Investigation/Feasibility Study Report for Parcel E-2, Hunters Point Shipyard, San Francisco, California." May.

Long, E.R., and L.G. Morgan, 1991. "The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program." NOAA Technical Memorandum NOS OMA 52.

Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder, 1995. "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments." *Environmental Management.* Volume 19, No. 1. Pages 81-97.

PRC Environmental Management, Inc., 1996. "Estimation of Groundwater Ambient Levels Technical Memorandum, Hunters Point Shipyard, San Francisco, California." September 16.

San Francisco Regional Water Quality Control Board (Water Board), 1998. "Staff Report: Ambient Concentrations of Toxic Chemicals in San Francisco Bay Sediments." May.

Water Board, 2003a. Letter Regarding Comments on PCB Cleanup Goals for Parcel F, South Basin, Feasibility Study Approach and PRG Development. From Naomi L. Feger, Water Board. To Keith S. Forman, Department of the Navy. February 18.

Water Board, 2003b. "Concurrence that A-Aquifer Groundwater at the Hunters Point Naval Shipyard, San Francisco, Meet the Exemption Criteria in the SWRCB Sources of Drinking Water Resolution 88-63." September 25.

Water Board, 2007. "Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region." Current Version of "Electronic Basin Plan" at: <http://www.waterboards.ca.gov/sanfranciscobay/basinplan.htm> (accessed March 28, 2007). January.

Water Board, 2009. Letter regarding Identification of State Applicable or Relevant and Appropriate Requirements for the Feasibility Study at Parcel E, Hunters Point Shipyard, San Francisco, California. From Erich Simon, Water Board. To Keith Forman, Navy. March 5.

Shaw Environmental, Inc., 2009. "Final Wetlands Mitigation and Monitoring Plan, Parcels B, E, and E-2, Hunters Point Shipyard, San Francisco, California." December 30.

State Water Resources Control Board (SWRCB), 1968. Resolution No. 68-16. "Statement of Policy With Respect to Maintaining High Quality Waters in California."

SWRCB, 1988. Resolution No. 88-63. "Sources of Drinking Water."

SWRCB, 1992. Resolution No. 92-49 (as amended on 21 April 1994 and 02 October 1996). "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304."

SWRCB, 1994. "Application of State Water Board Resolution No. 68-16 to Cleanup of Contaminated Groundwater." February.

Tetra Tech EC, Inc., 2007a. "Final Removal Action Completion Report, PCB Hot Spot Soil Excavation Site, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." October 31.

Tetra Tech EC, Inc., 2007b. "Final Removal Action Completion Report, Metal Debris Reef and Metal Slag Area Excavation Sites, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." November 30.

Tetra Tech EC, Inc., 2007c. "Final Removal Action Completion Report, IR-02 Northwest and Central, Parcel E, Hunters Point Shipyard, San Francisco, California." December 12.

Tetra Tech EM Inc. (TtEMI), 1998a. "Parcel E Feasibility Study, Draft Report, Hunters Point Shipyard, San Francisco, California." January.

TtEMI, 1998b. "Final Basewide Environmental Baseline Survey, Revision 01, Hunters Point Shipyard, San Francisco, California." September 4

TtEMI, 2004. "Revised Final Parcel E Groundwater Summary Report, Phase III Groundwater Data Gaps Investigation, Hunters Point Shipyard, San Francisco, California." May 11.

TtEMI, Levine-Fricke-Recon, and Uribe & Associates, 1997. "Draft Final Parcel E Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California." October 27.

U.S. Department of Defense and U.S. Fish and Wildlife Service, 2006. "Memorandum of Understanding Between the U.S. Department of Defense and the U.S. Fish and Wildlife Service and the International Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resource Management Program on Military Installations." July.

U.S. Environmental Protection Agency (EPA), 1986. "Guidelines for Groundwater Classification Under the EPA Groundwater Protection Strategy."

EPA, 1988a. "CERCLA Compliance With Other Laws Manual, Draft Guidance." Office of Emergency and Remedial Response. EPA/540/G-89/006. August.

EPA, 1988b. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA." Office of Solid Waste and Emergency Response Directives 9355.3-01 and 9355.3-02. EPA/540G-89/004.

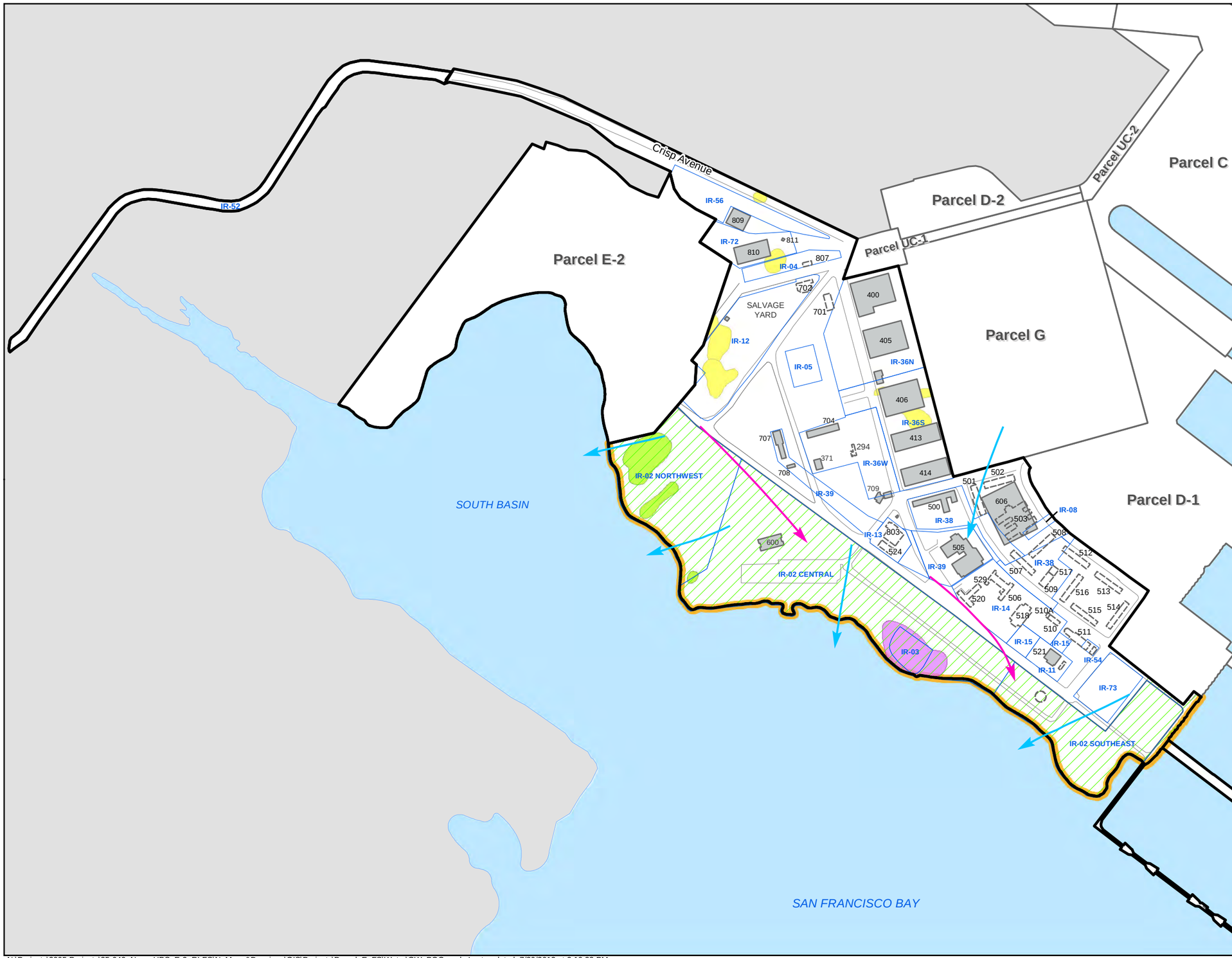
EPA, 1989. "CERCLA Compliance With Other Laws Manual: Part II – Clean Air Act and Other Environmental Statutes and State Requirement." Office of Solid Waste and Emergency Response Directive 9234.1-02, EPA/540/G-89/009. August.

EPA, 1991. "Management of Investigation-Derived Wastes During Site Inspections." EPA/540/G-91/009. May.

EPA, 2009. "National Recommended Water Quality Criteria." Office of Water, Office of Science and Technology. Available Online at: <http://www.epa.gov/waterscience/criteria/wqctable/>.

EPA, Department of Toxic Substances Control, Water Board, and Navy. 1991. "Federal Facility Agreement for Naval Station Treasure Island, Hunters Point Annex." October.

Figures



LEGEND

- Groundwater Point of Compliance (B-Aquifer) Downgradient of IR Sites 02 and 03
- A-Aquifer Flow Direction (1st Quarter 2009)
- B-Aquifer Flow Direction (1st Quarter 2009)
- Contaminated Groundwater Plume in IR Site 02
- Contaminated Groundwater Plume Emanating from IR Site 03
- Contaminated Groundwater Plume Outside IR Sites 02 and 03
- Area Encompassing IR Sites 02 and 03
- IR Site Boundary
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- Existing Building
- Demolished Building
- Road

Notes:
Point of compliance is the vertical surface located at the hydraulically downgradient limit of IR Site 02 and 03 that extends through the B-aquifer.

N

600 0 600

Scale in Feet

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California
Department of the Navy, BRAC PMO West, San Diego, California

FIGURE B-1

GROUNDWATER POINT OF COMPLIANCE

Feasibility Study Report for Parcel E

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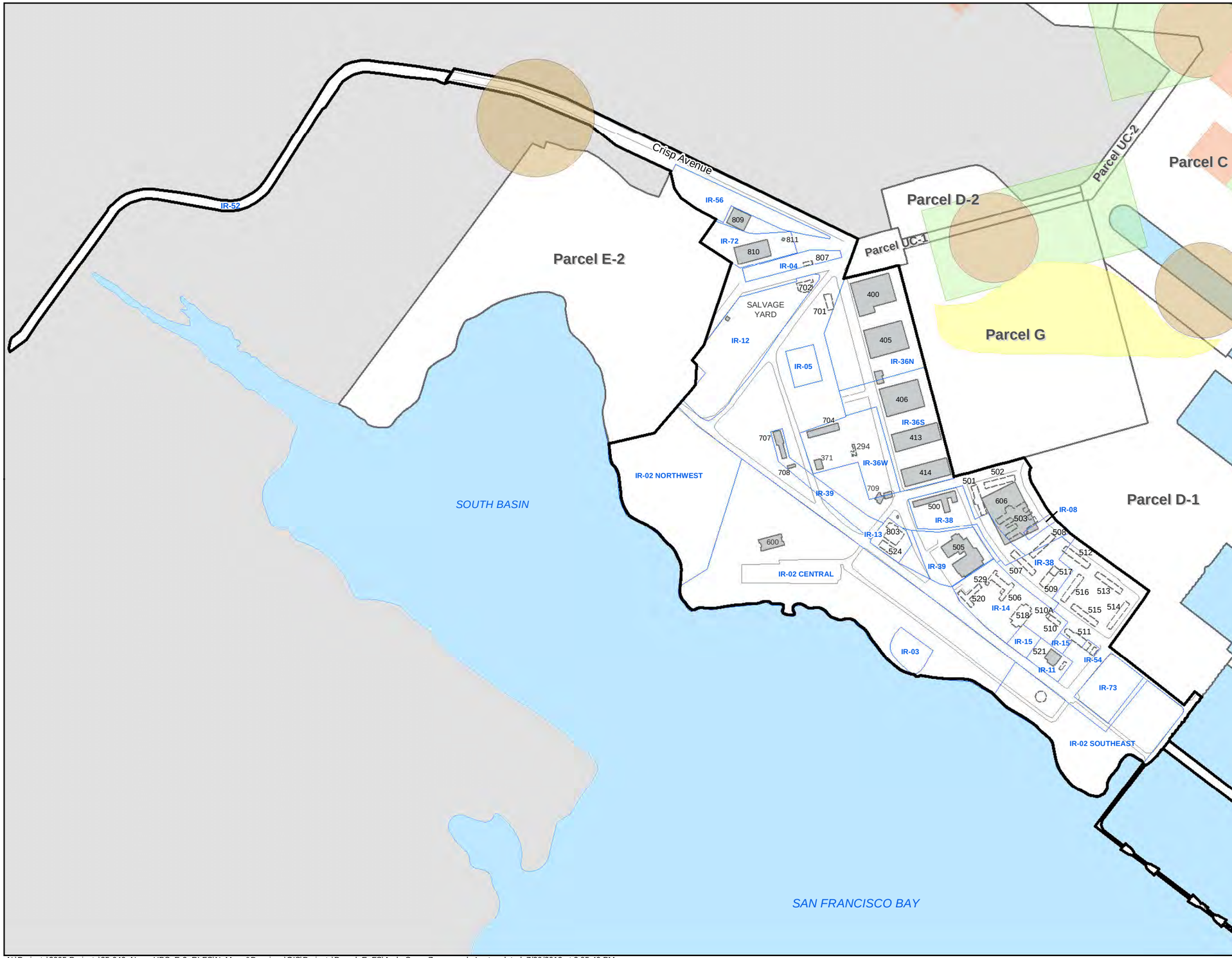

LEGEND

- IR Site Boundary
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property
- Existing Building
- Demolished Building
- Road

ARCHAEOLOGICALLY SENSITIVE ZONES:

- Zone 1 - Nelson's Shellmound Sites
- Zone 2 - Historical Features
- Zone 3 - Chinese Shrimp Camps
- Zone 4 - Maritime Resources

N

600 0 600

Scale in Feet

ERRG ENGINEERING/REMEDIATION RESOURCES GROUP, INC.

Hunters Point Shipyard, San Francisco, California

Department of the Navy, BRAC PMO West, San Diego, California

FIGURE B-2

ARCHAEOLOGICALLY SENSITIVE ZONES

Feasibility Study Report for Parcel E

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Tables

Table B-1. Potential Federal Chemical-Specific ARARs [a]
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Requirement	Prerequisite	Citation [b]	Preliminary ARAR Determination	Comments
		Groundwater		
Safe Drinking Water Act (42 USC, ch. 6A, § 300[f] through 300[j]-26)[c]				
National primary drinking water standards are health-based standards for public water systems (MCLs).	Public water system	40 CFR §§ 141.61(a) and 141.62(b)	Relevant and appropriate	The Navy considers the B-aquifer a Class II aquifer under federal criteria and a potential source of drinking water based on an evaluation of site-specific factors. The Navy has identified MCLs for three COCs (PCE, TCE, and arsenic) as potential chemical-specific ARARs for the B-aquifer under the following scenarios: (1) containment of in-place waste at Parcel E IR-02 and IR-03, for which federal MCLs are potential ARARs for groundwater in the B-aquifer downgradient of the POC; (2) clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which federal MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plumes; and (3) clean closure of IR-03, for which federal MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plume emanating from IR Site 03. The Navy and the Water Board have determined that the A-aquifer is not a potential source of drinking water; therefore, drinking water standards (MCLs) are not potential ARARs for the A-aquifer.
MCLGs pertain to known or anticipated adverse health effects (also known as recommended MCLs).	Public water system	40 CFR § 141.51(b)	Relevant and appropriate	The Navy considers the B-aquifer a Class II aquifer under federal criteria and a potential source of drinking water based on an evaluation of site-specific factors. The Navy has identified the non-zero MCLG for thallium as a potential chemical-specific ARAR for the B-aquifer under the following scenarios: (1) containment of in-place waste at Parcel E IR-02 and IR-03, for which federal MCLGs are potential ARARs for groundwater in the B-aquifer downgradient of the POC; (2) clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which federal MCLGs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plumes; and (3) clean closure of IR-03, for which federal MCLGs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plume emanating from IR-03. The Navy and the Water Board have determined that the A-aquifer is not a potential source of drinking water; therefore, drinking water standards (MCLGs) are not potential ARARs for the A-aquifer.
Resource Conservation and Recovery Act (42 USC, ch. 82, §§ 6901 through 6991[i])[c]				
Groundwater protection standards. Owners and operators of RCRA treatment, storage, or disposal facilities must comply with conditions in these sections that are designed to ensure that hazardous chemicals entering groundwater from a regulated unit do not exceed concentration limits for chemicals of concern set forth under Cal. Code Regs. tit. 22, § 66264.94 in the uppermost aquifer underlying the waste management area of concern at the POC.	A regulated unit that receives or has received hazardous waste before July 26, 1982, or regulated units that ceased receiving hazardous waste prior to July 26, 1982, where chemicals in or derived from waste may pose a threat to human health or the environment.	Cal. Code Regs, tit. 22, § 66264.94 (a)(1), (a)(3), (c), (d), (e)	Relevant and appropriate	There is no RCRA-regulated unit at Parcel E; therefore, these standards are not applicable. These standards are potentially relevant and appropriate for the A-aquifer under the following scenarios: (1) clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, §§ 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plumes; and (2) clean closure of IR-03, for which concentration limits based on unacceptable risk from the vapor intrusion pathway, pursuant to Cal. Code Regs. tit. 22, §§ 66264.94, are potential ARARs for groundwater in the A-aquifer throughout the contaminated plume emanating from IR-03. The Navy will develop site-specific concentration limits for use in its groundwater monitoring program.
This requirement defines RCRA hazardous waste. Solid wastes are characterized as toxic based on the TCLP results if the wastes exceed the TCLP maximum concentrations.	Waste	Cal. Code Regs, tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	These regulations are potential ARARs for all waste generated by the Navy in constructing monitoring wells for groundwater alternatives GW-2 through GW-4B. The Navy will determine if the waste is RCRA hazardous at the time it is generated.

Table B-1. Potential Federal Chemical-Specific ARARs [a] *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Requirement	Prerequisite	Citation [b]	Preliminary ARAR Determination	Comments
		Surface Water		
Clean Water Act of 1977, as Amended (33 USC, ch. 26, §§ 1313–1314)[c]				
Surface water quality standards	Discharges to waters of the United States	40 CFR § 131.38	Applicable	These standards, known as the CTR, are applicable surface water ARARs. The Navy has identified the CTR as potential ARARs for HPS Parcel E because groundwater and surface water bodies discharge to San Francisco Bay. The Navy will meet these ARARs for chemicals that do not have a promulgated standard in Table 3-3 of the Basin Plan at the interface of the A-aquifer and the bay. These ARARs will also be applied to surface water bodies at HPS Parcel E. The Navy has identified MCLs as potential ARARs for the B-aquifer, which will be protective of the discharge of B-aquifer groundwater to the bay. Therefore, these are not potential ARARs for the interface of the B-aquifer and the bay.
		Soil and Sediment		
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901 through 6991[i])[c]				
This requirement defines RCRA hazardous waste. Solid wastes are characterized as toxic based on the TCLP results if the wastes exceed the TCLP maximum concentrations.	Waste	Cal. Code Regs, tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	These regulations are potential ARARs for all waste generated by the Navy in implementing soil alternatives S-2 through S-5. The Navy will determine if the waste is RCRA hazardous at the time it is generated.
LDRs prohibit disposal of hazardous waste unless treatment standards are met.	Hazardous waste land disposal.	Cal. Code Regs, tit. 22, § 66268.1(f), 66268.40, 66268.44, 66268.48, 66268.49	Not ARARs	None of the alternatives evaluate the permanent on-site disposal of excavated soil or other waste. Therefore, requirements that RCRA hazardous waste comply with LDRs are not ARARs. There are alternatives that evaluate the off-site disposal of excavated soil and other waste. The Navy will characterize this waste for offsite disposal and will dispose of it at an appropriately licensed facility if necessary. If the excavated soil or other waste is determined to be RCRA hazardous waste, the disposal facility will have responsibility for complying with these LDRs.
Toxic Substances Control Act (15 U.S.C., ch. 53, §§ 2601–2692)[c]				
Regulates storage and disposal of PCB remediation waste. There are three options: (a) self-implementing on-site cleanup and disposal; (b) performance-based disposal using existing approved disposal technologies; and (c) risk-based disposal.	Soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 mg/kg.	40 CFR § 761.61(c)	Applicable and relevant and appropriate	This is a potentially applicable requirement for soil containing PCB concentrations equal to or greater than 50 mg/kg. This is a potentially relevant and appropriate requirement for soil containing PCB concentrations less than 50 mg/kg.

Notes:

a Many potential action-specific ARARs contain chemical-specific limitations and are addressed in Tables B-5 and B-6.

b Only the substantive provisions of the requirements cited in this table are potential ARARs.

c Statutes and policies and their citations are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of the specific citations are considered potential ARARs.

§	Section	HPS	Hunters Point Shipyard	POC	point of compliance
ARARs	applicable or relevant and appropriate requirements	IR	Installation Restoration	RCRA	Resource Conservation and Recovery Act
Cal. Code Regs.	California Code of Regulations	LDRs	land disposal restrictions	TCE	trichloroethene
CFR	Code of Federal Regulations	MCLs	maximum contaminant levels	TCLP	toxicity characteristic leaching procedure
ch.	Chapter	MCLGs	maximum contaminant level goals	tit	title
COC	chemical of concern	mg/kg	milligrams per kilogram	USC	United States Code
CTR	California Toxics Rule	PCB	polychlorinated biphenyls	Water Board	San Francisco Regional Water Quality Control Board
EPA	U.S. Environmental Protection Agency	PCE	tetrachloroethene		

Table B-2. Potential State Chemical-Specific ARARs[a]
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Requirement	Prerequisite	Citation [b]	Preliminary ARAR Determination	Comments
		Groundwater		
State and Regional Water Quality Control Boards [c]				
Authorizes SWRCB and Water Board to establish, in water quality control plans, beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality.	Waters of the state	California Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360	Applicable	The Navy accepts the substantive provisions of these sections of the California Water Code as enabling legislation, as implemented through the beneficial uses, WQOs, waste discharge requirement, and promulgated policies of the San Francisco Basin Plan as potential ARARs.
Describes the water basins in the San Francisco Region, establishes beneficial uses of groundwater and surface water, and establishes WQOs, including narrative and numerical standards.	Waters of the state	Comprehensive Water Quality Control Plan for the San Francisco Region (Basin Plan) Chapters 2 and 3 (California Water Code § 13240), except the MUN designation for the A-aquifer	Applicable	The substantive groundwater provisions of Chapters 2 and 3 of the Basin Plan, except the MUN designation, are potential ARARs. According to the Basin Plan, which incorporates SWRCB Resolution 88-63, A-aquifer groundwater at Parcel E is not a potential drinking water source. The only beneficial use of A-aquifer groundwater is freshwater replenishment of San Francisco Bay. B-aquifer groundwater has a moderate potential for use as a drinking water source.
Designates all groundwater and surface waters of the state as drinking water, except where total dissolved solids are greater than 3,000 ppm, the well yield is less than 200 gpd from a single well, the water is a geothermal resource or in a water conveyance facility, or the water cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices.	Waters of the state	SWRCB Resolution 88-63	Applicable	The Navy has evaluated the groundwater characteristics in the A-aquifer and B-aquifer at Parcel E against the criteria listed in SWRCB Resolution 88-63. The Navy has determined that groundwater in the A-aquifer is not a potential source of drinking water and groundwater in the B-aquifer has a moderate potential for use as a drinking water source. The Water Board has concurred with the Navy's determination that groundwater in the A-aquifer is not a potential drinking water source.
Department of Toxic Substances Control [c] / State and Regional Water Quality Control Boards [c]				
State MCL list.	Source of drinking water	Cal. Code Regs. tit. 22, § 64444	Relevant and appropriate	The Navy considers the B-aquifer a Class II aquifer under federal criteria and a potential source of drinking water based on an evaluation of site-specific factors. The Navy has identified State primary MCLs for two COCs (1,4-dichlorobenzene, and vinyl chloride) as potential chemical-specific ARARs for the B-aquifer because they are more stringent than the corresponding federal MCL. State primary MCLs are potential state ARARs for the following scenarios: (1) containment of in-place waste at Parcel E IR-02 and IR-03, for which State primary MCLs are potential ARARs for groundwater in the B-aquifer downgradient of the POC; (2) clean closure of contaminated groundwater plumes outside of Parcel E IR-02 and IR-03, for which State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plumes; and (3) clean closure of IR-03, for which State primary MCLs are potential ARARs for groundwater in the B-aquifer throughout the contaminated plume emanating from IR-03. The Navy and the Water Board have determined that the A-aquifer is not a potential source of drinking water; therefore, drinking water standards (MCLs) are not potential ARARs for the A-aquifer.
State secondary MCL list.	Source of drinking water	Cal. Code Regs. tit. 22, § 64449(a)	Not an ARAR	The Navy considers the B-aquifer a Class II aquifer under federal criteria and a potential source of drinking water based on an evaluation of site-specific factors. The Navy has identified the State secondary MCL for manganese as a potential chemical-specific ARAR for the B-aquifer. However, the State secondary MCL for manganese is significantly lower than the likely background conditions for manganese. Generally, CERCLA and the State of California do not require cleanup of groundwater to below background conditions. As a result, the Navy used the HGAL for manganese as the basis for the preliminary remediation goal in B-aquifer groundwater. The Navy and the Water Board have determined that the A-aquifer is not a potential source of drinking water; therefore, drinking water standards (MCLs) are not potential ARARs for the A-aquifer.
Describes requirements for Water Board oversight of investigation and cleanup and abatement activities resulting from discharges of hazardous substances. Water Board may decide on cleanup and abatement goals and objectives for the protection of water quality and beneficial uses of water within each region. Establishes criteria for "containment zones" where cleanup to established water quality goals is not economically or technically practicable.	Discharge of hazardous substance into waters of the state	Policies and procedures for investigation and cleanup and abatement of discharges under California Water Code § 13304, SWRCB Res. 92-49	Not an ARAR	Not an ARAR because it is not more stringent than the federal Cal. Code Regs. tit. 22 monitoring requirements [Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3),(c), (d), and (e)]. A detailed explanation of the Navy and State of California positions on SWRCB Res. 92-49 are provided in Section B2.2.3.2.

Table B-2. Potential State Chemical-Specific ARARs[a] *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Requirement	Prerequisite	Citation [b]	Preliminary ARAR Determination	Comments
		Groundwater *(continued)*		
Department of Toxic Substances Control [c] / State and Regional Water Quality Control Boards [c]				
Establishes the policy that high quality waters of the state "shall be maintained to the maximum extent possible" consistent with the "maximum benefit to the people of the State." It provides that whenever the existing quality of water is better than that required by applicable water quality policies, such existing high quality water will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the policies. It also states that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high-quality waters will be required to meet waste discharge requirements that will result in the best practicable treatment or control of the discharge.	High quality waters of the state	Statement of Policy With Respect to Maintaining High Quality of Waters in California, SWRCB Res. 68-16	Not an ARAR	Not an ARAR for groundwater because it is not more stringent than the federal Cal. Code Regs. tit. 22 groundwater protection standard [Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3),(c), (d), and (e)]. SWRCB Res. 68-16 is also not a potential ARAR for the groundwater alternatives evaluated because none contemplate a direct discharge of groundwater. A detailed explanation of the Navy and State of California positions on SWRCB Res. 68-16 are provided in Section B2.2.3.2.
State and Regional Water Quality Control Boards [c]				
Provides guidance on selecting numerical values to implement narrative water quality objectives contained in the Basin Plan.	Waters of the state	Staff Report of the Central Valley Water Board "A Compilation of Water Quality Goals"	Not an ARAR	Not an ARAR because it is not a promulgated requirement.
Provides guidance on selecting numerical values to implement narrative water quality objective contained in the Basin Plan.	Waters of the state	Technical Document prepared by the San Francisco Water Board Staff: "Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater" (Interim Final – July 2003) (updated September 4, 2003)	Not an ARAR	Not an ARAR because it is not a promulgated requirement.
Concentration limits must be established for groundwater, surface water, and the unsaturated zone. Must be based on background, equal to background, or for corrective actions, may be greater than background, not exceed the lower of the applicable water quality objective or the concentration technologically or economically achievable. Specific factors must be considered in setting cleanup standards above background levels.	Regulated waste disposal unit	Cal. Code Regs. tit. 27, Section 20400; Cal. Code Regs. tit. 23, Section 2550.4	Not an ARAR	Not ARARs because they are not more stringent than the federal Cal. Code Regs. tit. 22 monitoring requirements [Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3),(c), (d), and (e)].
		Surface Water		
State Water Resources Control Board [c]				
Surface water quality standards.	Marine water with salinities equal to or greater than 10 parts per thousand	Basin Plan Table 3-3	Applicable	These standards are applicable to San Francisco Bay. The Navy has identified Table 3-3 as potential ARARs for Parcel E because groundwater discharges to the bay. The Navy will meet these ARARs in the Bay, at a point past the interface of the A-aquifer (or surface water bodies) and the bay. The Navy has identified MCLs as potential ARARs for the B-aquifer, which will be protective of any discharge of B-aquifer groundwater to the permeable zones underlying the bay. Therefore, these are not potential ARARs for the interface of the B-aquifer and the permeable zones underlying the bay.

Table B-2. Potential State Chemical-Specific ARARs[a] *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Requirement	Prerequisite	Citation [b]	Preliminary ARAR Determination	Comments
		Soil, Sediment, and Groundwater		
Department of Toxic Substances Control [c] / State Water Resources Control Board [c] / California Integrated Waste Management Board				
Definition of non-RCRA hazardous waste.	Waste	Cal. Code Regs, tit. 22, §§ 66261.22(a)(3) and (a)(4), 66261.24(a)(2)-(a)(8), 66261.101, 66261.3(a)(2)(C) and (a)(2)(F)	Applicable	These requirements are potential ARARs for all waste the Navy generates in the alternatives evaluated in this feasibility study. The Navy will determine if the waste meets the definition of non-RCRA hazardous waste when it is generated.
Definition of designated waste and nonhazardous waste.	Waste	Cal. Code Regs, tit. 27, §§ 20210 and 20220	Applicable	These requirements are potential ARARs for all waste the Navy generates in the alternatives evaluated in this feasibility study. The Navy will determine if the waste meets the definition of non-RCRA hazardous waste when it is generated
Provides guidance on how to classify wastes according to Cal. Code Regs. tit. 27, div. 2, Subdivision 1 and tit. 23, div. 3., Chapter 15, Article 10.	Waste	Staff Report of the Central Valley RWQCB: The Designated Level Methodology for Waste Classification and Cleanup Level Determination	Not an ARAR	Not an ARAR because it is not a promulgated requirement.

Notes:

a	Many potential action-specific ARARs contain chemical-specific limitations and are addressed in Tables B-5 and B-6.
b	Only the substantive provisions of the requirements cited in this table are potential ARARs.
c	Statutes and policies and their citations are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of the specific citations are considered potential ARARs.
§	Section
ARAR	Applicable or relevant and appropriate requirement
Cal. Code Regs	California Code of Regulations
div.	Division
gpd	gallons per day
HPS	Hunters Point Shipyard
IR	Installation Restoration
MCL	maximum contaminant level
MUN	municipal and domestic supply
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SWRCB	State Water Resources Control Board
Water Board	Regional Water Quality Control Board
WQOs	water quality objectives

Table B-3. Potential Federal Location-Specific ARARs
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
National Historic Preservation Act of 1966, as Amended (16 USC § 1470-470x-6) [b]					
Historic project owned or controlled by federal agency	Action to preserve historic properties; planning of action to minimize harm to properties listed on or eligible for listing on the National Register of Historic Places	Property included in or eligible for the National Register of Historic Places	16 USC § 470-470x-6 36 CFR Part 800 40 CFR § 6.301(b)	Applicable	The substantive provisions are potential ARARs for a response action impacting property listed on or eligible for listing on the National Register of Historic Places. A sensitive archaelogical area (potential shellmound site) has been identified in the northwest portion of Parcel E (Figure B-2).
Migratory Bird Treaty Act of 1972 (16 USC §§ 703 through 712) [b]					
Migratory bird area	Protects almost all species of native migratory birds in the United States from unregulated "take," which can include poisoning at hazardous waste sites.	Presence of migratory birds	16 USC § 703	Relevant and appropriate	This section is a potentially relevant and appropriate because migratory birds have been observed at Parcel E
Coastal Zone Management Act (16 USC §§ 1451 through 1464) [b]					
Within coastal zone	Conduct activities in a manner consistent with approved state management programs to the maximum extent practicable.	Activities affecting the coastal zone, including lands there under and adjacent shore land	16 USC § 1456(c) 15 CFR § 930.30	Relevant and appropriate	Remedial alternatives will comply with the CZMA and San Francisco Bay Plan to the maximum extent practicable.
Clean Water Act of 1977, as Amended, § 404 (33 USC § 1344) [b]					
Jurisdictional waters of the United States	Action to prohibit discharge of dredged or fill material into wetland without permit.	Jurisdictional waters as defined by Clean Water Act	33 USC § 1344	Applicable	Substantive provisions (see Table B-5) are potentially applicable if discharge of dredged or fill material is planned as part of the response action.
Wetland	Reassures that all wetland creation, uplands, disposal, or dredging projects complete certain notifications and listings.	Wetland as defined by Clean Water Act	USACE, Public Notice 92-7: Interim Testing Procedures for Evaluating Dredged Material Disposed on in San Francisco Bay	Not an ARAR	Not an ARAR because it is procedural in nature and is not a promulgated requirement.
Clean Water Act of 1977, as Amended, § 401 (33 USC § 1341) [b]					
Wetland	State Water Quality Certification: wetland destruction and alteration would require a § 404 permit and this certification ensures that the proposed activities will comply with state water quality standards.	Wetland as defined by Clean Water Act	Clean Water Act § 401, 33 USC § 1341	Not an ARAR	Not an ARAR because the procedural requirements for a § 404 permit and § 401 certification do not apply to an on-site CERCLA response action.

Notes:

a Only the substantive provisions of the requirements cited in this table are potential ARARs.

b Statutes and policies and their citations are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statues and policies does not indicate that the Navy accepts the entire statute or policy as a potential ARAR; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs.

§ Section
§§ Sections
ARAR Applicable or relevant and appropriate requirement
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
CFR Code of Federal Regulations
CZMA Coastal Zone Management Act
USACE U.S. Army Corps of Engineers
USC United States Code

Table B-4. Potential State Location-Specific ARARs
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
McAteer-Petris Act (California Government Code §§ 66600 through 66661) [b]					
Within the San Francisco Bay coastal zone	Reduce fill and disposal of dredged material in San Francisco Bay, maintain marshes and mudflats to the fullest extent possible to conserve wildlife, abate pollution, and protect the beneficial uses of the San Francisco Bay.	Activities affecting the San Francisco Bay and 100 feet landward of the shoreline.	Bay Plan at Cal. Code Regs, tit. 14, §§ 10110 through 11990	Relevant and appropriate	The Bay Plan, developed under the authority of the McAteer-Petris Act, is an approved state coastal zone management program. Any remedial actions take by the Navy that will affect San Francisco Bay or that will occur within 100 feet landward of the shoreline will be consistent with the enforceable policies of the Bay Plan to the maximum extent practicable. See Table B-6 for analysis of the substantive provisions of the Bay Plan.
California Endangered Species Act (California Fish & Game Code §§ 2050–2116) [b]					
Endangered species	Department policy and legislative findings and definitions for significant natural areas.	Activity taking place in an endangered species habitat and significant natural area.	Cal. Fish & Game Code § 2053	Not an ARAR	Procedural; not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Endangered species	No person shall import, export, take, possess, or sell any endangered or threatened species or part or product thereof.	Threatened or endangered species determination on or before 01 January 1985.	Cal. Fish & Game Code § 2080	Not an ARAR	Cal. Fish & Game Code § 2080 is not an ARAR because endangered species are not present at the site. The American peregrine falcon, which is present at the site, is no longer protected under Cal. Fish & Game Code § 2080.
California Department of Fish and Game (Cal. Fish & Game Code) [b]					
Streambeds, rivers, or lakes	Defines terminology used in Cal. Fish & Game Code §§ 1602-1616. Identifies procedural requirements that follow determination by state on potential adverse effect.	Construction activity that may substantially adversely affect an existing fish and wildlife resource.	Cal. Fish & Game Code § 1601 and 1603	Not an ARAR	Procedural; not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Rare and endangered plants	No person shall import into this state or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the commission determines to be an endangered native plant or rare native plant.	Endangered or rare native plant species determination.	Cal. Fish & Game Code §§ 1900 and 1908	Not an ARAR	Cal. Fish & Game Code § 1908 is not an ARAR because none of the pertinent species are present at the site. Cal. Fish & Game Code § 1900, previously specified by the Department of Toxic Substances Control, does not specify any substantive requirements and is therefore not an ARAR.
Birds or mammals	It is unlawful to take birds or mammals with any net, pound, cage, trap, set line or wire, or poisonous substance, or to possess birds or mammals so taken, whether taken within or without this state.	Birds or mammals on site.	Cal. Fish & Game Code § 3005 (a) (Statute 1957, c. 456, p. 1353, § 3005)	Not an ARAR	CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment, including environmental receptors. In contrast, the purpose of this State of California requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites. In summary, the purposes of this State of California requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process. The Navy's ERA process takes into account representative receptors for the site, and final remediation and cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. In addition, any species that are present and are federal and/or State endangered, threatened, or fully protected species will be addressed by ARARs related to those designations.[1]

[1] For a more detailed explanation of the positions set forth above, see letter dated June 16, 2009, from Navy counsels Rex Callaway and Michael Waters to CDFG counsel Wendy Johnson; letter dated December 3, 2009, from Ms. Johnson to Mr. Callaway and Mr. Waters; and letter dated April 29, 2010, from Mr. Callaway and Mr. Waters to Ms. Johnson.

Table B-4. Potential State Location-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b] *(continued)*					
Bird nest or eggs	It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.	Bird nests or eggs on site.	Cal. Fish & Game Code § 3503 (Added by Statutes 1985, c. 1334, § 6)	Not an ARAR	Cal. Fish & Game Code § 3503 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate" because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well suited to the site based upon the pertinent provisions of §§ 300.400(g)(2)(i) and (iv) of the NCP[2]. CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment, including environmental receptors. In contrast, the purpose of this state requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well suited to the circumstances at CERCLA sites. In summary, the purposes of this state requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process. The Navy's ERA process takes into account representative receptors for the site, and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. In addition, any species that are present and are federal and/or state endangered, threatened, or fully protected species will be addressed by ARARs related to those designations.[3]
Fully protected birds	Fully protected birds or parts thereof may not be taken or possessed at any time. The following are fully protected birds: American Peregrine Falcon, California Brown Pelican, California Black Rail, California Clapper Rail, California Condor, California Least Tern, Golden Eagle, Greater Sandhill Crane, Light-footed Clapper Rail, Southern Bald Eagle, Trumpeter Swan, White-tailed Kite, and Yuma Clapper Rail.	A fully protected species must be potentially affected.	Cal. Fish & Game Code § 3511	Relevant and appropriate	Cal. Fish & Game Code § 3511 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. The American peregrine falcon is present at the site and is protected under Cal. Fish & Game Code § 3511. The substantive provisions of Cal. Fish & Game Code § 3511 meet the pertinent NCP criteria under 40 CFR § 300.400(g)(2)(viii) and are "relevant and appropriate" because the American peregrine falcon is present at the site and protection of this vulnerable resource allows it to be "used" in the sense that it continues to provide its unique value to the State of California. The Navy accepts Cal. Fish & Game Code § 3511 as a state ARAR subject to the following conditions. The State of California, through CDFG-OSPR, concurs that this statute addresses prohibited conduct but does not provide for or prescribe affirmative measures to avoid a "taking." Notwithstanding the absence of specific affirmative measures in the statute, the Navy will implement reasonable measures to ensure adequate protection of ecological receptors during response action construction following issuance of a CERCLA decision document pursuant to the Navy's obligations under CERCLA to select removal or remedial actions that are protective of human health and the environment (see Section 121[b][1] of CERCLA). The Navy will coordinate with the State, through CDFG-OSPR, prior to implementation of such reasonable measures. The Navy understands that the State of California reserves the right to conduct periodic site visits during removal or remedial activities to confirm implementation of avoidance measures. Substantive provisions of this requirement are potentially relevant and appropriate. The American peregrine falcon is present at the site, and the White-tailed Kite is potentially present at the site. These species are protected under Cal. Fish & Game Code § 3511.
Area used by fully protected mammals	Fully protected mammals may not be taken at any time. The following are fully protected mammals: Morro Bay kangaroo rat, Bighorn sheep (except Nelson bighorn sheep), Northern elephant seal, Guadalupe fur seal, ring-tailed cat, Pacific right whale, salt marsh harvest mouse, Southern sea otter, and wolverine.	A fully protected species must be potentially affected.	Cal. Fish & Game Code § 4700	Not an ARAR	This requirement is not an ARAR because fully protected mammals are not present at the site.

[2] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential state ARAR. The factors are to be examined "where pertinent" with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."
[3] For a more detailed explanation of the positions set forth above, see letter dated June 16, 2009, from Navy counsels Rex Callaway and Michael Waters to CDFG counsel Wendy Johnson; letter dated December 3, 2009, from Ms. Johnson to Mr. Callaway and Mr. Waters; and letter dated April 29, 2010, from Mr. Callaway and Mr. Waters to Ms. Johnson.

Table B-4. Potential State Location-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b] *(continued)*					
Fully protected reptiles or amphibians	Fully protected reptiles and amphibians or parts thereof may not be taken or possessed at any time. The following are fully protected reptiles or amphibians: blunt-nosed leopard lizard, San Francisco garter snake, Santa Cruz long-toed salamander, limestone salamander, and black toad.	A fully protected species must be potentially affected.	Cal. Fish & Game Code § 5050	Not an ARAR	This requirement is not an ARAR because fully protected reptile or amphibian species are not present at the site.
Waters of the State	Prohibits the passage of enumerated substances or materials into waters of the state deleterious to fish, plant life, or birds.	Not authorized under Cal. Water Code § 13263 or a waiver issued pursuant to subdivision (a) of § 13269 of the Cal. Water Code.	Cal. Fish & Game Code § 5650(a), (b), and (c)	Relevant and appropriate	Cal. Fish & Game Code § 5650 is not applicable because the United States of America has not waived sovereign immunity for this State of California requirement. While no direct deposition of material is expected to enter into or affect waters of the states, the substantive portions of this standard will be complied with as an ARAR. Response actions along the Parcel E shoreline will be conducted in such a way as to ensure that materials dug up will not be released into the water column.
Area with fisher, marten, river otter, desert kit fox, and red fox	Fisher, marten, river otter, desert kit fox, and red fox may not be taken at any time.	A fisher, marten, river otter, desert kit fox, or red fox must be potentially harmed.	Cal. Code Regs. tit. 14, § 460	Not an ARAR	Cal. Fish & Game Code § 3503 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate" because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well suited to the site based upon the pertinent provisions of §§ 300.400(g)(2)(i) and (iv) of the NCP[4]. CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment, including environmental receptors. In contrast, the purpose of this state requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well suited to the circumstances at CERCLA sites. In summary, the purposes of this state requirement and the actions that it regulates do not include responding to releases of hazardous substances. Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process. The Navy's ERA process takes into account representative receptors for the site, and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. In addition, any species that are present and are federal and/or state endangered, threatened, or fully protected species will be addressed by ARARs related to those designations.[5]

Notes:

a Only the substantive provisions of the requirements cited in this table are potential ARARs.

b Statutes and policies and their citations are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statues and policies does not indicate that the Navy accepts the entire statute or policy as a potential ARAR; specific potential ARARs follow each general heading; only substantive requirements of the specific citations are considered potential ARARs.

§	Section	CDFG	California Department of Fish and Game	Navy	Department of the Navy
§§	Sections	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ARAR	Applicable or relevant and appropriate requirement	C.F.R.	Code of Federal Regulations	OSPR	Office of Spill Prevention and Response
Bay Plan	San Francisco Bay Plan	ERA	ecological risk assessment	Regs.	Regulations
Cal.	California	FESA	Federal Endangered Species Act	tit.	Title

[4] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential state ARAR. The factors are to be examined "where pertinent" with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

[5] For a more detailed explanation of the positions set forth above, see letter dated June 16, 2009, from Navy counsels Rex Callaway and Michael Waters to CDFG counsel Wendy Johnson; letter dated December 3, 2009, from Ms. Johnson to Mr. Callaway and Mr. Waters; and letter dated April 29, 2010, from Mr. Callaway and Mr. Waters to Ms. Johnson.

Table B-5. Potential Federal Action-Specific ARARs
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
			Containment		
Resource Conservation and Recovery Act (Title 42 USC, ch. 82, §§ 6901-6991[i]) [b]					
Compaction	If waste is to remain in a unit, the unit shall be compacted before any portion of the final cover is installed.	Landfill closure	Cal. Code Regs. tit. 22, § 66264.228(e)(1)	Relevant and appropriate (for Alternatives S-2 through S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Post-closure water entry	The final cover will be designed to prevent the downward entry of water into the closed landfill throughout a period of at least 100 years.	Landfill closure	Cal. Code Regs. tit. 22, § 66264.310(a)(1)	Relevant and appropriate (for Alternatives S-2 through S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Cover seismic requirements	The final cover shall accommodate lateral and vertical shear forces generated by the maximum credible earthquake so that the integrity of the cover is maintained.	Landfill closure	Cal. Code Regs. tit. 22, § 66264.310(a)(5)	Relevant and appropriate (for Alternatives S-2 through S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Post-closure care	Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events throughout the post-closure period.	Landfill closure	Cal. Code Regs. tit. 22, § 66264.310(b)(1) and (4)	Relevant and appropriate (for Alternatives S-2 through S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Benchmark maintenance	Protect and maintain surveyed benchmarks throughout the post-closure period.	Landfill closure	Cal. Code Regs. tit. 22, § 66264.310(b)(5)	Relevant and appropriate (for Alternatives S-2 through S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Monitoring and inspection of landfill cover systems	This section describes the requirements for inspections during construction or installation of cover systems. Cover systems shall be inspected for uniformity, damage, and imperfections.	Construction and operation of landfills	Cal. Code Regs., tit 22, § 66264.303	Not an ARAR	Requirements pertain to construction of new landfills and operational landfills, and not permanent closure contemplated under soil and NAPL alternatives.
			Shoreline Construction		
Clean Water Act, as Amended, Section 404 (Title 33 USC § 1344) [b]					
Perform construction in shoreline zone	These sections describe specific restrictions on the discharge of dredged or fill material into waters of the United States, and require that appropriate and practicable steps be taken to minimize adverse impacts.	Waters of the United States	40 CFR §§ 230.10; 230.70 through 230.77	Applicable (for Alternatives S-2, S-3, and S-4)	Compliance with 40 CFR § 230.10 is evaluated using factual determinations, per 40 CFR § 230.11, for the proposed action. Potential actions to minimize adverse impacts are identified at 40 CFR §§ 230.70 through 230.77. The shoreline construction proposed under Alternatives S-2, S-3, and S-4 will comply with the specified discharge restrictions and will incorporate appropriate steps to minimize adverse impacts to waters of the United States. Appendix D evaluates the proposed shoreline construction relative to these requirements.
Perform construction in shoreline zone	These sections identify specific information to be included in factual determinations for proposed actions involving discharge of dredged or fill material into waters of the United States.	Waters of the United States	40 CFR §§ 230.11; 230.20 through 230.25; 230.31; 230.32; 230.41; 230.42; and 230.53	Applicable (for Alternatives S-2, S-3, and S-4)	Appendix D provides a factual determination for the shoreline construction proposed under Alternatives S-2, S-3, and S-4.
Perform construction in shoreline zone	This section identifies general requirements for compensatory mitigation to offset losses from unavoidable impacts to waters of the United States.	Waters of the United States	40 CFR § 230.93	Applicable (for Alternatives S-2, S-3, and S-4)	Alternatives S-2, S-3, and S-4 contemplate shoreline construction that would result in the discharge of fill material into a wetland, the loss of which would be mitigated by the Navy (on site at adjacent Parcel E-2) in accordance with the substantive provisions of 40 CFR § 230.93.

Table B-5. Potential Federal Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
			Shoreline Construction *(continued)*		
Clean Water Act, as Amended, Section 404 (Title 33 USC § 1344) [b]					
Perform construction in shoreline zone	This section identifies the required content for mitigation plans.	Waters of the United States	40 CFR § 230.94(c)	To Be Considered (for Alternatives S-2, S-3, and S-4)	Requirements are procedural and not substantive; however, these requirements will be used as TBCs in developing site-specific mitigation plans for adjacent Parcel E-2.
Perform construction in shoreline zone	These sections identify ecological performance standards and monitoring requirements for mitigation projects.	Waters of the United States	40 CFR §§ 230.95 and 230.96	Applicable (for Alternatives S-2, S-3, and S-4)	Ecological performance standards and monitoring requirements will be incorporated, as appropriate, into site-specific mitigation plans for adjacent Parcel E-2.
Perform construction in shoreline zone	This section identifies the long-term management methods for compensatory mitigation projects.	Waters of the United States	40 CFR § 230.97	Applicable (for Alternatives S-2, S-3, and S-4)	Long-term management methods will be incorporated, as appropriate, into site-specific mitigation plans for adjacent Parcel E-2.
Perform construction in shoreline zone	This section identifies general policies for evaluating permit applications for proposed discharge of dredged or fill material into waters of the United States.	Waters of the United States	33 CFR § 320.4	Applicable (for Alternatives S-2, S-3, and S-4)	The proposed shoreline construction is to be performed on site pursuant to CERCLA and, as such, the Navy is not required to obtain a permit to discharge the fill; however, the Navy will comply with the substantive provisions of general policies for evaluating permit applications. Appendix D evaluates the proposed shoreline construction relative to these policies.
Perform construction in shoreline zone	These sections identify terms and conditions for the nationwide permit program, which authorizes discharges having minimal impacts.	Waters of the United States	33 CFR § 330.1(e)(3)	Applicable (for Alternatives S-2, S-3, and S-4)	The proposed shoreline construction is to be performed on site pursuant to CERCLA and, as such, the Navy is not required to obtain a permit to discharge the fill; however, the Navy will comply with the substantive terms and conditions of Nationwide Permit 38.
			Landfill Gas Treatment		
Clean Air Act (Title 42 USC § 7401 et seq.) [b]					
Landfill gas emissions	Requires that a person shall not discharge into the atmosphere from any miscellaneous operation an emission containing more than 6.8 kilograms (15 pounds) per day and containing a concentration of more than 300 parts per million of total carbon on a dry basis.	Landfill gas emissions	BAAQMD Regulation 8, Rule 2	Not an ARAR	Not an ARAR because the type of site regulated by this rule does not match the site conditions at Parcel E; there are no landfills at Parcel E.
Landfill gas collection and emission control	Specifies landfill gas collection and emission control system requirements, including construction standards, administrative requirements, monitoring and record-keeping requirements, and operation procedures.	Landfill Gas Collection Systems	BAAQMD Regulation 8, Rule 34	Not an ARAR	Not an ARAR because the type of site regulated by this rule does not match the site conditions at Parcel E; there are no landfills at Parcel E.
			Stormwater Discharge		
Clean Water Act, as Amended (Title 33 USC, ch. 26, §§ 1251–1387) [b]					
Excavation and grading activities	Construction that disturbs at least 1 acre must use best management practices to control stormwater discharges.	Construction activities at least 1 acre in size.	Clean Water Act § 402 40 CFR § 122.44(k)(2) and (4)	Applicable (for Alternatives S-2, S-3, and S-4, and N-2 through N-6)	Alternatives S-2, S-3, and S-4, and N-2 through N-6 will disturb more than 1 acre. The Navy will implement the substantive provisions of state general stormwater discharge permit, Orders 09-09-DWQ and 10-14-DWQ (adopted pursuant to Clean Water Act § 402), to comply with the federal Clean Water Act ARARs and water quality state ARARs for discharge to surface water. The federal and state ARARs require best management practices and meeting the

Table B-5. Potential Federal Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
			Stormwater Discharge *(continued)*		
Clean Water Act, as Amended (Title 33 USC, ch. 26, §§ 1251–1387) [b]					
Excavation and grading activities	*(see above)*	*(see above)*	*(see above)*	*(see above)*	substantive numeric effluent limit and action level requirements. Although procedural requirements do not qualify as CERCLA ARARs, the Navy shall voluntarily prepare a CERCLA storm water plan as a component of CERCLA remedial design to address the substantive provisions.
			Groundwater Monitoring		
Resource Conservation and Recovery Act (Title 42 USC, ch. 82, §§ 6901-6991[i]) [b]					
Monitor groundwater	Chemicals of concern are the waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from the waste contained in the regulated unit.	RCRA hazardous waste management unit	Cal. Code Regs. tit. 22, § 66264.93	Relevant and appropriate (for Alternatives GW-2 through GW-4, and N-2 through N-6)	These requirements are applicable to RCRA hazardous waste facilities; however, the Navy has determined that they are potentially relevant and appropriate to the monitoring component of the groundwater and NAPL alternatives.
Monitor groundwater	The POC is a vertical surface, located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit.	RCRA hazardous waste management unit	Cal. Code Regs. tit. 22, § 66264.95	Relevant and appropriate (for Alternatives GW-2 through GW-4, and N-2 through N-5)	The POC provisions at Cal. Code Regs. tit. 22, § 66264.95 are potential relevant and appropriate ARARs for the scenario involving containment of in-place waste at Parcel E IR-02 and IR-03. Waste has been identified throughout IR-02 and IR-03, and this waste is the primary source of contamination to groundwater (see Sections 4.3.9, 4.3.10, and 4.3.11 of the Revised RI Report [Barajas & Associates, Inc., 2008b]). Based on these findings, IR-02 and IR-03 are considered a contiguous waste management unit. The Navy believes that, for plumes located within IR-02 and IR-03, contamination upgradient of the POC would be adequately contained by the remedial action to ensure compliance with the RAOs and adequately protect human health and the environment.
Monitor groundwater	Owner or operator of shall establish a groundwater monitoring system for each regulated unit and include a sufficient number of monitoring points installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the POC.	RCRA hazardous waste management unit	Cal. Code Regs. tit. 22, § 66264.97(b)(1)(A), (b)(1)(D)(1) and (b)(1)(D)(2)	Relevant and appropriate (for Alternatives GW-2 through GW-4, and N-2 through N-6)	These requirements are applicable to RCRA hazardous waste facilities; however, the Navy has determined that they are potentially relevant and appropriate to the monitoring component of the groundwater and NAPL alternatives.
Monitor groundwater	Requirements for monitoring well construction and sampling intervals.	RCRA hazardous waste management unit	Cal. Code Regs. tit. 22, § 66264.97(b)(4), (5), (6), and (7)	Relevant and appropriate (for Alternatives GW-2 through GW-4, and N-2 through N-6)	These requirements are applicable to RCRA hazardous waste facilities; however, the Navy has determined that they are potentially relevant and appropriate to the monitoring component of the groundwater and NAPL alternatives.
Monitor groundwater	Requirements for collecting samples.	RCRA hazardous waste management unit	Cal. Code Regs. tit. 22, § 66264.97(e)(6), (e)(12)(A), (e)(12)(B), (e)(13), and (e)(15)	Relevant and appropriate (for Alternatives GW-2 through GW-4, and N-2 through N-6)	These requirements are applicable to RCRA hazardous waste facilities; however, the Navy has determined that they are potentially relevant and appropriate to the monitoring component of the groundwater and NAPL alternatives.

Table B-5. Potential Federal Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
Groundwater Monitoring / Excavation and Off-Site Disposal / In-Situ Treatment					
Resource Conservation and Recovery Act (Title 42 USC, ch. 82, §§ 6901-6991[i]) [b]					
Monitor groundwater	In conjunction with corrective action measures, the owner or operator shall establish and implement a water quality monitoring program to demonstrate the effectiveness of the corrective action program. The program shall be effective in determining compliance and in determining the success of the corrective action measures.	RCRA hazardous waste management unit.	Cal. Code Regs. tit. 22, § 66264.100(d)	Relevant and appropriate (for Alternatives GW-2 through GW-4, and N-2 through N-6)	These requirements are applicable to RCRA hazardous waste facilities; however, the Navy has determined that they are potentially relevant and appropriate to the monitoring component of the groundwater and NAPL alternatives.
On-site generation of waste	Person who generates waste shall determine if the waste is a RCRA hazardous waste.	Generator of waste.	Cal. Code Regs. tit. 22, §§ 66262.10 (a), 66262.11	Applicable (for Alternatives S-2, S-3, and S-4, GW-2 through GW-4, and N-2 through N-6)	These regulations are potentially applicable to any operation that generates waste. The soil, groundwater, and NAPL alternatives contemplate generation of waste to be disposed of off site. The Navy will decide whether the waste is RCRA hazardous waste when it is generated.
On-site generation of waste	Requirements for analyzing waste for determining whether waste is hazardous.	Generator of waste.	Cal. Code Regs. tit. 22, § 66264.13 (a) and (b)	Applicable (for Alternatives S-2, S-3, and S-4, GW-2 through GW-4, and N-2 through N-6)	These regulations are potentially applicable to any operation that generates waste. The soil, groundwater, and NAPL alternatives include activities that generate waste to be disposed of off site. The Navy will decide whether the waste is RCRA hazardous waste when it is generated.
Excavation and Disposal / Soil Vapor Extraction					
Clean Air Act (Title 42 USC, § 7401 et seq.) [b]					
Excavation	Sets forth opacity limitations.	Excavation.	BAAQMD Regulation 6, Rule 302	Applicable (for Alternative S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	Potentially applicable for excavation activities, including construction of shoreline revetment and groundwater containment barriers.
Operate an SVE system	New emission sources must use best available control technology.	New emission source	BAAQMD Regulation 2-1-301	Applicable (for Alternative S-4 and N-2 through N-5)	The Navy would treat the off-gas resulting from the SVE system (or dual-phase extraction system) with a granular activated carbon unit.
Operate an SVE system	Requirements for SVE systems.	SVE system	BAAQMD Regulation 8-47	Applicable (for Alternative S-4 and N-2 through N-5)	These requirements are applicable to the SVE system under Alternative S-4 and dual-phase extraction system under Alternatives N-2 through N-5.
Groundwater Containment or Extraction / Excavation and Off-Site Disposal / Shoreline Construction					
Resource Conservation and Recovery Act (Title 42 USC, ch. 82, §§ 6901-6991[i]) [b]					
Stockpiling soil for off-site disposal	Allows generators to accumulate solid remediation waste in an EPA-designated pile for storage only up to 2 years during remedial operations without triggering LDRs.	RCRA hazardous waste temporarily stored in piles.	40 CFR, § 264.554(a), (d), (g), (h), (i), (j), and (k)	Relevant and appropriate (for Alternative S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	The Navy will temporarily stockpile soil in staging piles for off-site disposal. The Navy does not anticipate that all soil will be RCRA hazardous waste; however, the Navy has determined that these requirements are potentially relevant and appropriate for all stockpiled soil.
Temporary units	Alternative requirements that are protective of human health or the environment may replace design, operating, or closure standards for temporary tanks and container storage areas.	Temporary units may be used and are not subject to RCRA LDRs.	Cal. Code Regs. tit. 22, §§ 66264.553 (b), (d), (e), and (f)	Applicable (for Alternative S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	The substantive portions are potentially applicable for temporary on-site storage of liquid generated during excavation of saturated soil or sediments and prior to off-site disposal.

Table B-5. Potential Federal Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
Groundwater Containment or Extraction					
Clean Water Act (General Pretreatment Regulations) [b]					
Discharge of treated groundwater to publicly owned treatment works	Identifies prohibited discharges, categorical standards, and monitoring requirements.	Pollutants from nondomestic sources that are discharged indirectly into publicly owned treatment works.	40 CFR Part 403	Relevant and appropriate (for Alternatives GW-3A through GW-4, and N-2 through N-6)	If on-site groundwater extracted or treated under Alternatives GW-3A through GW-4, or Alternatives N-2 through N-6 is discharged to a publicly owned sanitary sewer system, the substantive provisions of the pretreatment standards are potential relevant and appropriate federal ARARs.
In-Situ Treatment					
Safe Drinking Water Act (42 U.S.C. § 300[f]-300[j]-26) [b]					
Inject biological amendment or zero-valent iron into groundwater.	The underground injection control program prohibits injection that allows movement of contaminants into underground sources of drinking water that may result in violations of MCLs or adversely affect health.	An approved UIC program is required in states listed under SDWA Section 1422. Class I wells and Class IV wells are the relevant classifications for CERCLA sites. Class I wells are used to inject hazardous waste beneath the lowermost formation that contains an underground source of drinking water within 0.25 mile of the well.	40 CFR § 144.12(a) excluding the reporting requirements in § 144.12(b) and 144.12(c)(1)	Applicable (for Alternatives GW-3A through GW-4, and N-4A and N-5)	This requirement is applicable to the Navy's injection of biological amendment or zero-valent iron into the groundwater. The Navy will use the basic information requirements contained in 40 CFR §144.83 as TBCs for complying with the requirement in 40 CFR §144.12(a).
Leachate/Groundwater Collection and Control					
Resource Conservation and Recovery Act (Title 42 USC, ch. 82, §§ 6901-6991[i]) [b]					
Source containment	Continue to operate leachate collection and removal system until leachate is no longer detected (this regulation does not require the installation of a leachate collection system)	RCRA hazardous waste management unit.	Cal. Code Regs. tit. 22, § 66264.310(b)(2)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for post-closure leachate/groundwater control at IR-02 Northwest/Central and IR-03 (if required based on groundwater monitoring results).

Notes:

a Only the substantive provisions of the requirements cited in this table are potential ARARs.

b Statutes and policies and their citations are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered potential ARARs.

§	Section	Navy	Department of the Navy
ARAR	Applicable or relevant and appropriate requirement	PCBs	polychlorinated biphenyls
BAAQMD	Bay Area Air Quality Management District	POC	point of compliance
Cal. Code Regs.	California Code of Regulations	ppm	parts per million
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	RAOs	remedial action objectives
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
ch.	Chapter	SWRCB	State Water Resources Control Board
EPA	U.S. Environmental Protection Agency	TBC	to be considered
IR	Installation Restoration	tit.	Title
LDRs	land disposal restrictions	USC	United States Code

Table B-6. Potential State Action-Specific ARARs
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Containment			
State Water Resources Control Board / California Integrated Waste Management Board [b]					
Capping permeability	Hydraulic conductivities will be evaluated primarily through laboratory methods and will be confirmed by appropriate field testing. Earthen materials used in containment structures will consist of a clay mixture and other suitable fine-grained soils that have specific characteristics and that, in combination, can be compacted to attain the required hydraulic conductivity when installed.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 20320 (c) and (d)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Capping permeability	Before installing the compacted soil barrier layer component of a final cover system or the compacted soil of a liner system, the operator will accurately establish the correlation between the design hydraulic conductivity and the density at which that conductivity is achieved.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 20324 (g)(1)	Not an ARAR	Not an ARAR because a specific engineered alternative was identified that is consistent with the performance goal and affords equivalent protection against water quality impairment, consistent with the variance requirements specified at Cal. Code Regs. tit. 27, §§ 21090(a).
Erosion control	Diversion and drainage facilities will be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, §§ 20365(c) and (d)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Erosion control	Erosion and related damage of the final cover due to drainage must be prevented throughout the post-closure maintenance period.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21090(c)(4)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Post-closure care	§ 20950(a): The post-closure maintenance period shall extend as long as the wastes pose a threat to water quality. § 21180(a): The landfill shall be maintained and monitored for a period of not less than 30 years after closure of the entire solid waste landfill.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 20950(a) and § 21180(a)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Survey monuments	Closed units shall be provided with at least two permanent monuments installed by a licensed land surveyor or a registered civil engineer, from which the location and elevation of containment structures can be determined throughout the post-closure maintenance period.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 20950(d)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Aerial photograph survey	For a closed landfill, when all closure activities are complete for the unit, the discharger shall conduct an aerial photographic survey. The data obtained shall be used to produce a topographic map of the site at a scale and contour interval sufficient to depict the as-closed topography of each portion of the unit. The map produced pursuant to this paragraph shall act as a baseline against which to measure the total settlement, through time.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21090(e)(1) and (3)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Foundation layer	Closed landfills shall be provided with not less than 2 feet of appropriate materials as a foundation layer for the final cover. The foundation layer shall be compacted to the maximum density obtainable at optimum moisture content using methods that are in accordance with accepted civil engineering practice. A lesser thickness may be allowed for units if the differential settlement of waste and ultimate land use will not affect the structural integrity of the final cover.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21090(a)(1)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Containment *(continued)*			
State Water Resources Control Board / California Integrated Waste Management Board [b]					
Final grading	The final cover of closed landfills will be designed, graded, and maintained to prevent ponding and to prevent site erosion caused by high runoff velocities. Slopes should be at least 3 percent.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21090(b)(1)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Low-hydraulic conductivity layer	Closed landfills shall be provided with a low hydraulic conductivity (or low through-flow rate) layer, consisting of not less than 1 foot of soil containing no waste or leachate that is placed on top of the foundation layer and compacted to attain a hydraulic conductivity of either 1×10^{-6} cm/sec (i.e., 1 foot per year) or less, or equal to the hydraulic conductivity of any bottom liner system or underlying natural geologic materials, whichever is less permeable, or another design that provides a correspondingly low through-flow rate throughout the post-closure maintenance period.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21090(a)(2)	Not an ARAR	Not an ARAR because a specific engineered alternative was identified that is consistent with the performance goal and affords equivalent protection against water quality impairment, consistent with the variance requirements specified at Cal. Code Regs. tit. 27, §§ 21090(a).
Erosion-resistant layer	The low hydraulic conductivity layer of § 21090(a)(2) shall be directly overlain by an erosion-resistant layer. Closed landfills shall be provided with an uppermost cover layer consisting of either a vegetative layer consisting of not less than 1 foot of soil capable of sustaining native or other suitable plant growth or a mechanically erosion-resistant layer.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21090(a)(3)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Emergency response	Potential emergency conditions that may exceed the design of the site and could endanger the public health or the environment must be anticipated.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21130	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Site Security	Requires that all points of access be restricted except at permitted entry points and that the monitoring, control, and recovery systems be protected from unauthorized access	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21135 (f) and (g)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Structure Removal	Requires that the operator dismantle and remove site structures at the time of closure to protect public health and safety in accordance with the closure plan.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21137	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Final cover	Contains general standards for the design of the final cover.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, §21140(a) and (b)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Final grading	Contains general standards for landfill grading.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21142(a)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for low-permeability covers at IR-02 Northwest/Central and IR-03.
Slope stability	Contains general standards for slope stability.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21145(a)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Containment *(continued)*			
State Water Resources Control Board / California Integrated Waste Management Board [b]					
Erosion control	The drainage and erosion control system will be designed and maintained to (1) ensure integrity of post-closure land uses, roads, and structures; (2) prevent public contact with waste and leachate; (3) ensure the integrity of gas monitoring and control systems; (4) prevent safety hazards; and (5) prevent exposure of waste.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21150(a)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for covers throughout Parcel E.
Final closure plan	Sets forth requirements for final closure plan contents.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21800(c)	To be considered (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Requirements are procedural and not substantive; however, these requirements will be used as TBCs in developing the final closure plan for IR-02 Northwest/Central and IR-03.
Final closure plan	Provides the content requirements for post-closure maintenance plans for solid waste disposal sites.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21830	To be considered (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Requirements are procedural and not substantive; however, these requirements will be used as TBCs in developing the postclosure maintenance plan for IR-02 Northwest/Central and IR-03.
Closure of existing waste management units	Requires closure of existing waste management units according to Cal. Code Regs. tit. 27 and tit. 23.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20080(d), Cal. Code Regs. tit. 23 2510(d)	Not an ARAR	These regulations are not ARARs because there are no existing waste management units at Parcel E.
Closure of surface impoundments	Requires surface impoundments to be closed by removing and treating all free liquid and either removing all remaining contamination or closing the surface impoundment as a landfill.	Existing surface impoundment.	Cal. Code Regs. tit. 27, § 21400, Cal. Code Regs. tit. 23, Section 2580	Not an ARAR	IR-03 (former oil reclamation ponds) is considered a former surface impoundment; however, these requirements are not ARARs because they are no more stringent than the substantive provisions of Cal. Code Regs. tit. 22, § 66264.228.
Closure certification	Provides the content requirements to obtain certification that the solid waste disposal sites have closure pursuant to state standards.	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, § 21880	Not an ARAR	Not an ARAR because it is procedural and nonsubstantive.
Waste management unit operation	Requires that weight or volume of waste accepted be determined to an accuracy of plus or minus 10 percent.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20510(a)	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
Waste management unit operation	Requires records be maintained for excavations that may affect the safe and proper operation of the site or cause damage to adjoining properties.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20510(b)	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
Waste management unit operation	Requires the site to be designed to discourage unauthorized access by persons or vehicles by using a perimeter barrier or topographic constraints; areas within the site where open storage or ponding of hazardous materials occurs shall be separately fenced.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20530	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
Waste management unit operation	Landfill road must minimize dust and tracking of materials onto public roads.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20540	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
Waste management unit operation	Requires unloading of solid wastes be confined to as small an area as possible without resulting in traffic, personnel, or public safety hazards.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20630	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
Waste management unit operation	Requires spreading and compacting of refuse in layers.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20640	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Containment *(continued)*			
State Water Resources Control Board / California Integrated Waste Management Board [b]					
Waste management unit operation	Requires covered surfaces of the disposal area be graded to promote runoff and prevent ponding, accounting for future settlement.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20650	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
Waste management unit operation	Requires stockpiled cover material and unsuitable native materials be placed so as not to cause problems or interference with site operations.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20660	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
Waste management unit operation	Requires compacted earthen material of at least 12 inches on all surfaces of the fill where no additional solid waste will be deposited within 180 days.	Existing waste management unit.	Cal. Code Regs. tit. 27, § 20700	Not an ARAR	Requirements specify operating criteria that do not apply to permanent closure contemplated at IR-02 Northwest/Central and IR-03.
		Construction and Grading			
California Air Resources Board [b]					
Construction or grading in soil containing asbestos, serpentine, or ultramafic rock	This regulation sets forth requirements for road construction and maintenance, and for construction and grading operations in soil containing naturally occurring asbestos, serpentine, or ultramafic rock.	Soil containing naturally occurring asbestos, serpentine, or ultramafic rock.	Cal. Code Regs. tit. 17, § 93105	Applicable (for Alternatives S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	This regulation is potentially applicable for construction and grading activities if they will occur in areas containing asbestos, serpentine, or ultramafic rock.
State Water Resources Control Board [b]					
Remediation activities	Actions taken by or at the direction of public agencies to clean up or abate conditions of pollution or nuisance resulting from unintentional or unauthorized releases of waste or pollutants to the environment are exempt from the Cal. Code Regs. tit. 27 requirements identified in Cal. Code Regs. tit 27, div. 2, subdiv. 1, provided that wastes, pollutants, or contaminated materials removed from the immediate place of release shall be discharged according to the SWRCB-promulgated sections of div. 2, subdiv. 1, ch. 3, subch. 2 and further provided that remedial actions intended to contain such wastes at the place of release shall implement applicable SWRCB-promulgated provisions of div. 2 to the extent feasible.	Action taken by or at the direction of a public agency to cleanup release of pollutant.	Cal. Code Regs, tit. 27 § 20090(d)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-6)	The substantive provisions of this regulation are potentially relevant and appropriate.
		Groundwater Monitoring / Excavation and Off-Site Disposal			
State Water Resources Control Board [b]					
Generating IDW	Sampling and analysis of discharges shall be used for accurate characterization of wastes.	Waste.	Cal. Code Regs. tit. 27, §20200(c)	Applicable (for Alternatives S-2, S-3, and S-4, GW-2 through GW-4, and N-2 through N-6)	This regulation is potentially applicable to excavation of soil and generation of IDW. The Navy will characterize soil or any IDW when it is generated.
Off-site disposal of soil and IDW	Requires that designated waste as defined at California Water Code §13173 be discharged to Class I or Class II waste management units.	Discharge of designated waste after July 18, 1997 (nonhazardous waste that could cause degradation of surface or ground waters) to land for treatment, storage, or disposal	Cal. Code Regs. tit. 27, §20210	Applicable (for Alternatives S-2, S-3, and S-4, GW-2 through GW-4, and N-2 through N-6)	This regulation is potentially applicable to excavation of soil and generation of IDW. The Navy will characterize soil or any IDW when it is generated.

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
			Groundwater Monitoring / Excavation and Off-Site Disposal *(continued)*		
State Water Resources Control Board [b]					
Off-site disposal of soil and IDW	Requires that nonhazardous solid waste as defined at Cal. Code Regs. tit. 27, §20220(a) be discharged to a classified waste management unit.	Discharge of nonhazardous solid waste after July 18, 1997, to land for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20220(b), (c), and (d)	Applicable (for Alternatives S-2, S-3, and S-4, GW-2 through GW-4, and N-2 through N-6)	This regulation is potentially applicable to excavation of soil and generation of IDW. The Navy will characterize soil or any IDW when it is generated.
Off-site disposal of soil and IDW	Inert waste as defined at Cal. Code Regs. tit. 27, §20230(a) need not be discharged at a classified unit.	Applies to discharges of inert waste to land after July 18, 1997, for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20230(b)	Not an ARAR	There are no requirements prescribed at Cal. Code Regs. tit. 27, §20230.
			Groundwater Monitoring		
State Water Resources Control Board [b]					
Groundwater Monitoring	Chapter 4 describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies. Includes groundwater and surface water protection and management. Describes program goals, how water quality objectives are applied, and strategies for managing polluted sites.	Waters of the state.	Chapter 4 of the Basin Plan	Not an ARAR	Not an ARAR because the section primarily imposes procedural requirements. In addition, substantive requirements pertaining to point source discharges are not applicable because no active groundwater response is contemplated at this time.
Groundwater Monitoring	Requires monitoring for compliance with RAOs for 3 years from the date of achieving cleanup standards.	Groundwater.	Cal. Code Regs. tit. 27, § 20410; Cal. Code Regs. tit. 23, § 2550.6	Not an ARAR	These requirements are not more stringent than the federal tit. 22 monitoring requirements.
Groundwater Monitoring	Requires general soil, surface water and groundwater monitoring.	Groundwater.	Cal. Code Regs. tit. 27, § 20415; Cal. Code Regs. tit. 23, § 2550.7	Not an ARAR	These requirements are not more stringent than the federal tit. 22 monitoring requirements.
Groundwater Monitoring	Requires an assessment of the nature and extent of the release, including a determination of the spatial distribution and concentration of each chemical.	Groundwater.	Cal. Code Regs. tit. 27, § 20425; Cal. Code Regs. tit. 23, § 2550.9	Not an ARAR	These requirements are not more stringent than the federal tit. 22 monitoring requirements.
Groundwater Monitoring	Requires monitoring. If water quality is threatened, corrective action consistent with tit. 27 and tit. 23 is required.	Groundwater.	Cal. Code Regs. tit. 27, § 20080(g) and Cal. Code Regs. tit. 23 § 2510(g)	Not an ARAR	These requirements are not more stringent than the federal tit. 22 monitoring requirements.
			Shoreline Construction		
McAteer-Petris Act (California Government Code §§ 66600 through 66661) [b]					
Tidal marshes and tidal flats in the San Francisco Bay coastal zone	Tidal marshes and tidal flats should be conserved to the fullest possible extent. Projects harming tidal marshes and tidal flats should be allowed only for purposes providing substantial public benefits and only if there is no feasible alternative. Restoration projects should include a monitoring program with biological and physical goals and success criteria.	Activities affecting the San Francisco Bay.	Part III of Bay Plan (Findings and Policies Concerning Tidal Marshes and Tidal Flats around the Bay, Policies 1 and 5)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4)	The proposed shoreline protection for Parcel E would destroy on-site tidal marshes, the loss of which would be mitigated by the Navy (on site at adjacent Parcel E-2). Appendix D evaluates the proposed shoreline protection relative to these requirements.
Subtidal areas in the San Francisco Bay coastal zone	Filling or dredging in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects. Projects harming subtidal areas with an abundance and diversity of aquatic wildlife should be allowed only for purposes providing substantial public benefits and only if there is no feasible alternative.	Activities affecting the San Francisco Bay.	Part III of Bay Plan (Findings and Policies Concerning Subtidal Areas in the Bay, Policies 1 and 2)	Not an ARAR	No filling is proposed in subtidal areas as part of the proposed shoreline protection for Parcel E.
Fills in the San Francisco Bay coastal zone	To prevent damage by flooding, shoreline structures should be designed to consider future rise in sea level and subsidence for the expected life of the project.	Activities affecting the San Francisco Bay.	Part IV of Bay Plan (Findings and Policies Concerning Safety of Fills in the Bay, Policies 4 and 5)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4)	Shoreline protection features will be installed to prevent erosion and protect the integrity of the remedial action. Appendix D evaluates the proposed shoreline protection relative to these requirements.

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Shoreline Construction *(continued)*			
McAteer-Petris Act (California Government Code §§ 66600 through 66661) [b]					
Shoreline protection in the San Francisco Bay coastal zone	Riprap revetments should be constructed of properly sized and placed material. Protective projects should be maintained to ensure that the shoreline will be protected from tidal erosion. Protective projects should include nonstructural methods such as marsh vegetation where feasible.	Activities affecting the San Francisco Bay.	Part IV of Bay Plan (Findings and Policies Concerning Shoreline Protection around the Bay, Policies 2, 3, and 4)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4)	Shoreline protection features will be installed to prevent erosion and protect the integrity of the remedial action. Appendix D evaluates the proposed shoreline protection relative to these requirements.
Fills in the San Francisco Bay coastal zone	Fills in accord with the Bay Plan should be the minimum necessary to achieve its purpose and meet one of the following criteria outlined in Bay Plan policies: (a) filling supports bay-related purposes (e.g., ports, water-related recreation, etc.); (b) filling is needed for infrastructure for which there is no other alternative (e.g., airports, roads, etc.); or (c) filling is minor and needed to improve shoreline appearance or public access.	Activities affecting the San Francisco Bay.	Part IV of Bay Plan (Findings and Policies Concerning Fills in Accord with the Bay Plan, Policy 1)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4)	The proposed shoreline protection involve varying degrees of excavation of contaminated sediment in order to protect human health and the environment that require minor filling of on-site tidal marshes, the loss of which would be mitigated by the Navy (on site at adjacent Parcel E-2), and the bay. Appendix D evaluates the proposed shoreline protection relative to these requirements.
Fills in the San Francisco Bay coastal zone	Minor fill to improve shoreline appearance is permissible if (1) the fill is necessary because the present appearance adversely affects the enjoyment of the bay and its shoreline; (2) it is either physically impractical or economically infeasible to improve the appearance without filling; (3) the amount of filling is the minimum necessary to improve shoreline appearance; (4) the proposed project would improve the shoreline appearance; and (5) the fill would not adversely affect enjoyment of the bay and its shoreline, and the fill will not have any adverse effect on present or future use designated in the Bay Plan.	Activities affecting the San Francisco Bay.	Cal. Code Regs. tit. 14, § 10700	Relevant and appropriate (for Alternatives S-2, S-3, and S-4)	The remedial alternatives require minor filling of on-site tidal marshes, the loss of which would be mitigated by the Navy (on site at adjacent Parcel E-2), and the bay. Appendix D evaluates the proposed shoreline protection relative to these requirements.
Fills in the San Francisco Bay coastal zone	Measures to compensate for unavoidable adverse impacts to natural resources of the bay should be required. Mitigation projects should be sited as close to the impact site as practicable. The amount and type of mitigation should be based on an analysis of the probability of success of the mitigation project, the expected delay between the impact and the functioning mitigation site, and the type and quality of ecological functions of the mitigation site compared with the impacted site.	Activities affecting the San Francisco Bay.	Part IV of Bay Plan (Findings and Policies Concerning Mitigation, Policies 1, 2, and 4 through 7)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4)	Alternatives S-2, S-3, and S-4 contemplate shoreline construction that would result in the discharge of fill material into a wetland, the loss of which would be mitigated by the Navy (on site at adjacent Parcel E-2) in accordance with the substantive provisions of Part IV of Bay Plan.
		Excavation and Off-Site Disposal			
California Department of Toxic Substance Control [b]					
Excavation and disposal	Requires that hazardous waste be discharged to Class I waste management units that meet certain design and monitoring standards.	California hazardous waste.	Cal. Code Regs. tit. 23, §§ 2520 and 2521	Not an ARAR	This requirement is applicable for off-site disposal, and ARARs only apply to on-site response actions.
Excavation and off-site disposal	This section provides definitions and requirements for on-site storage of non-RCRA hazardous waste soil prior to on-site treatment or off-site transportation and DTSC says it is applicable if non-RCRA hazardous waste soil is accumulated and stored on site.	Remediation waste staging and on-site storage prior to transportation off site.	Cal. Health & Safety Code § Section 25123.3	Not an ARAR	This requirement is not more stringent than the federal requirement (40 CFR § 264.554).

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Institutional Controls			
California Civil Code [b]					
Land use controls	Provides conditions under which land use restrictions will apply to successive owners of land.	Transfer of property from the federal government to a nonfederal agency.	California Civil Code § 1471	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	Generally, Cal. Civil Code § 1471 allows an owner of land to make a covenant to restrict the use of land for the benefit of a covenantee. The covenant runs with the land to bind successive owners, and the restrictions must be reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials, as defined in Cal. Health & Safety Code § 25260. Substantive provisions are the following general narrative standard: "Each act that the owner or grantee will do or refrain from doing relates to the use of land and each act is reasonably necessary to protect present or future human health or safety or the environment as a result of the presence on the land of hazardous materials, as defined in Section 25260 of the California Health and Safety Code." This narrative standard would be implemented through incorporation of restrictive covenants in the deed and Environmental Restriction and Covenant Agreement at the time of transfer. See Section B4.1.2.2 for DTSC and EPA positions.
California Health and Safety Code [b]					
Land use controls	Allows DTSC to enter into an agreement with the owner of a hazardous waste facility to restrict present and future land uses.	Transfer of property from the federal government to a nonfederal agency.	California Health and Safety Code § 25202.5	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	The substantive provisions of Cal. Health & Safety Code § 25202.5 are the general narrative standards to restrict "present and future uses of all or part of the land on which the . . . facility . . . is located . . ." See Section B4.1.2.2 for DTSC and EPA positions.
Land use controls	Prohibits certain uses of land containing hazardous waste without a specific variance.	Hazardous waste property.	Cal. Health & Safety Code § 25232(b)(1)(A)–(E)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	Land use restrictions will be used to prohibit the following activities at Parcel E: residential use of the site, construction of hospitals for humans, schools for persons under 21 years of age, daycare centers for children, or any permanently occupied human habitation on the site. See Section B4.1.2.2 for DTSC and EPA positions.
Land use controls	Provides processes and criteria for obtaining written variances from a land use restriction and for removal of the land use restrictions.	Transfer of property from the federal government to a nonfederal agency.	California Health & Safety Code §§ 25233(c) and 25234	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	Cal. Health & Safety Code § 25233(c) sets forth "relevant and appropriate" substantive criteria for granting variances based upon specified environmental and health criteria. Cal. Health & Safety Code § 25234 sets forth the following "relevant and appropriate" substantive criteria for the removal of a land use restriction on the grounds that "…the waste no longer creates a significant existing or potential hazard to present or future public health or safety." See Section B4.1.2.2 for DTSC and EPA positions.

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Institutional Controls *(continued)*			
California Civil Code [b]					
California Health and Safety Code [b]					
Land use controls	Provides a streamlined process to be used to enter into an agreement to restrict specific use of property to implement the substantive use restrictions of Cal. Health & Safety Code § 25232(b)(1)(A)-(E).	Transfer of property from federal government to a nonfederal agency.	California Health & Safety Code §§ 25222.1 and 25355.5(a)(1)(C)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	Generally, Cal. Health & Safety Code §§ 25222.1 and 25355.5(a)(1)(C) provide the authority for DTSC to enter into voluntary agreements with land owners to restrict the use of property. The agreements run with the land restricting present and future uses of the land. The substantive requirements of the following Cal. Health & Safety Code § 25222.1 provisions are "relevant and appropriate": (1) the general narrative standard: "restricting specified uses of the property…" and (2) "…the agreement is irrevocable, and shall be recorded by the owner, …as a hazardous waste easement, covenant, restriction or servitude, or any combination thereof, as appropriate, upon the present and future uses of the land." The substantive requirements of the following Cal. Health & Safety Code § 25355.5(a)(1)(C) provisions are "relevant and appropriate": "…execution and recording of a written instrument that imposes an easement, covenant, restriction, or servitude, or combination thereof , as appropriate, upon the present and future uses of the land." See Section B4.1.2.2 for DTSC and EPA positions.
Department of Toxic Substances Control [b]					
Land use covenants	A land use covenant imposing appropriate limitations on land use shall be executed and recorded when facility closure, corrective action, remedial or removal action, or other response actions are undertaken and hazardous materials, hazardous wastes or constituents, or hazardous substances will remain at the property at levels that are not suitable for unrestricted use of the land.	Transfer of property from federal government to a nonfederal agency.	Cal. Code Regs. tit. 22, § 67391.1	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, GW-3A through GW-4, and N-2 through N-6)	Cal. Code Regs. tit. 22, § 67391.1 provides for a land use covenant to be executed and recorded when remedial actions are taken and hazardous substances will remain at the property at concentrations that are unsuitable for unrestricted use of the land. The substantive provisions of this regulation have been determined to be potentially "relevant and appropriate" ARARs by the Navy. See Section B4.1.2.2 for DTSC and EPA positions.
California Regional Water Quality Control Board [b]					
Institutional controls	If the state board or the regional board finds that the property is not suitable for unrestricted use and that a land use restriction is necessary for the protection of public health, safety, or the environment, then the state board and the regional boards may not issue a closure letter, or make a determination that no further action is required, with respect to a site that is subject to a cleanup or abatement order pursuant to § 13304 and that is not an underground storage tank site, unless a land use restriction is recorded or required to be recorded pursuant to Cal. Civil. Code § 1471.	Hazardous waste property.	Cal. Water Code § 13307.1(c)	Not an ARAR	Not an ARAR because the section imposes procedural requirements on the water boards and does not impose any requirement directly on the Navy.

Table B-6. Potential State Action-Specific ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Action	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
		Surface Water Monitoring			
State Water Resources Control Board [b]					
Closure of waste management unit	Prior to closure, inactive waste management units must comply with the substantive requirements for eliminating most nonstormwater discharges, developing and implementing a stormwater pollution prevention plan, and performing monitoring of stormwater discharges.	Stormwater discharge.	SWRCB Order 97-03-DWQ	Not an ARAR	Not an ARAR for the response actions contemplated. However, the Navy will use the substantive requirements of SWRCB Order 97-03 as TBCs during the pre-closure period, and will continue to manage stormwater discharges in accordance with the current SWDMP.
		Leachate Collection and Control			
State Water Resources Control Board / California Integrated Waste Management Board [b]					
Leachate control	During the post-closure maintenance period, the owner and operator will ensure that leachate collection and control are performed in a manner that prevents public contact and controls vectors, nuisance, and odors. (This section does not require installation of a new leachate collection system.)	Cal. Code Regs. tit. 27, requirements are only applicable for waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted.	Cal. Code Regs. tit. 27, §§ 21160(a) and (c)	Relevant and appropriate (for Alternatives S-2, S-3, and S-4, and N-2 through N-5)	Potentially relevant and appropriate for leachate control (if required based on monitoring results) at IR-02 Northwest/Central and IR-03.
Groundwater corrective action	Requires implementation of corrective action measure that ensure that cleanup levels are achieved throughout the zone affected by the release by removing the waste constituents or treating them in place.	Contaminated groundwater.	Cal. Code Regs. tit. 27, § 20430; Cal. Code Regs. tit. 23, § 2550.10	Not an ARAR	Not ARARs because they are not more stringent than the federal tit. 22 requirements (Cal. Code Regs. tit. 22, § 66264.100). Relevant and appropriate in the event that detection and evaluation monitoring shows evidence that a new release has occurred.
Groundwater treatment system	Requires that a groundwater cleanup system is required to obtain a discharge permit from RWQCB and that discharges of treated groundwater to surface water or groundwater shall treat groundwater to standards approved by RWQCB, taking into account the beneficial uses of the receiving water	Contaminated groundwater.	Cal. Water Code § 13304.1(a)	Not an ARAR	Not an ARAR because no groundwater response that would discharge to surface water or groundwater is contemplated at this time.

Notes:

a Only the substantive provisions of the requirements cited in this table are potential ARARs.

b Statutes and policies and their citations are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered potential ARARs.

§	Section	FS	feasibility study	RWQCB	Regional Water Quality Control Board
Cal. Code Regs.	California Code of Regulations	IDW	investigation-derived waste	subch.	Subchapter
CFR	Code of Federal Regulations	IR	Installation Restoration	subdiv.	Subdivision
cm/sec	centimeters per second	Navy	Department of the Navy	SWDMP	Stormwater Discharge Management Plan
div.	Division	NPDES	National Pollutant Discharge Elimination System	SWRCB	State Water Resources Control Board
ARAR	Applicable or relevant and appropriate requirement	POTW	publicly owned treatment works	TBC	to be considered
DTSC	Department of Toxic Substances Control	RAOs	remedial action objectives	tit.	Title
EPA	U.S. Environmental Protection Agency	RCRA	Resource Conservation and Recovery Act		

Appendix C. Conceptual Groundwater Monitoring Approach and Exit Strategies

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Acronyms and Abbreviations

AFs	attenuation factors
ARARs	applicable or relevant and appropriate requirements
Basin Plan	San Francisco Bay Basin (Region 2) Water Quality Control Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COCs	chemicals of concern
COECs	chemicals of ecological concern
DCA	dichloroethane
DCB	dichlorobenzene
DCE	dichloroethene
DDE	dichlorodiphenyldichloroethene
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
HGALs	Hunters Point groundwater ambient levels
HHRA	human health risk assessment
HPS	Hunters Point Shipyard
IR	Installation Restoration
NR	B-aquifer sampling not required by the HHRA
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PRG	preliminary remediation goal
RBC	risk based concentration
RD	Remedial Design
SFRWQCB	San Francisco Regional Water Quality Control Board
SGAL	soil gas action level
TCE	trichloroethene
TPH	total petroleum hydrocarbons
VOCs	volatile organic compounds

Section C1. Overview of Monitoring Approach

The conceptual groundwater monitoring approach proposed in this appendix includes possible monitoring criteria at Parcel E that support the groundwater remedial alternatives presented in this Feasibility Study (FS) Report. This monitoring approach is preliminary and will be refined in the Remedial Design (RD). This proposed approach is consistent with the monitoring approaches presented in the Parcel C and Parcel D FS reports. The proposed criteria were derived to comply with the applicable or relevant and appropriate requirements (ARAR) identified in Appendix B of this report. Although portions of this approach are anticipated to support the likely Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 5-year reviews for Hunters Point Shipyard (HPS), the monitoring criteria are not a requirement of the CERCLA review process. The monitoring approach is described below.

a. Groundwater monitoring will be conducted only for chemicals of concern (COCs) and chemicals of ecological concern (COECs) that are currently present in groundwater and selected breakdown products of the COCs and COECs.

b. Groundwater monitoring will only be conducted in the following areas:

   i. Upgradient of identified releases or equivalent areas agreed to by the U.S. Environmental Protection Agency (EPA) or the California Environmental Protection Agency's Department of Toxic Substances Control or San Francisco Bay Regional Water Quality Control Board (SFRWQCB) to monitor variations in background concentrations.

   ii. Source areas where COCs and COECs and their breakdown products occur.

   iii. Along projected downgradient migration paths, including upgradient of expected points of groundwater discharge to San Francisco Bay.

c. COCs are identified based on the results of the human health risk assessment (HHRA) (Appendix I of the Remedial Investigation Report [Barajas & Associates, Inc., 2008]) and COECs are identified based on the results of the aquatic evaluation (Appendix A of this FS Report). The HHRA identified potential unacceptable risk through inhalation of volatile organic compounds (VOCs) in indoor air (vapor intrusion) from the A-aquifer (Barajas & Associates, Inc., 2008) and developed receptor-specific risk-based concentrations (RBCs) for the vapor intrusion pathway. However, as described in Section 3.1.3 of the FS, the Navy is implementing a focused soil gas survey to guide future vapor mitigation or remediation, and future actions and decisions to address potential risks from vapor intrusion will be based on soil gas data, rather than groundwater data and the RBCs developed in the HHRA for vapor intrusion (ChaduxTt, 2010). The RD will identify appropriate groundwater monitoring criteria for VOCs.

d. Preliminary remediation goals (PRGs) are established for COCs and breakdown products from the results of the HHRA, with the exception of the vapor intrusion pathway, as described above.

i. HHRA-derived goals are selected based on a comparison of the RBCs derived for the completed pathways identified for either the construction worker scenario (for the A-aquifer) or residential domestic use (for the B-aquifer) and the chemical-specific practical quantitation limit, and selecting the greater of the two values.

ii. If Hunters Point groundwater ambient levels (HGALs) are higher than the HHRA-derived goals, the HGALs are used as the PRGs (applies to the A-aquifer only).

iii. PRGs are location-specific and based on the planned reuse.

e. Trigger levels are established for water quality COECs.

i. Trigger levels are established as a screening tool to protect surface water from groundwater discharges.

ii. Trigger levels are based on promulgated and recommended values for protection of saltwater aquatic life, derived from the sources listed below, or on HGALs (whichever is greater), and weighted using attenuation factors (AFS) that are derived from a conservative dispersion model (see Attachment A1 in Appendix A):

1. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) (SFRWQCB, 2007)
2. California Toxics Rule Priority Toxic Pollutants for the State of California (EPA, 2000)
3. National Ambient Water Quality Criteria (Central Valley Regional Water Quality Control Board, 2007)
4. National Recommended Water Quality Criteria (EPA, 2006)

iii. Trigger levels are developed to provide decision criteria for the potential need for action to protect surface water. Examples of actions that may be implemented as a result of trigger level exceedances include:

1. increasing the frequency of monitoring in the well where the trigger level was exceeded to evaluate whether the exceedance is persistent;
2. monitoring groundwater at a location farther downgradient to evaluate whether the attenuation estimated in establishing the trigger level has occurred;
3. using site-specific detailed information to more accurately estimate attenuation (including processes such as adsorption and degradation); or
4. implementing a selected remedial alternative for groundwater treatment.

iv. Trigger levels are chemical-, plume-, and location-specific. Trigger levels are established for specific plumes, based on their initial source parameters and the distance from the plume source to the projected point of discharge to the surface water.

Section C2. Overview of Trigger Level Development

The Navy developed trigger levels to evaluate attenuation of chemicals as groundwater moves from inland areas toward San Francisco Bay. The wells identified by the trigger level evaluation will be included in the groundwater monitoring program to be developed during the RD. The RD will also evaluate guard wells adjacent to the bay for inclusion in the groundwater monitoring program. All COECs identified during the trigger level analysis will be included for any well in the monitoring program that tracks possible migration of chemicals to the bay. The analysis in the RD will evaluate both data collected for the trigger level analysis in this FS Report and newer data (including data from newly installed wells). The evaluation of newer data may show that groundwater at wells identified during the trigger level analysis no longer poses a threat and monitoring at those wells may not be necessary. All of these evaluations will be described in the RD for review and approval by the regulatory agencies.

Trigger levels are equal to an AF multiplied by the surface water quality criterion. Details on the development of trigger levels are provided in Appendix A. The AFs are developed from a model prepared for the Parcel D FS Report (SulTech, 2007) and used data specific to HPS. The AFs are specific to HPS and cannot be applied to other facilities or sites.

a. Trigger levels are equal to an AF multiplied by appropriate water quality criteria.
   i. Water quality criteria are derived from promulgated and recommended values for protection of saltwater aquatic life.
   ii. If HGALs are higher than the water quality criteria, then HGALs are used instead for development of trigger levels.
   iii. An AF is equal to the initial source area concentration divided by the predicted maximum concentration at the nearest receptor.
   iv. The AF is conservatively set to 1 within the tidal mixing zone.
b. Maximum concentration at the nearest discharge point is derived using a conservative groundwater dispersion model for location-specific areas of groundwater contamination.
   i. Groundwater modeling assumed attenuation is only caused by hydrodynamic dispersion as a very conservative modeling approach (assumes chemicals move with groundwater, without degradation, chemical reaction, or adsorption).
   ii. Maximum concentration location is at the nearest point of groundwater discharge to surface water.
c. AFs are plume- and location-specific. For a given plume, the AF is derived from the plume's source width and its downgradient distance to San Francisco Bay. The AF is applied to the plume source only and does not apply to individual wells within the plume. The AF is also not chemical-specific.

Section C3. General Groundwater Monitoring Approach

A general groundwater monitoring approach is proposed that complies with the ARARs identified in this FS Report. Certain specifics, such as prescribed monitoring time periods and monitoring locations, are not stated in these ARARs. The monitoring approach at this FS stage is based on remedial experience and engineering judgment that can be used to generate specific parameters in the groundwater monitoring plan during the development of the RD. This general monitoring approach provides the strategy for monitoring.

a. Monitoring Parameters

   i. Field parameters: water level, pH, temperature, turbidity, and electrical conductivity.

   ii. Laboratory parameters: COCs and COEC (and their degradation products). For scenarios where natural attenuation follows active remediation, natural attenuation parameters will also be included.

b. Monitoring Locations

   i. Monitor areas where COCs and COEC (and their degradation products) occur or may be anticipated to occur.

   ii. Monitor hydraulically upgradient of contamination to establish upgradient conditions and to establish plume spatial stability in those directions. Upgradient wells are proposed no closer than 50 feet upgradient of source areas.

   iii. Monitor source areas to evaluate whether plume concentrations change over time (plume temporal stability).

   iv. Monitor hydraulically downgradient of contamination to evaluate whether plumes are migrating (plume spatial stability). Downgradient wells will be located sufficiently close to the source areas to demonstrate plume spatial stability within a 5-year period. The distance from the source areas may vary depending on the chemical migration characteristics and the groundwater flow patterns in the area.

   v. If flow direction is uncertain or changing, additional monitoring wells may be installed to evaluate groundwater flow. On completion of the groundwater flow study, recommendations will be prepared to amend the monitoring network layout.

   vi. Monitor the B-aquifer for COCs identified by the HHRA and to evaluate A-aquifer plume stability.

c. Evaluation Criteria

   i. For nonvolatile COCs, monitoring results will be compared with PRGs for the construction worker scenario. If PRGs are not exceeded for the prescribed monitoring period, discontinuation of monitoring will be considered. If PRGs are exceeded, further action beyond additional monitoring may be evaluated.

ii. For VOCs, no evaluation criteria are specified because, as discussed in Section C1, future actions and decisions to address potential risks from VOCs via vapor intrusion will be based on soil gas data rather than groundwater data. The RD will identify appropriate groundwater monitoring criteria for VOCs.

iii. For water quality COECs, monitoring results will be compared with trigger levels. If trigger levels are not exceeded for the ARARs-based monitoring period, the monitoring schedule may be modified. If the plumes are demonstrated to be stable, based on data collected from the downgradient monitoring wells, monitoring can be discontinued and a request to terminate monitoring may be submitted. If trigger levels are exceeded or the plumes are not stable, further action beyond additional monitoring may be required.

d. Monitoring Strategy for HHRA COCs That Present a Vapor Intrusion Risk

i. Monitoring will continue until (1) chemical concentrations are reduced to below appropriate monitoring criteria (to be specified in the RD)[1] for a consecutive period of 3 years, (2) the plumes are stable and institutional controls are in place to prevent vapor intrusion risk, or (3) an evaluation of vapor intrusion risk indicates risk to future site users is acceptable. The schedule for performing this monitoring is provided below.

1. Conduct 2 years of quarterly monitoring to establish seasonal baselines and variations.
2. If monitoring criteria are exceeded at any point during the 2 years of quarterly monitoring, monitoring will revert to a semiannual schedule following the first 2 years. If chemical concentrations do not exceed monitoring criteria for the entire initial 2-year period or an evaluation of vapor intrusion risk indicates risk to future site users is acceptable, then 1 additional year of quarterly confirmation sampling will be conducted. If monitoring criteria are met for all confirmation quarterly sampling events or an evaluation of vapor intrusion risk indicates risk to future site users is acceptable, the remedy will be presumed complete and monitoring will be discontinued.
3. In the event that monitoring criteria are exceeded in the initial 2 years, semiannual monitoring will be performed until monitoring criteria are achieved for 2 consecutive years or until the 5-year review report (see ii below) is prepared when a continuation approach will be developed.
4. Once monitoring criteria are met for a period of 2 consecutive years or an evaluation of vapor intrusion risk indicates risk to future site users is acceptable, 1 year of quarterly sampling events will be performed to confirm monitoring criteria have been met. If monitoring criteria are met for all confirmation sampling events, the remedy will be presumed complete and monitoring will be discontinued. If monitoring criteria are exceeded during any of these confirmation sampling events, monitoring will revert to the semiannual monitoring schedule until monitoring criteria are achieved for 2 years, or until the 5-year review report (see ii below) is prepared when a continuation approach will be developed.

ii. A data report will be prepared semiannually.

[1] PRGs are not specified for VOCs because, as discussed in Section C1, future actions and decisions to address potential risks from VOCs via vapor intrusion will be based on soil gas data rather than groundwater data. The RD will identify appropriate groundwater monitoring criteria for VOCs.

iii. A report will be prepared annually that will provide potentiometric surface maps, an evaluation and presentation of monitoring results, and recommendations for any modifications to the monitoring program.

iv. A report will be prepared every 5 years to review and evaluate the monitoring results, remediation progress, and plume stability. The report will include recommendations for any modifications needed for the monitoring program or for the response action.

e. Monitoring Strategy for Other HHRA COCs

i. Monitoring will continue until chemical concentrations are reduced to below PRGs for a consecutive period of 3 years. The schedule for performing this monitoring is provided below.

1. Conduct 2 years of quarterly monitoring to establish seasonal baselines and variations.
2. If PRGs are exceeded at any point during the 2 years of quarterly monitoring, monitoring will revert to a semiannual schedule following the first 2 years. If chemical concentrations do not exceed PRGs for the entire initial 2-year period, then 1 additional year of quarterly confirmation sampling will be conducted. If PRGs are met for all confirmation quarterly sampling events, the remedy will be presumed complete and monitoring will be discontinued.
3. In the event that PRGs are exceeded in the initial 2 years, semiannual monitoring will be performed until PRGs are achieved for 2 consecutive years or until the 5-year review report (see ii below) is prepared when a continuation approach will be developed.
4. Once PRGs are met for a period of 2 consecutive years, 1 year of quarterly sampling events will be performed to confirm PRGs have been met. If PRGs are met for all confirmation sampling events, the remedy will be presumed complete and monitoring will be discontinued. If PRGs are exceeded during any of these confirmation sampling events, monitoring will revert to the semiannual monitoring schedule until PRGs are achieved for 2 years, or until the 5-year review report (see ii below) is prepared when a continuation approach will be developed.

ii. A data report will be prepared semiannually.

iii. A report will be prepared annually that will provide potentiometric surface maps, an evaluation and presentation of monitoring results, and recommendations for any modifications to the monitoring program.

iv. A report will be prepared every 5 years to review and evaluate the monitoring results, remediation progress, and plume stability. The report will include recommendations for any modifications needed for the monitoring program or for the response action.

f. Monitoring for Surface Water Quality COECs

i. PRGs for surface water quality COECs only apply to surface water at the interface of the A-aquifer system with San Francisco Bay. Trigger levels for water quality COECs were developed for groundwater in the plume source areas to be protective of the water quality in the bay (see Appendix A). The goal of trigger level monitoring is to ensure that concentrations of water quality COECs in groundwater are less than their trigger levels or that the defined plumes for these COECs are stable (that is, the plume is not migrating and discharging into the bay at concentrations that exceed the surface water ARARs at the groundwater-bay interface).

ii. Monitoring will continue until chemical concentrations in the source areas have diminished to less than the trigger levels for a period of 3 consecutive years or a risk evaluation indicates the risk to San Francisco Bay is acceptable. The proposed strategy for performing this monitoring is provided below.

1. Conduct 2 years of quarterly monitoring to establish seasonal baselines and variations.
2. If trigger levels are exceeded at any point during the 2 years of quarterly monitoring, monitoring will revert to a semiannual schedule following the first 2 years. If chemical concentrations are below trigger levels for the entire initial 2-year period, then 1 additional year of confirmation quarterly sampling events will be conducted. If trigger levels are met for all confirmation quarterly sampling events, monitoring will be discontinued.
3. In the event that trigger levels are exceeded in the initial 2 years, semiannual monitoring will be performed until trigger levels are achieved for 2 consecutive years or until the 5-year review report (see iii below) is prepared when a continuation approach will be developed.
4. Once trigger levels are met for a period of 2 consecutive years, 1 additional year of quarterly sampling events will be performed. If trigger levels are met for all of these additional sampling events, monitoring will be discontinued. If trigger levels are exceeded at any point during the quarterly sampling events, monitoring will revert back to a semiannual schedule until trigger levels are achieved for 2 years or until the 5-year review report (see iii below) is prepared when a continuation approach will be developed.

iii. A data report will be prepared semiannually.

iv. A report will be prepared annually that will provide potentiometric surface maps, an evaluation and presentation of monitoring results, and recommendations for any modifications to the monitoring program.

v. A report will be prepared every 5 years to review and evaluate the monitoring results, remediation progress, and plume stability. The report will include recommendations for any modifications needed for the monitoring program or for the response action.

Section C4. Groundwater Monitoring Plan for Parcel E

This section identifies the monitoring approach that formed the basis of the cost estimates (see Appendix E). COCs and COECs are listed in Tables C-1, C-2, and C-3. The monitoring areas are identified by remedial unit. Included are the COCs (and their degradation byproducts) indentified by the HHRA and the COECs identified by the aquatic evaluation. The HHRA COCs include vapor intrusion (residential and industrial) and construction worker scenarios. As discussed in Section C1, future actions and decisions to address potential risks from the vapor intrusion pathway will be addressed by soil gas data rather than groundwater data.

Table C-4 lists the specific locations and COCs and COECs to be sampled during the long-term monitoring program. Table C-5 provides an overview of all the monitoring programs, including monitoring intended to assess performance of remedial options and natural attenuation processes. Table C-5 also identifies the analytical suite associated with each monitoring program. The analytical suites are described in Table C-6. Tables C-4, C-5, and C-6 are the basis of the remedial alternative cost estimates (see Appendix E). The remedial alternatives considered in this FS Report may require modifications to the monitoring program if the remediation sequence is further refined or altered during the RD or remedial action phases. Furthermore, the parameters being monitored may be streamlined or augmented according to the perceived need during RD or remedial action.

For the purpose of the cost estimates, monitoring periods were estimated based on the timeframes anticipated to meet the remedial action objectives or, in the case of long-term monitoring, for 30 years. These timeframes are not identical to the timeframes discussed in Section C3, which outlines the minimum timeframes for monitoring COCs and COECs. The final plan will be developed as part of the RD.

Section C5. References

Barajas & Associates, Inc., 2008. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Central Valley Regional Water Quality Control Board, 2007. "A Compilation of Water Quality Goals." Prepared by Jon B. Marshack, D. Env. Senior Environmental Specialist. August.

ChaduxTt, 2010. "Final Memorandum, Approach for Developing Soil Gas Action Levels for Vapor Intrusion Exposure at Hunters Point Shipyard, San Francisco, California." April 30.

San Francisco Regional Water Quality Control Board, 2007. "Water Quality Control Plan, San Francisco Bay Region." Current Version of "Electronic Basin Plan" at <http://www.waterboards.ca.gov/sanfranciscobay/ basinplan.htm> (accessed March 28, 2007). January.

SulTech, 2007. "Final Revised Parcel D Feasibility Study Report, Hunters Point Shipyard, San Francisco, California." November 30.

U.S. Environmental Protection Agency (EPA), 2000. *The California Toxics Rule*, "Water Quality Criteria for Priority Toxic Pollutants for California Inland Surface Waters, Enclosed Bays and Estuaries." May 18. Available Online at: <http://www.epa.gov/waterscience/standards/rules/ctr/index.html>.

EPA, 2006. "Current National Recommended Water Quality Criteria." Available Online at: <http://www.epa.gov/waterscience/criteria/wqctable/>.

Tables

Table C-1. Preliminary Remediation Goals for Chemicals of Concern in Groundwater for the A-Aquifer

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Chemical of Concern by Exposure Scenario	PRG (µg/L)	Analytical Method
Residential – Vapor Intrusion		
1,1-Dichloroethane	--[1]	EPA Method 8260
1,1-Dichloroethene	--[1]	EPA Method 8260
1,2-Dichloroethene (total)	--[1]	EPA Method 8260
1,4-Dichlorobenzene	--[1]	EPA Method 8260
Benzene	--[1]	EPA Method 8260B
Carbon tetrachloride	--[1]	EPA Method 8260
Chloroform	--[1]	EPA Method 8260
Isopropylbenzene	--[1]	EPA Method 8260
Naphthalene	--[1]	EPA Method 8270C-SIM
Tetrachloroethene	--[1]	EPA Method 8260
Trichloroethene	--[1]	EPA Method 8260
Vinyl chloride	--[1]	EPA Method 8260
Construction Worker		
1,2-Dichloroethene (total)	305	EPA Method 8260
1,4-Dichlorobenzene	65	EPA Method 8260
Arsenic	39	EPA Method 6010
Benzo(a)anthracene	0.65	EPA Method 8270C-SIM
Benzo(a)pyrene	0.05	EPA Method 8270C-SIM
Benzo(b)fluoranthene	0.45	EPA Method 8270C-SIM
Chrysene	6.7	EPA Method 8270C-SIM
Indeno(1,2,3-cd)pyrene	0.31	EPA Method 8270C-SIM
Naphthalene	22	EPA Method 8270C-SIM
Pentachlorophenol	50	EPA Method 8260
Trichloroethene	370	EPA Method 8260
Vinyl chloride	6.3	EPA Method 8260

Table C-1. Preliminary Remediation Goals for Chemicals of Concern in Groundwater for the A-Aquifer *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes:

1 PRGs are not specified for VOCs because, as discussed in Section C1, future actions and decisions to address potential risks from VOCs via vapor intrusion will be based on soil gas data rather than groundwater data. The RD will identify appropriate groundwater monitoring criteria for VOCs.

µg/L Microgram per liter

EPA U.S. Environmental Protection Agency

PRG preliminary remediation goal

RD remedial design

VOCs volatile organic compounds

Table C-2. Preliminary Remediation Goals for Chemicals of Concern in Groundwater for the B-Aquifer

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Chemical of Concern by Exposure Scenario	PRG (µg/L)	Analytical Method
Residential – Domestic Use		
1,4-Dichlorobenzene	5	EPA Method 8260
Arsenic	27.3	EPA Method 6010B
Manganese	8,140	EPA Method 6010B
Tetrachloroethene	5	EPA Method 8260
Thallium	12.97	EPA Method 6010B
Trichloroethene	5	EPA Method 8260
Vinyl chloride	0.5	EPA Method 8260

Notes:

µg/L Microgram per liter

EPA U.S. Environmental Protection Agency

PRG preliminary remediation goal

Table C-3. Trigger Levels for Chemicals of Ecological Concern in Groundwater for the A-Aquifer *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analytical Group	COEC	Surface Water Quality Criterion for Aquatic Wildlife (µg/L)	Basis for Surface Water Quality Criterion[a]	Wells Recommended for Further Monitoring and Evaluation	Maximum Reported Concentration (µg/L)	Calculated Trigger Level (µg/L) [b]
Metals	Arsenic	36	CTR	IR03MWO-1	1,180	36
				IR02MW173A	75.7	36
				PA50MW05A	42.7	36
	Copper	28.0	HGAL [c]	IR02MW126A	1,000	28
				IR02MW373A	1,300	28
				IR03MW226A	824	28
				IR03MWO-1	3,240	28
	Lead	14.4	HGAL [c]	IR02MW373A	35.2	14.4
				IR03MW218A	23.4	14.4
				IR03MW226A	613	14.4
				IR03MWO-1	65	14.4
	Mercury	0.60	HGAL [c]	IR03MW226A	0.8	0.60
				IR03MWO-1	1.2	0.60
	Nickel	96.5	HGAL [c]	IR02MWB-2	1,720	96.5
				IR02MWB-5	3,430	96.5
				IR02MW373A	1,460	96.5
				IR03MWO-1	1,140	96.5
	Zinc	81	CTR	IR02MW126A	2,320	81
				IR02MW373A	9,970	81
				IR03MW226A	1,180	81
				IR03MWO-1	2,400	81
PCBs and Pesticides	Aroclor-1254	0.03	CTR	IR02MW372A	35	0.06
				IR02MWB-3	40	0.03
				IR02MW146A	0.24	0.03
				IR03MW225A	1.2	0.03

Table C-3. Trigger Levels for Chemicals of Ecological Concern in Groundwater for the A-Aquifer *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard

Analytical Group	COEC	Surface Water Quality Criterion for Aquatic Wildlife (µg/L)	Basis for Surface Water Quality Criterion[a]	Wells Recommended for Further Monitoring and Evaluation	Maximum Reported Concentration (µg/L)	Calculated Trigger Level (µg/L) [b]
PCBs and Pesticides *(continued)*	Aroclor-1260	0.03	CTR	IR03MW218A1	35	0.03
				IR03MW225A	40	0.03
				IR03MW226A	0.24	0.03
				IR03MWO-1	1.2	0.03
	4,4'-DDE	0.001	CTR / NRWQC [d]	IR02MW372A	1.2	0.002
	Alpha-Chlordane	0.004	CTR	IR02MW372A	0.03	0.008
Petroleum Hydrocarbons	TPH (Total)	1,400	HPS Petroluem Screening Criteria [e]	IR02MW173A	6,900	4,839
				IR03MW218A1	83,000	3,216
				IR03MW218A2	19,900	3,216
				IR03MW225A	12,000	3,216
				IR03MW226A	17,670	3,216
				IR03MW369A	13,500	1,400
				IR03MW370A	27,560	1,467
				IR03MW371A	10,890	2,092
				IR03MWO-1	560,000	12,604

Notes:

a = Derivation of the surface water quality criteria is detailed in Appendix A (Tables A-1 and A-2).

b = Calculated trigger levels correspond to attenuation factors assigned based on nomographs developed specifically for HPS groundwater (see Attachment A1).

c = Surface water criteria have been adjusted upward (relative to the CTR criteria) to account for ambient conditions.

d = Per EPA's NRWQC, the California Toxics Rule criteria for DDT should be applied to all DDT metabolites (i.e., DDD and DDE).

e = Total TPH aquatic criteria are derived from the "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California" (Shaw Environmental, Inc., 2007); the trigger levels are assigned as a function of distance from shoreline.

µg/L	micrograms per liter	EPA	U.S. Environmental Protection Agency
COEC	chemical of ecological concern	HGALs	Hunters Point groundwater ambient levels
CTR	California Toxics Rule (Title 40, *Code of Federal Regulations*, Section 131.38; May 18, 2000)	HPS	Hunters Point Shipyard
DDD	dichlorodiphenyldichloroethane	NRWQC	National Recommended Ambient Water Quality Criteria (EPA, 2006)
DDE	dichlorodiphenyldichloroethene	PCBs	polychlorinated biphenyls
DDT	dichlorodiphenyltrichloroethane	TPH	total petroleum hydrocarbons

Table C-4. Long-Term Groundwater Monitoring Program
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Plume	COC	COEC	Upgradient Well(s)	Plume Well(s)	Downgradient Well(s)	B-Aquifer Well(s)
MU-1 and MU-2	Building 406 TCE Plume	TCE, 1,4-DCB, carbon tetrachloride, 1,2-DCE, PCE, vinyl chloride	---	IR36MW122A, IR36MW17A	IR36MW232A, IR36MW237A, IR36MW239A, PA36MW04A	IR36MW127A, IR36MW128A, PA36MW07A, IR36MW250A[2]	IR36MW123B[1], IR36MW129B[1], IR36MW236B[1]
MU-1 and MU-3	IR-12 PCE Plume	PCE, TCE, 1,1-DCA, 1,4-DCB, isopropylbenzene, chloroform, chrysene, naphthalene, pentachlorophenol	---	IR12MW44A, IR12MW46A	IR12MW19A, IR12MW45A	IR12MW13A, IR12MW14A, IR12MW30A[2]	NR
MU-1	IR-12 Benzene Plume	PCE, TCE, 1,1-DCA, 1,4-DCB, benzene, chloroform, chrysene, isopropylbenzene, naphthalene, pentachlorophenol	---	IR12MW11A	IR12MW13A, IR12MW17A	IR12MW30A[2], IR12MW18A	NR
MU-3	IR-04 TCE Plume	TCE, 1,4-DCB, benzene, chloroform, isopropylbenzene, naphthalene, PCE	---	IR04MW09A , IR72MW32A	IR04MW37A	IR04MW39A , IR56MW39A	NR
	IR-56 TCE Plume	TCE, chloroform	---	IR74MW10A[2]	IR74MW01A	IR74MW11A[2]	NR
EOS-1 and EOS-2	IR-02 Central Nickel Plume	---	Nickel	IR02MW400A[2]	IR02MWB-2	NA	NR
EOS-1	IR-02 Northwest Metals Plume	---	Copper, Zinc	IR02MW87A	IR02MW126A, IR02MW373A	IR02MW401A[2]	IR02MW128B[2,3]
		---	Lead, Nickel	IR02MW87A	IR02MW373A	IR02MW126A, IR02MW401A[2]	
	IR-02 Northwest PCB and Pesticide Plume	---	Aroclor-1254	IR02MW402A[2]	IR02MW404A[2], IR02MW375A	NA	NR
		---	4,4'-DDE	IR02MW402A[2]	IR02MW404A[2]	IR02MW375A	NR
		---	Alpha-Chlordane	IR02MW402A[2]	IR02MW404A[2]	IR02MW375A	NR
EOS-2	IR-03 TPH Plume	1,4-DCB, naphthalene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene	---	IR03MW224A	IR03MWO-1, IR03MW226A, IR03MW218A2	IR03MW371A	IR03MW228B[4]
		---	TPH	IR03MW224A	IR03MW218A2, IR03MWO-1, IR03MW226A, IR03MW218A1	IR03MW369A, IR03MW371A	
		---	Arsenic	IR03MW224A	IR03MWO-1	IR03MW369A, IR03MWO-2	
		---	Copper, Lead, Mercury, Nickel, Zinc	IR03MW224A	IR03MWO-1, IR03MW226A	IR03MWO-2	
		---	Aroclor-1254, Aroclor-1260	IR03MW224A	IR03MW218A1, IR03MW226A, IR03MWO-1	IR03MW371A	

Notes:

1. Samples will be collected from the well and analyzed for arsenic, manganese, and thallium, (in addition to the A-aquifer COCs, which include 1,4'-DCB, PCE, TCE and vinyl chloride) because arsenic, manganese, thallium, 1,4'-DCB, PCE, TCE and vinyl chloride were identified as B-aquifer domestic use risk drivers in the HHRA.
2. Not an existing well; new well to be constructed prior to implementation of groundwater monitoring program.
3. Samples will be collected from the well and analyzed for arsenic and manganese (in addition to the A-aquifer COECs) because these chemicals were identified as B-aquifer domestic use risk drivers in the HHRA.
4. Samples will be collected from the well and analyzed for manganese and PCE (in addition to the A-aquifer COECs, which include arsenic) because arsenic, manganese, and PCE were identified as B-aquifer domestic use risk driver in the HHRA.

Monitoring results from the wells identified in this table would be compared with trigger levels to evaluate potential impacts to aquatic wildlife in San Francisco Bay. Table C-3 identifies trigger levels for wells where historical data indicate a potential risk. Select wells are identified in this table that do not have corresponding trigger levels in Table C-3. These wells are categorized as follows: (1) nearshore wells located in the tidal influence zone, for which the trigger levels will be equivalent to the aquatic criterion identified in Table C-3 (this includes IR02MW126A, IR02MW375A, IR03MW218A1/A2, and IR03MWO-2); (2) planned future wells that do not currently exist and, following installation, will require calculation of appropriate trigger levels (includes IR02MW400A, IR02MW401A, IR02MW402A, and IR02MW404A); and (3) upgradient wells that are being monitored as an "early warning" of potential trigger level exceedances at downgradient wells; specific monitoring criteria for these wells (which include IR02MW87A and IR03MW224A) will be developed in the remedial design.

COC	chemical of concern	DCE	dichloroethene	NR	B-aquifer sampling not required by the HHRA	TCE	trichloroethene
COEC	chemical of ecological concern	DDE	dichlorodiphenyldichloroethene	NA	Not applicable; source area is too close to the bay	TPH	total petroleum hydrocarbons
DCA	dichloroethane	HHRA	human health risk assessment	PCB	polychlorinated biphenyl	VOC	volatile organic compound
DCB	dichlorobenzene	IR	Installation Restoration	PCE	tetrachloroethene		

Table C-5. Overview of Monitoring Programs for Groundwater Remedial Alternatives
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternatives	Plume	Years	Remediation/ Field Activity	Sampling Frequency	Aquifer Sampled	Analytical Suite
Alternative GW-1: No Action	All plumes	0 to 31	None	NA	NA	NA
Alternative GW-2: ICs and Long-Term Groundwater Monitoring	All plumes	0 and 1	Install monitoring wells	NA	A & B	NA
		2 and 3	None	Quarterly	A & B	Suite 1
		4 and 5	None	Semiannually	A & B	Suite 1
		6 to 31	None	Annually	A & B	Suite 1
Alternative GW-3A: Groundwater Containment, ISB, MNA, and ICs	All VOC plumes	0 and 1	Install monitoring wells and injections points; injection of substrate material and oxygen release compound	NA	A	NA
		2 and 3	None	Quarterly	A	Suite 2
		4 and 5	None	Semiannually	A	Suite 2
		6 to 31	None	Annually	A	Suite 5
	All plumes	0 and 1	Install monitoring wells	NA	A & B	NA
		2 and 3	None	Quarterly	A & B	Suite 1

Table C-5. Overview of Monitoring Programs for Groundwater Remedial Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternatives	Plume	Years	Remediation/ Field Activity	Sampling Frequency	Aquifer Sampled	Analytical Suite
Alternative GW-3A: Groundwater Containment, ISB, MNA, and ICs *(continued)*	All plumes	4 and 5	None	Semiannually	A & B	Suite 1
		6 to 31	None	Annually	A & B	Suite 1
Alternative GW-3B: Groundwater Containment, ISB, ZVI Reduction, MNA, and ICs	Building 406 TCE Plume	0 and 1	Install monitoring wells and injections points; injection of ZVI	NA	A	
		2 and 3	None	Quarterly	A	Suite 3
		4 and 5	None	Semiannually	A	Suite 3
		6 to 31	None	Annually	A	Suite 5
	All VOC plumes, except Building 406 TCE Plume	0 and 1	Install monitoring wells and injections points; injection of substrate material and ORC	NA	A	NA
		2 and 3	None	Quarterly	A	Suite 2

Table C-5. Overview of Monitoring Programs for Groundwater Remedial Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternatives	Plume	Years	Remediation/ Field Activity	Sampling Frequency	Aquifer Sampled	Analytical Suite
Alternative GW-3B: Groundwater Containment, ISB, ZVI Reduction, MNA, and ICs *(continued)*	All VOC plumes, except Building 406 TCE Plume	4 and 5	None	Semiannually	A	Suite 2
		6 to 31	None	Annually	A	Suite 5
	All plumes	0 and 1	Install monitoring wells	NA	A & B	NA
		2 and 3	None	Quarterly	A & B	Suite 1
		4 and 5	None	Semiannually	A & B	Suite 1
		6 to 31	None	Annually	A & B	Suite 1
Alternative GW-4: Groundwater Containment, ISB, Air Sparging, MNA, and ICs	Building 406 TCE Plume	0 and 1	Install air sparging equipment	NA	NA	NA
		2 and 3	None	Quarterly	NA	Suite 4
		4 and 5	None	Semiannually	NA	Suite 4
		6 to 31	None	Annually	NA	Suite 5
	All VOC plumes, except Building 406 TCE Plume	0 and 1	Install monitoring wells and injections points; injection of substrate material and ORC	NA	A	NA

Table C-5. Overview of Monitoring Programs for Groundwater Remedial Alternatives *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternatives	Plume	Years	Remediation/ Field Activity	Sampling Frequency	Aquifer Sampled	Analytical Suite
Alternative GW-4: Groundwater Containment, ISB, Air Sparging, MNA, and ICs *(continued)*	All VOC plumes, except Building 406 TCE Plume	2 and 3	None	Quarterly	A	Suite 2
		4 and 5	None	Semiannually	A	Suite 2
		6 to 31	None	Annually	A	Suite 5
	All plumes	0 and 1	Install monitoring wells	NA	A & B	NA
		2 and 3	None	Quarterly	A & B	Suite 1
		4 and 5	None	Semiannually	A & B	Suite 1
		6 to 31	None	Annually	A & B	Suite 1

Notes:

ICs institutional controls
ISB in-situ bioremediation
MNA monitored natural attenuation
NA not applicable
ORC oxygen release compound
TCE trichloroethene
VOC volatile organic compound
ZVI zero-valent iron

Table C-6. Analytical Tests for Alternatives GW-2, GW-3A, GW-3B, and GW-4
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analytical Test Method	Building 406 TCE Plume	IR-12 PCE Plume	IR-12 Benzene Plume	IR-04 TCE Plume	IR-56 TCE Plume	IR-02 Central Nickel Plume	IR-02 Northwest Metals Plume	IR-02 Northwest PCB Plume	IR-03 TPH Plume
Analytical Suite 1									
Metals by EPA Method 6010/7000	X					X	X		X
Individual Metals by EPA Method 6010/7000		X	X						
VOCs by EPA Method 8260B (includes purgeable TPH)	X	X	X	X	X				X
SVOCs by EPA Method 8270C		X	X	X					X
Organochlorine Pesticides by EPA Method 8081A	X							X	
PCBs by EPA Method 8082								X	X
Extractable TPH by EPA Method 8015B									X
No. of A-aquifer Wells To Sample:	*10*	*7*	*5*	*5*	*3*	*2*	*4*	*3*	*8*
No. of B-aquifer Wells To Sample:	*3*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*1*
Total Monitoring Wells:	*13*	*7*	*5*	*5*	*3*	*2*	*5*	*3*	*9*

Table C-6. Analytical Tests for Alternatives GW-2, GW-3A, GW-3B, and GW-4 *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analytical Tests	Building 406 TCE Plume	IR-12 PCE Plume	IR-12 Benzene Plume	IR-04 TCE Plume	IR-56 TCE Plume
Other Analytical Suites					
Metals by EPA Method 6010/7000 (Unfiltered)[2]	X				
Major Anions (Chloride, Nitrate, Nitrite, O-phosphate, Sulfate)[1, 2, 3]	X	X	X	X	X
Methane/Ethane/Ethene[1, 2, 3]	X	X	X	X	X
Total Organic Carbon[1, 2, 3]	X	X	X	X	X
Turbidity[1, 2, 3]	X	X	X	X	X
Acidity[1, 2, 3]	X	X	X	X	X
Alkalinity[1, 2, 3]	X	X	X	X	X
Dissolved Hydrogen[1, 2, 3]	X	X	X	X	X

Notes:

1 Analytical Suite 2: to be used for in-situ bioremediation and soil vapor extraction/air sparging performance monitoring

2 Analytical Suite 3: to be used for ZVI performance monitoring

3 Analytical Suite 4: to be used for natural attenuation monitoring

EPA U.S. Environmental Protection Agency
IR Installation Restoration
PCBs polychlorinated biphenyls
PCE tetrachloroethene
SVOCs semivolatile organic compounds
TCE trichloroethene
TPH total petroleum hydrocarbons
VOCs volatile organic compounds
ZVI zero-valent iron

Appendix D. Evaluation of Shoreline Protection Options

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Acronyms and Abbreviations

1V	1 foot of vertical rise (as measurement of slope)
3H	3 feet of horizontal distance (as measurement of slope)
10H	10 feet of horizontal distance (as measurement of slope)
§	section
§§	sections
ARARs	applicable or relevant and appropriate requirements
BCDC	San Francisco Bay Conservation and Development Commission
bgs	below ground surface
Cal. Code Regs.	California Code of Regulations
CCSF	City and County of San Francisco
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	chemical of concern
COECs	chemicals of ecological concern
CWA	Clean Water Act
DDT	dichlorodiphenyltrichloroethane
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
HHRA	human health risk assessment
HPS	Hunters Point Shipyard
IR	Installation Restoration
MHHW	mean higher high water
msl	mean sea level
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOAA	National Oceanic and Atmospheric Administration
O&M	operation and maintenance

Acronyms and Abbreviations *(continued)*

PCBs	polychlorinated biphenyls
PRGs	preliminary remediation goals
RAOs	remedial action objectives
RI	Remedial Investigation
SLERA	screening-level ecological risk assessment
TtECI	Tetra Tech EC, Inc.
TtEMI	Tetra Tech EM Inc.
USACE	U.S. Army Corps of Engineers
USC	United States Code

Section D1. Introduction

Parcel E at Hunters Point Shipyard (HPS) contains an intertidal shoreline zone and adjacent wetlands that, because of the presence of chemical contamination requiring remedial action, will be impacted during cleanup actions pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This appendix evaluates various shoreline protection options that could be implemented at the Parcel E shoreline as part of the CERCLA cleanup action to help control migration or erosion of contaminated shoreline sediments, and to help prevent exposure of wildlife to contaminated shoreline sediments. The shoreline protection options were evaluated based on effectiveness, implementability, and cost, in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (specifically Title 40 Code of Federal Regulations [CFR] Section [§] 300.430 [e][7]) and U.S. Environmental Protection Agency (EPA) guidance for remedial investigations (RI) and feasibility studies (FS) under CERCLA (EPA, 1988; Section 4.2.5). The objective of the evaluation is to identify the most promising shoreline protection options that will, as part of the FS Report for Parcel E, be combined with other cleanup options (generally categorized as removal, containment, and treatment actions) to form remedial alternatives for the multiple contaminated sites at Parcel E.

The Navy will mitigate the loss of the wetlands at Parcel E using on-site compensatory mitigation to be implemented in conjunction with the remedy for Parcel E-2 (Shaw Environmental, Inc., 2009). The final details of the plan for wetland mitigation will be included in the remedial design for Parcel E-2.

This report is organized as follows:

- Section D1: Introduction
- Section D2: Existing Shoreline Conditions
- Section D3: Screening of Shoreline Protection Technologies and Process Options
- Section D4: Evaluation of Retained Shoreline Protection Options
- Section D5: Regulatory Analysis of Proposed Cleanup Actions in Shoreline Zone
- Section D6: References

Figures and tables are provided following Section D6.

Section D2. Existing Shoreline Conditions

Parcel E includes about 139 acres of relatively flat shoreline and lowland coast along the southwestern portion of HPS (Figure D-1). Parcel E, along with other HPNS parcels located on the relatively level lowlands, was constructed by excavating portions of surrounding hills and placing nonengineered fill materials along the margin of San Francisco Bay. During active shipyard operations, the areas adjacent to the Parcel E shoreline were used to store construction and industrial materials, as well as to dispose of industrial waste and construction debris (Barajas & Associates, Inc., 2008).

Following closure of the shipyard, the Department of the Navy (Navy) identified contaminated areas along the exposed shoreline and the immediately adjacent land areas at Parcel E (Barajas & Associates, Inc., 2008). These areas were investigated as Installation Restoration (IR) Sites 02 and 03. IR-02, also referred to as the Bay Fill Area, was historically used for disposal of construction debris, industrial debris, and liquid wastes. Figure D-1 identifies two notable subareas at IR-02 where contaminated soil and debris were previously removed during interim cleanup actions: (1) the IR-02 Northwest and Central Removal Action Area that contained various industrial debris, including numerous radioluminescent devices (such as deck markers painted with radium paint), and (2) the former Metal Debris Reef in IR-02 Southeast that contained metal debris previously melted at high temperatures. IR-03 consists of the Former Oil Reclamation Ponds that were used to separate and reclaim oils and fuels from liquid waste generated during ship cleaning and repair operations. Figure D-1 identifies the IR-03 boundary that encompasses the two former ponds.

The intertidal shoreline zone contains areas covered with concrete riprap and other exposed shoreline containing intertidal sediments and tidal wetlands (SulTech, 2007). The following subsections discuss the environmental setting along the Parcel E shoreline (including topography, ecology, and offshore dynamics), briefly summarize the nature and extent of contamination and potential risk to humans and wildlife based on findings from past environmental investigations, and identify the remedial action objectives (RAOs) and range of cleanup options being evaluated in the FS Report for Parcel E as they relate to the Parcel E shoreline.

D2.1. TOPOGRAPHY

The intertidal shoreline zone is bounded on the offshore side by Parcel F, the offshore property at HPS. The Parcel E/F boundary is located at about mean sea level (msl[1]) but varies slightly along the shoreline (because this administrative boundary is not tied to a fixed vertical elevation). The intertidal shoreline zone is bounded on the onshore side by the mean higher high water (MHHW) level, which is at about 3.6 feet above msl and represents the extent of normal tidal fluctuations. Previous characterization efforts along the shoreline have also included the area up to the shoreline ridge, where the relatively level onshore area transitions to the sloped shoreline area (SulTech, 2007).

The shoreline is subject to tidal fluctuations and wave forces. As shown on Figure D-1, riprap has been placed along the onshore edge of many portions of the Parcel E shoreline. The riprap generally extends to an elevation of about 7 feet above msl, and provides some erosion protection during storm events and extreme high tides. The existing riprap consists predominantly of construction debris, including large pieces of concrete, steel, and wood (SulTech, 2007).

The shoreline width and slope varies along the intertidal shoreline zone. For the purposes of this evaluation, the topography of the intertidal shoreline zone has been grouped into two general categories:

- *Steep and Narrow Shoreline Areas:* Intertidal shoreline areas that are predominately narrow (most of the area is 50 feet wide or less) with predominately steep slopes (1 foot of vertical rise for each 3 feet of horizontal distance [1V:3H]).
- *Gradually Sloped and Wide Shoreline Areas:* Intertidal shoreline areas that are predominately wide (most of the area is greater than 50 feet wide) with predominately gradual slopes (less than 1V:3H, with many portions close to 1V:10H).

Figure D-2 identifies the shoreline areas based on the above-listed categories (each category consists of approximately 2,400 linear feet). The existing slope inland from the Parcel E/F boundary varies, but is generally gradual (about 1V:10H) until it approximately reaches the +2 feet msl contour. The slope inland from that elevation varies depending on the area of the shoreline. For steep shoreline areas, the slope steepens to about 1V:3H moving inland from the +2 feet msl contour. For gradually sloped areas, the 1V:10H slope continues inland from the +2 feet msl contour.

D2.2. ECOLOGY

Organisms that live in the shoreline area of Parcel E include birds and invertebrates. Birds using the shoreline area include the willet (*Tringa semipalmata*), killdeer (*Charadrius vociferous*), great blue heron

[1] Vertical elevations are referenced to the National Geodetic Vertical Datum of 1929, unless otherwise noted.

(*Ardea herodias*), and double-crested cormorant (*Phalacrocorax auritus*), which is a state species of special concern. Aquatic invertebrates hide under rocks and feed on other small invertebrates or plant materials, such as crustacean crabs and isopods. Mussels (usually *Mytilus edulis*) have been observed at low tide attached to the rocks. Barnacles also attach to rocks and the shells of mussels and can be seen at low tide. Harbor seals (*Phoca vitulina*) have been observed on a concrete platform southeast of the Metal Debris Reef, and sea lions (*Zalophus californianus*) have been observed in the bay near Parcel E (Barajas & Associates, Inc., 2008).

A wetlands delineation was performed in 2001 and 2002, in conjunction with a functions and values assessment. Discontinuous tidal wetlands were delineated within and adjacent to the intertidal shoreline zone at Parcel E (Figure D-1). The wetlands delineation was conducted using technical guidelines and methods described in the U.S. Army Corps of Engineers' (USACE) wetland delineation manual (USACE, 1987b). The functions and values assessment followed the methods and guidance in USACE's wetland evaluation technique (USACE, 1987a). The delineation and functions and values assessment was submitted to USACE for review to ensure technical adequacy and compliance with all substantive requirements (Tetra Tech EM Inc. [TtEMI], 2003). USACE responded, on July 30, 2003, that it had no comments.

The dominant plants in the wetlands are saltgrass (*Distichlis spicata*) and pickleweed (*Salicornia virginica)*. Except for the ice plant (*Carpobrotus edulis*), which is a nonnative species, little vegetation is present elsewhere along the Parcel E shoreline (SulTech, 2007). Minor patches of eelgrass (*Zostera marina* L.) were identified offshore of Parcel E during the most recent baywide survey (Merkel and Associates, Inc., 2004). Eelgrass beds serve an important ecological function in shallow areas in San Francisco Bay by providing habitat for aquatic wildlife (Merkel and Associates, Inc., 2004). As shown on Figure D-1, the minor patches of eelgrass offshore of Parcel E are extremely small and, in comparison with other more significant eelgrass beds located elsewhere in San Francisco Bay, are not a major ecological feature offshore of Parcel E.

The Parcel E shoreline is situated along the Pacific Flyway; therefore, an abundance and diversity of wintering and migrating waterfowl species are a potentially significant feature. The diversity and abundance of aquatic organisms are moderate. This moderation is presumably due to the toxicity of shoreline sediment (TtEMI, 2003).

The Parcel E shoreline has no current recreational value. Access to the shoreline is restricted because the site is located within a former naval base undergoing cleanup pursuant to CERCLA. The Parcel E shoreline is not unique and has no cultural value because it is manmade and situated on artificial fill. In general, the most significant function of the area is seasonal use for wintering and migrating wildlife.

Because the shoreline is located on a known hazardous waste disposal site on manmade land, the area's value in terms of social significance, effectiveness, and opportunity is low (TtEMI, 2003).

D2.3. OFFSHORE DYNAMICS

A Sediment Dynamics Study was prepared for Parcel F, the offshore property at HPNS that includes the area that bounds the Parcel E shoreline (Battelle Memorial Institute and Woods Hole Group, 2001). The findings of the study provide an initial assessment of the offshore hydrodynamic conditions that serve as a basis for the proper design of shoreline protection options. The hydrodynamic conditions offshore of Parcel E, with a specific focus on the South Basin (i.e., area offshore of IR-02 Northwest and Central), are described in the 2001 Sediment Dynamics Study Report (Battelle Memorial Institute and Woods Hole Group, 2001) and are summarized as follows:

- The water depths within the South Basin range from about 6 feet to less than 3 feet.
- Flow measurements suggest sluggish circulation within South Basin.
- Winds from a south–southeast direction will generate waves that propagate into South Basin.
- Most of the South Basin is a depositional area during typical conditions, including spring flood and ebb tides. Localized erosional areas are present at the southeast end of the Parcel E shoreline.
- The largest significant height during the study was 70 centimeters (2.3 feet) at South Station 2, which was located about 500 feet offshore of the central portion of the Parcel E shoreline.

The findings summarized above are adequate to evaluate the conceptual designs provided in this appendix. More detailed studies may be performed, if needed, during the remedial design.

D2.4. NATURE AND EXTENT OF CONTAMINATION

The shoreline sediments were evaluated in the Shoreline Characterization Technical Memorandum that included a screening-level ecological risk assessment (SLERA) for the Parcels E and E-2 shoreline (SulTech, 2007). The 2007 technical memorandum was also provided as Appendix G of the Revised RI Report (Barajas & Associates, Inc., 2008). Results of the nature and extent evaluation indicated that concentrations of copper, lead, mercury, zinc, polychlorinated biphenyls (PCBs), and dichlorodiphenyltrichloroethane (DDT) exceeded screening criteria in most locations along the Parcel E shoreline and could be a source of contamination to offshore sediments in the adjacent area (Parcel F).

The nature and extent of contaminated soil at onshore portions of IR-02 and IR-03 was evaluated in the Revised RI Report (Barajas & Associates, Inc., 2008). The evaluation identified numerous portions of IR-02 and IR-03 containing a wide range of chemicals (including metals, volatile organic compounds, semivolatile organic compounds, PCBs, pesticides, and petroleum hydrocarbons) at concentrations exceeding risk-based screening criteria and posing an unacceptable risk to humans. In addition, previous

studies have identified the potential presence of radioactive contamination throughout IR-02 and 03, including along the Parcel E shoreline (Naval Sea Systems Command, 2004). These findings, coupled with the widespread waste disposal activities at IR-02 and IR-03, have prompted the Navy to evaluate cleanup options that address potential contamination throughout the Parcel E shoreline and adjacent onshore portions of IR-02 and IR-03.

D2.5. RISK TO HUMANS AND WILDLIFE

Previous risk evaluations for shoreline sediment were provided in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008) and include:

- Human health risk assessment (HHRA) for shoreline sediment (Section 5.3.1 and Attachment 1 of the Revised RI Report)
- SLERA for shoreline sediment (Appendix G of the Revised RI Report)

Based on the HHRA results in the Revised RI Report for Parcel E, risks to human health associated with direct contact with shoreline sediment are relatively low. For the reasonable maximum exposure scenario, PCBs were the only chemical with a cancer risk greater than 1E-06. For noncancer risks, total PCBs were the primary contributor (Barajas & Associates, Inc., 2008). Accordingly, total PCBs is the primary chemical of concern (COC) for the evaluation of risk to human health along the Parcel E shoreline.

As noted in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008), the Navy used a toxicity-based approach in the SLERA to identify site-related chemicals that may pose risks to sensitive ecological receptors, including benthic invertebrates, birds, and mammals. Concentrations of chemicals in shoreline sediment were compared with effects ranges to assess potential risk to benthic invertebrates. Food-chain models were used to assess the exposure of birds and mammals to ingested chemicals. Ingested doses were estimated for three birds (willet, surf scoter, and red tailed-hawk) and one mammal (house mouse). The following chemicals of ecological concern (COECs) were identified in shoreline sediment:

- Benthic invertebrates: copper, lead, mercury, zinc, PCBs, and DDT
- Birds (willet, surf scoter, and red tailed-hawk): PCBs
- Mammals (house mouse): cadmium, copper, molybdenum, zinc, and PCBs

D2.6. REMEDIAL ACTION OBJECTIVES FOR SHORELINE

RAOs were developed for various contaminated media at Parcel E, as presented in Section 3.1 of the FS Report. The RAOs for shoreline sediment were developed for the protection of human health and the environment and identify the preliminary remediation goals (PRGs) for shoreline sediment, which are to:

- prevent exposure of humans to COCs in shoreline sediment at concentrations exceeding the PRGs in Table 3-2 of the FS Report, and
- prevent exposure of benthic invertebrates, birds, and mammals to COECs in shoreline sediment at concentrations exceeding the PRGs in Table 3-2 of the FS Report.

As described in Section D2.4, both the intertidal shoreline and adjoining onshore portions of IR-02 and IR-03 contain extensive chemical contamination. Based on the risk assessment conclusions in the Revised RI Report for Parcel E (Barajas & Associates, Inc., 2008), as summarized in Section D2.5, an evaluation of various cleanup options is required. The cleanup options for both the intertidal shoreline and adjoining onshore portions of IR-02 and IR-03 must be well integrated because of the dynamic nature of the intertidal shoreline zone (most notably the erosion potential from waves and current) and the extensive contamination at IR-02 and IR-03.

D2.7. CLEANUP OPTIONS FOR SHORELINE AND ADJACENT ONSHORE AREAS

Section 3.3.2.1 of the FS Report analyzes a range of potential cleanup options for Parcel E, with a specific focus on onshore soil (at IR-02 and IR-03 and elsewhere at Parcel E). The analysis provided in Section 3.3.2.1.3 of the FS Report, which was performed in accordance with the NCP (specifically Title 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988; Section 4.2.5), concluded that complete removal of all onshore soil with chemical concentration exceeding risk-based PRGs was not a feasible option (effective or implementable) for the following reasons:

- Excavation of ubiquitous metals, along with other chemical contamination exceeding PRGs that may be present over large portions of Parcel E, could involve excavating most of Parcel E to 10 feet below ground surface (bgs) (or to 2 feet bgs in the open space areas or to the top of the bedrock surface where the depth to bedrock is less than 10 feet).
- Excavation is possible but would be difficult to implement because of the large excavation volumes and range of potential hazards (e.g., deep excavation below the water table, radiological hazards, and noise and emissions from equipment and vehicles during long-term construction operations).
- The implementation challenges directly correspond to the high projected costs, including large volumes of on-site soil requiring off-site disposal and imported clean fill needed for backfill.
- The potentially poor short-term effectiveness, implementation challenges, and high cost of excavating most of the soil at Parcel E do not offset the long-term effectiveness of such an action.

As a result, excavation options for onshore soil focus on removing (1) COCs at concentrations significantly exceeding PRGs (by either 5 or 10 times) and (2) COCs and COECs indicative of a source to groundwater contamination that may pose a risk to humans or wildlife. Other process options (such as, institutional controls or engineered covers) would address the exposure pathway for any remaining low-level organic chemical concentrations exceeding PRGs, consistent with the NCP, Title 40 CFR § 300.430 (a)(1)(iii)(B), which states that containment technologies are likely to be appropriate for sites with relatively low-level threats or where treatment is impractical.

The containment technologies for onshore soil are evaluated in Section 3.3.2.1.5 of the FS Report and focus primarily on surface covers. This appendix evaluates the range of shoreline protection options that can be integrated with the surface covers. The shoreline protection options evaluated in this appendix are generally categorized as containment actions. However, shoreline protection options may also include removal of shoreline sediments to provide a proper foundation for the shoreline containment features that would, as a result, remove near-surface contamination.

Section D3. Screening of Shoreline Protection Technologies and Process Options

Shoreline protection is used to retain or rebuild natural systems (such as cliffs, dunes, wetlands, and beaches) or to protect manmade structures (such as buildings, infrastructure, engineered berms, etc.) landward of the shoreline. In the case of Parcel E, shoreline protection is necessary to help control migration or erosion of contaminated shoreline sediments (and soil from onshore portions of IR-02 and IR-03), and to help prevent exposure of wildlife to contaminated shoreline sediments. This section provides an initial screening of the following shoreline stabilization technologies:

- Armoring
- Structural and Nonstructural Shoreline Stabilization
- Shoreline Nourishment

The following sections briefly describe each shoreline protection technology and summarize the conclusions of the initial screening process. During the initial screening, stabilization technologies and associated stabilization options are evaluated in terms of technical implementability, site conditions, and the ability to meet NCP requirements and RAOs. Table D-1 details the initial screening of various process options for each of the shoreline protection technologies. The stabilization options that are retained following the initial screening are evaluated in Section D4 with respect to effectiveness, implementability, and cost, in accordance with the NCP (specifically Title 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988; Section 4.2.5).

D3.1. ARMORING

Armoring involves constructing a hardened structure along the shoreline to control migration or erosion of shoreline sediment. Seawalls, bulkheads, and protective revetments are the most common armoring options. The primary purpose of a seawall is to prevent inland flooding from major storm events accompanied by large, powerful waves. Bulkheads are vertical retaining walls to hold and prevent soil from sliding seaward. The main purpose of bulkheads is to reduce land erosion and loss to the sea, not to mitigate coastal flooding or wave damage. Revetments are a cover or facing of erosion-resistant material placed directly on a slope, embankment, or dike to protect the area from waves and strong currents. The rock revetment stabilization option is retained for further analysis in Section D4 because it is anticipated

to have a reasonable cost, effectively control migration or erosion of shoreline sediment, and achieve the RAOs by preventing exposure of humans and wildlife to contaminated shoreline sediment.

D3.2. STRUCTURAL AND NONSTRUCTURAL SHORELINE STABILIZATION

Shoreline stabilization involves the construction of manmade structures or placement of natural material to moderate the coastal sediment transport processes and reduce the local erosion rate. Structural shoreline stabilization includes headland and nearshore breakwaters, groins, sills, and reefs. Nonstructural shoreline stabilization involves the planting of upland or submerged aquatic vegetation, or the placement of sand fill or biodegradable organic materials (such as natural fiber logs and matting). Shorelines that are restored using natural material, either alone or in combination with stabilization structures, are referred to as "living shorelines" because they provide living space for aquatic organisms (National Oceanic and Atmospheric Administration [NOAA], 2009). Nonstructural stabilization alone is typically implemented in environments with low wave energy; a hybrid of both nonstructural and structural stabilization is typically implemented in environments with moderate wave energy (NOAA, 2009).

As discussed in Section D2.3, a site-specific study measured waves offshore of Parcel E exceeding 2 feet in height (Battelle Memorial Institute and Woods Hole Group, 2001). This information suggests that wave energy offshore of Parcel E is moderate. Accordingly, nonstructural stabilization options are not retained as stand-alone options because they would not fully contain shoreline sediment and would therefore not meet the RAOs identified in Section D2.6. However, hybrid stabilization using both nonstructural and structural elements may be designed in a manner that adequately controls erosion from waves and current in South Basin. As detailed in Table D-1, two hybrid stabilization options have been retained for further analysis in Section D4: (1) natural shoreline materials with offshore reef, and (2) natural shoreline materials with underlying rock armor. The second stabilization option, natural shoreline materials with underlying rock armor, was successfully implemented along a portion of the Parcel E shoreline following the Metal Debris Reef removal action in IR-02 Southeast (Tetra Tech EC, Inc. [TtECI], 2007).

D3.3. SHORELINE NOURISHMENT

The primary function of shoreline nourishment is to provide improved protection to upland structures and infrastructures from the effects of storms. Shoreline nourishment typically involves constructing a wider shoreline and more substantial dune to (1) act as a protective buffer between upland structures and the water and (2) provide a sediment source that would aid in dissipating wave energy if the sediment eroded during a storm and moved offshore. Shoreline nourishment can include berms, dunes, feeder beach, nearshore berm, dune stabilization, or structural stabilization. Aspects of shoreline nourishment that can affect the integrity of the dune and berm include periodic renourishment, advance nourishment, and

emergency maintenance. The level of storm protection provided by shoreline nourishment is not an absolute measure because high-intensity storms can cause property damage even with shoreline nourishment in place. Based on this information, the stabilization technology would not meet the RAOs for shoreline sediment noted in Section D2.6. Therefore, this technology has not been retained for further analysis because (1) it would not meet the RAOs identified in Section D2.6 and (2) the Parcel E shoreline is narrow and no area would be adequate to create a wider shoreline without substantial excavation.

Section D4. Evaluation of Retained Shoreline Protection Options

This section evaluates, in accordance with the NCP and EPA RI/FS guidance (EPA, 1988), the following shoreline protection options that were retained following the initial screening presented in Section D3:

- Armoring: Rock Revetment
- Hybrid Shoreline Stabilization: Natural Shoreline Materials with Offshore Reef
- Hybrid Shoreline Stabilization: Natural Shoreline Materials with Underlying Rock Armor

Section D4.1 discusses the common design considerations for the shoreline protection options. Sections D4.2, D4.3, and D4.4 describe the conceptual design and implementation of each retained shoreline protection option and present an analysis of each option with respect to effectiveness, implementability, and cost. Section D4.5 summarizes the conclusions of the evaluation process, which is further detailed in Table D-2.

The shoreline protection options are evaluated with respect to effectiveness, implementability, and cost, in accordance with the NCP (specifically Title 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988; Section 4.2.5).

The potential effectiveness of each shoreline protection option includes consideration of the following factors:

- Compliance with established RAOs (that require prevention of direct exposure to contaminated shoreline sediment and adjoining onshore soil)
- Reliability of shoreline protection features to control of erosion and prevent exposure to contaminated shoreline sediment and adjoining onshore soil
- Stability of shoreline protection features
- Environmental impacts to the shoreline (e.g., limiting public access)
- Environmental impacts to the adjoining bay (e.g., potentially affecting water quality in bay)
- Ecological function of the shoreline
- Visual aesthetics of shoreline protection features

The implementability of each shoreline stabilization option relates to its technical feasibility (such as, constructability and long-term operation and maintenance [O&M] considerations), administrative feasibility (such as compliance with substantive regulatory requirements), and the availability of necessary equipment and skilled workers.

The construction cost of each shoreline stabilization option was estimated for a typical 100-foot-long section of shoreline. Costs were estimated using RSMeans Heavy Construction Cost Data (RSMeans, 2010). The construction costs comprise the majority of the total costs for each shoreline stabilization option and therefore provide an adequate basis for evaluation. The costs for design, permitting, and O&M comprise a smaller proportion of the total costs and are not discussed in detail in this appendix. More detailed cost estimates are provided for the comprehensive remedial alternatives developed for Parcel E (see Appendix E of the FS Report).

D4.1. COMMON DESIGN CONSIDERATIONS

Conceptual designs were developed for the retained shoreline protection options to provide a basis for evaluation in this appendix. Consistent with the NCP, conceptual designs developed for FS Reports are refined during the remedial design (following remedy selection in the record of decision). Refinements to conceptual designs may be prompted by additional site information or stakeholder input, and may include changes to the alignment of or construction materials used in the shoreline protection option. However, the refined design must continue to satisfy the RAOs identified in Section D2.6.

Design criteria relating to offshore dynamics are uniform considerations for each shoreline protection option. Based on findings of the Parcel F Sediments Dynamics Study (Battelle Memorial Institute and Woods Hole Group, 2001), a wave height of 2.3 feet is used to evaluate the conceptual designs. As discussed in Section D2.3, the findings from the previous study are adequate to evaluate the conceptual designs provided in this appendix, but more detailed studies may be performed, if needed, during the remedial design. In addition, the potential for a rise in sea level of 3 feet over the next 100 years (Church et al., 2001; Meehl et al., 2007) is taken into account in the conceptual designs. Given a MHHW elevation of +3.6 feet msl, a wave height of 2.3 feet, and a potential sea level rise of 3 feet; the shoreline options should be protective to an elevation of at least +8.9 feet msl. Accounting for about 2 feet of vertical height due to wave runup, the shoreline protection options should include features that can be extended to crest an elevation of about +11 feet msl.

As discussed in Section D2.1 and shown on Figure D-2, the topography varies along the Parcel E shoreline and includes areas generally categorized, for the purposes of this evaluation, as either (1) steep and narrow or (2) gradually sloped and wide. Categorization of the shoreline topography relates to the shoreline protection evaluation because the most cost-effective and readily implementable approach will contain the shoreline sediment without significantly altering the existing topography. For example,

containment using armoring in steep and narrow shoreline areas would generally be cost-effective and readily implementable because the existing slopes would not require extensive modification to ensure long-term stability, thereby minimizing excavation and off-site disposal of contaminated shoreline sediment and onshore soil. In contrast, containment using hybrid stabilization in steep and narrow shoreline areas would be less cost-effective and more difficult to implement because the existing slopes would require extensive modification to ensure long-term stability, thereby increasing excavation and off-site disposal of contaminated shoreline sediment and onshore soil. As discussed in Section D2.7, the extensive contamination found in onshore soil at IR-02 and IR-03 makes large-scale excavation and off-site disposal impractical. In addition, containment using hybrid stabilization in gradually sloped and wide shoreline areas would generally be cost-effective and readily implementable because the existing slopes have been shown to be relatively stable under existing conditions and would not require extensive modification, thereby minimizing excavation and off-site disposal of contaminated shoreline sediment and onshore soil.

D4.2. ARMORING: ROCK REVETMENT

This option includes armoring the shoreline slope with a layer (or layers) of riprap. The riprap, consisting of large rocks that are also referred to as armor stone, would be sized to resist movement from wave action and would be placed on a layer of crushed rock underlain by geotextile filter fabric to prevent erosion of fine material while allowing transfer of water. Figure D-3 provides a conceptual cross section for the rock revetment option (the location of the conceptual cross section is shown on Figure D-2).

D4.2.1. Conceptual Design and Implementation Approach

The revetment design is based on the USACE "Design of Coastal Revetments, Seawalls, and Bulkheads" and "Coastal Engineering Manual" (USACE, 1995 and 2008). The key design components include the slope and dimensions of the revetment structure and the type and size of armor stone.

The elevations of the toe and crest are based on the expected high and low water conditions, significant wave heights, and wave runup on the structure. A maximum revetment slope of 1V:3H is proposed to minimize excavation of the shoreline and adjoining onshore areas. As shown on Figure D-3, the toe of the revetment would be located at the Parcel E boundary, which is located at about 0 feet msl. The revetment would continue to a crest elevation of at least +11 feet msl (higher elevations may be required in certain areas to match the elevation of the adjoining onshore area).

The riprap is selected and sized based on the forces that will act against the structure, most notably wave action. The Hudson Formula (USACE, 1995) was used to select the size of riprap. This formula uses the shoreline slope and the significant wave height to calculate the required weight of individual armor stones

needed to withstand the wave energy. The required weight for an individual armor stone is 72 pounds for a 2.3-foot wave on a 1V:3H slope (an average weight of 75 pounds is used for the conceptual design).

Beginning at the Parcel E boundary and extending inland, the existing shoreline sediment and collocated debris would be excavated to a depth of at least 2.5 feet. As shown on Figure D-3, additional excavation would be required where the existing slopes exceed the design slope of 1V:3H. The excavation would be backfilled with crushed rock and armor stone. As shown on Figure D-3, near-surface backfill material at lower elevations where the existing slope is less than 1V:3H may be supplemented with coarse sand (to enhance the ecological function of those areas). The completed revetment would provide a 2.5-foot-thick cover over any remaining contamination, thereby controlling exposure of humans and wildlife to contaminated shoreline sediment. The completed revetment would also control shoreline erosion that could indirectly result in exposure to contaminated shoreline sediment and adjoining onshore soil. Excavated materials would be stockpiled, dewatered, and characterized for potential contamination (including radionuclides). Once properly characterized, the excavated materials would be disposed of at an appropriate off-site facility.

D4.2.2. Analysis of Effectiveness, Implementability, and Cost

The following paragraphs discuss the effectiveness, implementability, and cost of the rock revetment option in accordance with the NCP (specifically Title 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988; Section 4.2.5).

Effectiveness

Rock revetment would meet the established RAOs for shoreline sediment as discussed in Section 3.1 of the FS Report and Section D2.6 of this appendix. Rock revetment would provide a robust containment structure to control shoreline erosion and would provide an appropriate termination point for surface covers at the adjoining onshore portions of IR-02 and IR-03. Proper design and maintenance would address potential issues related to settlement, slope stability, and undermining. Potential effects on human health and the environment from implementation of this option would be short-term and could be managed through proper construction best management practices (such as placing material during low tides and using silt curtains). Rock revetment has been proven and reliable in applications similar to the shoreline conditions at Parcel E.

Rock revetment would inhibit pedestrian access to the shoreline and would limit shoreline recreation. In addition, this option may not be considered aesthetically pleasing by site users. However, these disadvantages would be minimized if rock revetment was implemented in combination with other, more natural shoreline protection options. The rock revetment option by itself would not provide any notable habitat for aquatic wildlife but would likely provide a comparable degree of ecological function relative

to the existing conditions (degraded by chemical contamination and man-made debris). In addition, the ecological function of the shoreline would be improved if rock revetment was implemented in combination with other, more natural shoreline protection options.

Implementability

The technical implementability of rock revetment is high. Rock revetment would be subject to and must comply with the substantive provisions of applicable or relevant and appropriate requirements (ARARs) regarding work within an intertidal shoreline zone (identified in Appendix B of the FS Report). The types of materials needed to construct the rock revetment are readily available. Skilled labor, supplies, and equipment are sufficient to allow proper implementation of this option. Rock revetments generally require only minor or occasional O&M, which would typically involve placement of additional armor stone directly on the structure.

Cost

Table D-3 provides a preliminary cost estimate for constructing a rock revetment along a typical 100-foot section of shoreline. Table D-4 summarizes the supplemental costs for removing existing material that is above the finish grade of the option (overburden). The estimated overburden volume is generally comparable for each shoreline protection option because, as shown on Figure D-3, the design slopes are not significantly different than the existing shoreline topography. As a result, the estimated cost for removing overburden is common to each shoreline protection option.

The preliminary cost for constructing a rock revetment and removing overburden along a typical 100-foot section of shoreline is approximately $142,000. This estimated cost could apply to any section of the Parcel E shoreline because, as discussed in Section D4.1, armoring a steep and narrow shoreline section would not require extensive modification of the existing slopes. If rock revetment were constructed along a gradually sloped and wide shoreline area, the slope would be reduced from 1V:3H to match the existing slope.

D4.3. HYBRID SHORELINE STABILIZATION: NATURAL SHORELINE MATERIALS WITH OFFSHORE REEF

This hybrid stabilization option includes (1) placement of soil to prevent direct exposure to contaminated shoreline sediment, (2) installation of a rock structure offshore with crest at or below sea level to reduce wave energy, and (3) planting of aquatic vegetation to reduce erosion potential within the intertidal zone. Figure D-4 provides a conceptual cross section for this option (the location of the conceptual cross section is shown on Figure D-2). As discussed in Section D3.2, shorelines stabilized with a combination of structural and nonstructural stabilization elements are considered living shorelines (NOAA, 2009).

D4.3.1. Conceptual Design and Implementation Approach

The slope of the shoreline area is the primary design constraint for construction of a living shoreline. Living shorelines require a gradual slope no steeper than 1V:10H in the intertidal zone to maintain vegetation (Center for Coastal Resources Management, 2006). Many areas of the Parcel E shoreline currently meet this criterion. Beginning at the Parcel E boundary and extending inland, the existing shoreline sediment and collocated debris would be excavated to a depth of at least 2.5 feet. As shown on Figure D-4, additional excavation would be required where the existing slopes exceed the design slope of 1V:10H. The excavation would be backfilled with sand or other clean, imported soil types meeting the design objectives. Filter fabric would be placed at the bottom of the excavation to demarcate the underlying contaminated soil from the clean backfill. Excavated materials would be stockpiled, dewatered, and characterized appropriately (including testing for radionuclides). Once properly characterized, the excavated materials would be disposed of at an appropriate off-site facility.

In conjunction with the natural shoreline materials, an offshore reef is proposed to reduce the moderate wave energy offshore of Parcel E. The conceptual design of the reef includes the following elements:

- Height – crest elevation of +3 feet msl, slightly below the MHHW elevation, to dissipate the majority of wave energy during winter storms
- Location – approximately 50 feet offshore of the Parcel E/F boundary to minimize potential obstructions to shoreline recreation
- Material – rock riprap to provide the most robust type of structure to protect the shoreline from wave-induced erosion (USACE, 1995 and 2008; Linsley and Franzini, 1979)

The rock riprap could be replaced with more natural material. Use of natural material would enhance the ecological function of the reef, but further study would be required to determine the effectiveness of the natural material to withstand the moderate wave energy in South Basin and to evaluate the availability of the quantity of material necessary to implement the design solution. The offshore reef could be constructed closer to the Parcel E/F boundary (similar to a nearshore sill). Placing the structure closer to the intertidal zone may enhance the ecological function in the local area, particularly if located in close proximity to aquatic vegetation (Atlantic States Marine Fisheries Commission, 2010), but the proximity to the shoreline may limit shoreline recreation.

Aquatic vegetation would be planted or seeded at appropriate elevations within either the tidal flats or intertidal zone (identified on Figure D-4). The conceptual design includes planting of vegetation suited for lower tidal elevations (such as Pacific cordgrass [*Spartina foliosa*]) because it would better dissipate residual wave energy as compared with vegetation suited for higher tidal elevations (such as saltgrass [*Distichlis spicata*] or pickleweed [*Salicornia spp*]). However, a specific planting and seeding approach would be part of the remedial design.

D4.3.2. Analysis of Effectiveness, Implementability, and Cost

The following paragraphs discuss the effectiveness, implementability, and cost of the natural shoreline materials with offshore reef option in accordance with the NCP (specifically Title 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988; Section 4.2.5).

Effectiveness

The combination of the measures proposed for this option could meet the RAOs for shoreline sediment as discussed in Section 3.1 of the FS Report and Section D2.6 of this appendix. The clean soil would be intended to prevent direct exposure to contaminated shoreline sediment; however, the clean soil cover (consisting of sand) could be compromised relatively easily during future recreational use. The offshore reef and aquatic vegetation would be intended to reduce the offshore wave energy and control the erosion potential within the intertidal zone; however, the degree to which the offshore reef and aquatic vegetation would serve their intended purpose is uncertain because of complex offshore current and tidal dynamics and challenges in establishing aquatic vegetation at locations similar to Parcel E. In addition, stability of the offshore reef would likely be affected by the highly compressible offshore sediment. A layer of geosynthetic fabric placed below the rock would reduce, but not eliminate, settlement of the offshore reef into the underlying sediment. As a result, the condition of the reef would require regular monitoring, and additional material would likely need to be added periodically so that the protection of the shoreline is not compromised. For these reasons, the clean soil, offshore reef, and aquatic vegetation have a relatively low reliability to control erosion and prevent exposure to contaminated shoreline sediment and adjoining onshore soil.

Potential effects on human health and the environment from implementation of this option would be short-term and could be managed through proper construction best management practices; however, construction within tidal flats could result in some unavoidable impacts to existing aquatic habitat. The offshore reef has the potential to alter the local currents and affect local sediment deposition or erosion. This option may limit access for some shoreline recreation, but it would be visually appealing to future users of the shoreline and would provide habitat for aquatic wildlife. This option would improve the ecological function of the shoreline relative to existing conditions, but would include construction of an offshore reef that could lessen the ecological function of the tidal flats (by placing artificial fill in an area inhabited by aquatic wildlife).

Implementability

The implementability of this option is low, because of the technical and administrative challenges in the construction of the offshore reef. Placement of soil in the intertidal zone and construction of the offshore reef would be subject to and must comply with the substantive provisions of ARARs regarding work within an intertidal shoreline zone (identified in Appendix B of the FS Report). Similar to the rock

revetment option, placement of soil in the intertidal zone would be able to comply with the substantive provisions of all pertinent ARARs because work would be limited to areas already impacted by chemical contamination and would not extend into tidal flats (areas below msl). However, construction of the offshore reef has the potential to adversely impact tidal flats in a manner that may not comply with all pertinent ARARs. Most notably, the San Francisco Bay Plan (San Francisco Bay Conservation and Development Commission [BCDC], 2008) contains the following restriction: "*Projects harming tidal marshes and tidal flats should be allowed only for purposes providing substantial public benefits and only if there is no feasible alternative.*" The offshore reef has some public benefits (such as improved aesthetics), but these benefits could be partially offset by a decreased ecological function of the tidal flats. In addition, Section D4.4 evaluates a different hybrid stabilization option that does not adversely impact tidal flats.

Furthermore, constructability is a major consideration for an offshore reef. The types of materials needed to construct the rock revetment would be readily available, but specialized labor and equipment would be needed to properly implement this option.

Cost

Table D-5 provides a preliminary cost estimate for constructing this option along a typical 100-foot section of shoreline. Table D-4 summarizes the supplemental costs for removing existing material that is above the finish grade of the option (overburden). The estimated overburden volume is generally comparable for each shoreline protection option because, as shown on Figure D-4, the design slopes are not significantly different than the existing shoreline topography. As a result, the estimated cost for removing overburden is common to each shoreline protection option.

The preliminary cost for constructing this option and removing overburden along a typical 100-foot section of shoreline is approximately $261,000. This estimated cost would apply only to gradually sloped and wide shoreline areas because, as discussed in Section D4.1, containing a steep and narrow shoreline section using hybrid stabilization would require extensive modification of the existing slopes. If extensive modification of the existing slopes was required, the estimated costs would increase significantly.

D4.4. HYBRID SHORELINE STABILIZATION: NATURAL SHORELINE MATERIALS WITH UNDERLYING ROCK ARMOR

This hybrid stabilization option includes (1) placement of soil to minimize the potential for direct exposure to contaminated shoreline sediment and (2) installation of underlying rock armor below the clean soil. Figure D-5 provides a conceptual cross section for this option (the location of the conceptual cross section is shown on Figure D-2).

D4.4.1. Conceptual Design and Implementation Approach

The slope of the shoreline area is a primary design constraint for construction of this option. Similar to the option discussed in Section D4.3, this option requires a gradual slope to reduce sand erosion. As shown on Figure D-5, shoreline areas with an existing slope of not steeper than 1V:10H that are greater than 50 feet wide would be potential locations for this option. Beginning at the Parcel E boundary and extending inland, the existing shoreline sediment and collocated debris would be excavated to a depth of at least 2.5 feet. Additional excavation would be required where the existing slopes exceed the design slope of 1V:10H. The excavation would be backfilled with sand, armor rock, and crushed rock. The sand would be vibrated or jetted into the cavities between the armor rock. Filter fabric would be placed at the bottom of the excavation to support the armor rock and demarcate the underlying contaminated soil from the clean backfill. Excavated materials would be stockpiled, dewatered, and characterized for potential contamination (including radionuclides). Once properly characterized, the excavated materials would be disposed of at an appropriate off-site facility.

The protection would extend to an elevation of about +9 feet msl to match the elevation of the adjoining surface cover (a supplemental berm could be constructed to protect against a potential rise in sea level). As shown on Figure D-5, the underlying rock armor would extend the full thickness of the excavation (2.5 feet) at both the toe and the top of the shoreline to provide additional protection. The average weight for an individual armor unit in this option is about 25 pounds (calculated using the Hudson Formula [USACE, 1995] with a design wave 2.3 feet high on a slope of 1V:10H). However, slightly larger 75-pound armor rock was specified for the top of the shoreline to better integrate with the adjoining surface cover.

D4.4.2. Analysis of Effectiveness, Implementability, and Cost

The following paragraphs discuss the effectiveness, implementability, and cost of the natural shoreline materials with underlying rock armor option in accordance with the NCP (specifically Title 40 CFR § 300.430 [e][7]) and EPA RI/FS guidance (EPA, 1988; Section 4.2.5).

Effectiveness

This option would meet the established RAOs for shoreline sediment as discussed in Section 3.1 of the FS Report and Section D2.6 of this appendix. The imported soil would prevent direct exposure to contaminated shoreline sediment, and the underlying rock armor would provide a robust and reliable protective structure to control shoreline erosion and prevent exposure to contaminated sediments. Proper design and construction would address potential issues related to settlement, slope stability, and undermining. Regular inspection and maintenance would be required to maintain the sand cover following storm events. Potential effects on human health and the environment from implementation of this option would be short-term and could be managed through proper construction best management

practices (such as placing material during low tides and using silt curtains). This option was successfully implemented along a portion of the Parcel E following the removal action at the Metal Debris Reef in IR-02 Southeast (TtECI, 2007).

This option would not limit pedestrian access to the shoreline nor would it restrict shoreline recreation. In addition, this option would be visually appealing to future users of the shoreline. This option would not provide any notable habitat for aquatic wildlife but would likely provide a higher degree of ecological function when compared to the existing conditions (degraded by chemical contamination and man-made debris).

Implementability

The technical implementability of this option is moderate, primarily because of the potentially significant long-term O&M requirements. Placement of soil in the intertidal zone would be subject to and must comply with the substantive provisions of ARARs regarding work within an intertidal shoreline zone (identified in Appendix B of the FS Report). Similar to the rock revetment option, placement of soil in the intertidal zone would be able to comply with the substantive provisions of all pertinent ARARs because work would be limited to areas already impacted by chemical contamination and would not extend into tidal flats (areas below msl). The types of materials needed to construct the option are readily available. Skilled labor, supplies, and equipment are sufficient to allow proper implementation of this option. However, the long-term O&M requirements are potentially significant. The condition of the shoreline would require regular monitoring, and additional material would need to be added if significant erosion occurs following storm events.

Cost

Table D-6 provides a preliminary cost estimate for constructing this option along a typical 100-foot section of shoreline. Table D-4 summarizes the supplemental costs for removing existing material that is above the finish grade of the option (overburden). The estimated overburden volume is generally comparable for each shoreline protection option because, as shown on Figure D-5, the design slopes are not significantly different than the existing shoreline topography. As a result, the estimated cost for removing overburden is common to each shoreline protection option.

The preliminary cost for constructing this option and removing overburden along a typical 100-foot section of shoreline is approximately $215,000. This estimated cost would apply only to gradually sloped and wide shoreline areas because, as discussed in Section D4.1, containment of a steep and narrow shoreline section using hybrid stabilization would require extensive modification of the existing slopes. If extensive modification of the existing slopes was required, the estimated costs would increase significantly.

D4.5. CONCLUSION

Each of the three shoreline protection options evaluated in Sections D4.2, D4.3, and D4.4 has certain advantages and disadvantages that are briefly summarized below.

- Armoring: Rock revetment – The armoring (rock revetment) option would provide a robust containment system that is readily implementable and is the most cost-effective of the three shoreline protection options; however, this option limits pedestrian access and shoreline recreation and may not be considered aesthetically pleasing by site users.
- Hybrid Shoreline Stabilization: Natural shoreline materials with an offshore reef – This is not a reliable option to control erosion and prevent exposure to contaminated sediments. Although this option would provide habitat for aquatic wildlife and would be visually appealing to future users of the shoreline, it would also limit shoreline recreation, pose significant implementation challenges, and have a high cost compared with the other shoreline protection options.
- Hybrid Shoreline Stabilization: Natural shoreline materials with underlying rock armor – This option would provide an effective and reliable containment system that is readily implementable and would not limit pedestrian access or shoreline recreation; however, this option requires potentially significant long-term O&M and has a moderate cost compared with the other shoreline protection options.

Table D-7 provides an overall cost comparison for each of the three shoreline protection options evaluated in Sections D4.2, D4.3, and D4.4 . Similar to the individual cost estimate tables, Table D-7 presents costs for constructing each option along a typical 100-foot section of shoreline. Table D-7 also identifies the supplemental costs for removing existing material that is above the finish grade of the option (overburden). The cost for overburden removal is common to each of the three shoreline protection options, assuming that implementation along a given shoreline section would not require extensive modification of the existing slopes.

Based on the evaluation of options in Sections D4.2, D4.3, and D4.4 , the armoring (rock revetment) option and the hybrid stabilization option using natural shoreline materials with underlying rock armor are the most viable shoreline protection options for the Parcel E shoreline. The hybrid stabilization option using natural shoreline materials with an offshore reef will not be carried forward to the detailed evaluation of remedial alternatives primarily because it would not reliably control erosion and prevent exposure to contaminated sediments; this option would also limit shoreline recreation and pose significant implementation challenges. However, the Navy encourages the CCSF to evaluate the offshore reef as a non-CERCLA post-transfer project and coordinate with appropriate regulatory agencies. The Navy will continue to work closely with CCSF and other stakeholders to align the remedial alternatives for Parcel E with CCSF's redevelopment project to the maximum extent practical.

The armoring (rock revetment) option is the most appropriate approach for protecting the steep and narrow shoreline areas (consisting of approximately 2,400 linear feet) shown on Figure D-2. The hybrid stabilization option using natural shoreline materials with underlying rock armor is the most appropriate approach for protecting the gradually sloped and wide shoreline areas (consisting of approximately 2,400 linear feet) shown on Figure D-2. These two options have been integrated into the comprehensive remedial alternatives developed for the onshore areas at Parcel E and are evaluated in Sections 4 and 5 of the FS Report.

Consistent with the NCP, conceptual designs developed for shoreline protection may be refined during the remedial design (following remedy selection in the Record of Decision). Refinements to conceptual designs may be prompted by additional site information or stakeholder input, and may include changes to the alignment of or construction materials used in the shoreline protection option. However, the refined design must continue to satisfy the RAOs identified in Section D2.6.

The FS Report further evaluates each remedial alternative against criteria specified in the NCP. One important evaluation factor for each remedial alternative is its ability to comply with the substantive provisions of all pertinent ARARs, as identified in Appendix B of the FS Report. Several of the ARARs contain narrative standards that require detailed evaluations of proposed activities within the intertidal shoreline zone and adjacent wetlands to ensure compliance with the substantive provisions of each ARAR. To support the analysis relative to that evaluation factor, Section D5 provides a detailed regulatory analysis of the two viable shoreline protection options identified above relative to the pertinent ARARs.

Section D5. Regulatory Analysis of Proposed Cleanup Actions in Shoreline Zone

Parcel E contains an intertidal shoreline zone and adjacent wetlands that, because of the presence of chemical contamination requiring remedial action, will be impacted during cleanup actions pursuant to CERCLA. The intertidal shoreline zone and adjacent wetlands at Parcel E are located within the boundaries established in the federal Clean Water Act (CWA) and state of California's McAteer-Petris Act (Figure D-1). The implementing regulations for the CWA and McAteer-Petris Act, as detailed in Appendix B of the FS Report, contain narrative standards that require detailed evaluations of proposed activities within the intertidal shoreline zone and wetlands to ensure compliance with the substantive provisions of each regulation.

This section evaluates the two viable shoreline protection options, as identified in Section D4.5, relative to pertinent federal and state ARARs. Section D5.1 summarizes the pertinent federal and state ARARs that pertain to activities within the intertidal shoreline zone and adjacent wetlands at Parcel E. Section D5.2 discusses the potential impacts to the intertidal shoreline zone and adjacent wetlands, and evaluates the two viable shoreline protection options relative to the substantive provisions of pertinent ARARs. Section D5.3 summarizes the conclusions of the regulatory analysis.

D5.1. REGULATORY FRAMEWORK

This section summarizes the pertinent federal and state ARARs and identifies the intertidal shoreline zone and adjacent wetlands that meet specific regulatory definitions.

D5.1.1. Federal Requirements

As presented in Appendix B of the FS Report, the following requirements are potential federal ARARs for the proposed cleanup activities within the intertidal shoreline zone and adjacent wetlands at Parcel E:

- Coastal Zone Management Act; Title 16 United States Code (USC) § 1456(c) and Title 15 CFR § 930. Title 15 CFR § 930.30 requires that federal agency activities be conducted in a manner consistent with approved state management programs to the maximum extent practicable. The relevant California program is outlined in the San Francisco Bay Plan (BCDC, 2008).

- Executive Order 11990, Protection of Wetlands. Title 33 CFR § 320.4(b)(1) discourages the unnecessary alteration or destruction of wetlands and, through reference to Executive Order 11990, requires action to minimize the destruction, loss, or degradation of wetlands, or to mitigate and restore wetlands if any are destroyed or impaired.
- CWA § 404, as promulgated in Title 40 CFR Part 230 and Title 33 CFR Parts 320 and 330. These sections set forth requirements for discharging fill material into wetlands and San Francisco Bay.

These requirements are analyzed in Appendix B of the FS Report. The substantive provisions of Title 40 CFR Part 230 and Title 33 CFR Parts 320, 323, and 330 require an evaluation for proposed activities within waters of the United States. Section D5.1.3 identifies the waters of the United States located within Parcel E, and Section D5.2.2 evaluates the two viable shoreline protection options relative to the substantive provisions of Title 40 CFR Part 230 and Title 33 CFR Parts 320 and 330.

D5.1.2. State Requirements

As presented in Appendix B of the FS Report, the substantive provisions of the following requirements are potential state ARARs for the proposed cleanup activities within the intertidal shoreline zone and adjacent wetlands at Parcel E:

- McAteer-Petris Act; Title 14 California Code of Regulations (Cal. Code Regs.) §§ 10110 through 11990. These sections require that activities within San Francisco Bay and the shoreline (100 feet landward from the shoreline) be conducted in accordance with the policies of the San Francisco Bay Plan (BCDC, 2008).
- San Francisco Bay Plan, Parts III and IV (BCDC, 2008). The substantive provisions of the policies contained within Parts III and IV are potential ARARs. The subject sections pertain to protection of specific resources of San Francisco Bay (such as, tidal marshes and tidal flats), and identify specific conditions under which fill material may be placed in San Francisco Bay.

These requirements are analyzed in Appendix B. The substantive provisions of the San Francisco Bay Plan require an evaluation for proposed activities within BCDC's regulatory boundaries. Section D5.1.3 identifies the Parcel E areas located within BCDC's regulatory boundaries, and Section D5.2.3 evaluates the two viable shoreline protection options relative to the substantive provisions of the McAteer-Petris Act and the San Francisco Bay Plan.

D5.1.3. Regulatory Definitions

The CWA § 404 contains specific definitions of waters of the United States, which include intertidal shoreline zones and wetlands that are subject to its requirements. The McAteer-Petris Act contains specific definitions of San Francisco Bay subject to its requirements, as well as requirements specified in the San Francisco Bay Plan (BCDC, 2008). Although the regulatory basis of these federal and state

requirements is different, the specific Parcel E locations subject to these requirements are identical (see Figure D-1). Accordingly, Section D5.2 presents a unified analysis of the two viable shoreline protection options for Parcel E relative to these federal and state requirements.

D5.2. POTENTIAL IMPACTS TO SHORELINE ZONE AND ADJACENT WETLANDS

This section evaluates the potential impacts to the intertidal shoreline zone and adjacent wetlands at Parcel E, as identified on Figure D-1, during implementation of the viable shoreline protection options, as developed and evaluated in Sections D3 and D4. The potential impacts to the intertidal shoreline zone and adjacent wetlands are evaluated relative to the substantive provisions of the requirements described in Section D5.1. The evaluation is presented to demonstrate that the viable shoreline protection options for Parcel E will comply with the substantive provisions of the pertinent ARARs.

D5.2.1. Shoreline Cleanup Options

As described in Section D2.4, both the intertidal shoreline and adjoining onshore portions of IR-02 and IR-03 contain extensive chemical contamination requiring an evaluation of various cleanup options. The cleanup options for the intertidal shoreline must satisfy the RAOs identified in Section D2.6 and Section 3.1 of the FS Report, and must be well integrated with the proposed cleanup options for the adjoining onshore portions of IR-02 and IR-03. Based on the analysis presented in Section 3.3.2.1 of the FS Report (summarized briefly in Section D2.7), intrusive cleanup activities are needed within the intertidal shoreline zone and adjacent wetlands at Parcel E to address the RAOs for shoreline sediment.

As described in Section D4, the proposed shoreline cleanup will involve removal of contaminated shoreline sediment and debris and installation of shoreline protection features using a combination of two options: (1) rock revetment in steep and narrow shoreline areas, and (2) hybrid stabilization using natural shoreline materials with underlying rock armor in gradually sloped and wide shoreline areas. Installation of the shoreline protection features will require discharge of fill material into the intertidal shoreline zone and adjacent wetlands. The proposed discharge of fill material is the focus of the regulatory analysis detailed in the following subsections.

D5.2.2. Federal Evaluation

The evaluation process involves identifying the substantive provisions of each pertinent federal ARAR (listed in Section D5.1.1), and providing information for activities that discharge fill material into waters of the United States (in accordance with Title 40 CFR Part 230 and Title 33 CFR Parts 320 and 330). The information required by Title 40 CFR Part 230 and Title 33 CFR Parts 320 and 330 falls into four basic categories: (1) providing factual determinations of the proposed activity that impact waters of the United States; (2) identifying actions taken to minimize adverse effects on waters of the United States; (3) planning for the appropriate level of compensatory mitigation; and (4) demonstrating compliance with discharge restrictions. The following paragraphs briefly summarize the information relative to the four

categories. Table D-8 presents detailed information to support the evaluation of the viable shoreline protection options relative to the substantive provisions of Title 40 CFR Part 230 and Title 33 CFR Parts 320 and 330.

Factual Determinations

Title 40 CFR § 230.11 and Title 40 CFR Part 230 Subparts C through F identify specific information to be included in factual determinations relative to various physical, chemical, or biological aspects of the area being evaluated. The information is used to determine possible loss of environmental characteristics and values as a result of the proposed discharge. Table D-8 (pages 2 and 3) presents the factual determinations specified in Title 40 CFR Part 230.

Title 33 CFR § 320.4 identifies the general policies of USACE used to evaluate proposed discharge into waters of the United States. Similar to the factual determinations at Title 40 CFR Part 230, the USACE policies require information to evaluate potential impact to various physical, chemical, or biological aspects of the area being evaluated. The information is used to determine whether the proposed discharge complies with the CWA and its implementing regulations. Table D-8 (pages 5 and 6) presents the factual determinations specified in Title 33 CFR § 320.4.

The factual determinations demonstrate that the proposed remedial alternatives will result in a minimal loss of environmental characteristics and values. This finding is attributed primarily to the fact that existing contamination has degraded the quality and ecological function of the existing resource, and that the installation of shoreline protection will provide a net environmental benefit.

Actions to Minimize Adverse Effects

Title 40 CFR § 230.10(d) requires that proposed discharges into waters of the United States take "appropriate and practicable" actions to minimize adverse impacts to waters of the United States. Title 40 CFR Part 230 Subpart H identifies specific actions that can be taken, as part of the design or implementation of the proposed discharge, to minimize adverse impacts to waters of the United States. Table D-8 (page 4) identifies the actions to be taken for the proposed discharges at Parcel E, relative to the actions specified in Title 40 CFR §§ 230.70 through 230.77.

Title 33 CFR Part 330 specifies USACE permit requirements for discharges into waters of the United States. The proposed shoreline construction is to be performed on site pursuant to CERCLA; therefore, the Navy is not required to obtain a permit to discharge the fill (see Section 121[e] of CERCLA). The Navy, however, will comply with the substantive terms and conditions of the USACE permit requirements. Specifically, the proposed shoreline protection will be designed and implemented in a manner that complies with the substantive terms and conditions of Nationwide Permit 38 (Cleanup of Hazardous and Toxic Waste), which include actions to minimize adverse impacts to waters of the United

States. Table D-8 (page 6) discusses the proposed shoreline protection relative to the substantive provisions in Title 33 CFR Part 330.

The information presented in Table D-8 demonstrates that the proposed shoreline protection for Parcel E incorporates appropriate actions to minimize adverse impacts to waters of the United States.

Compensatory Mitigation for Unavoidable Losses

Title 33 CFR § 320.4(r) requires compensatory mitigation for "significant resource losses which are specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment." Title 40 CFR Part 230 Subpart J, specifically Title 40 CFR § 230.93(a), specifies that the compensatory mitigation is to be "based on what is practicable and capable of compensating for the aquatic resource functions that will be lost." The remaining portions of Title 40 CFR Part 230 Subpart J identify general considerations and specific requirements for compensatory mitigation. Table D-8 (pages 4 and 5) provides information to demonstrate that the Navy's proposed compensatory mitigation at adjoining HPS Parcel E-2 (Shaw Environmental, Inc., 2009) will satisfy the substantive provisions of Title 40 CFR Part 230 Subpart J.

Compliance with Discharge Restrictions

Title 40 CFR § 230.10 identifies specific restrictions on proposed discharges into waters of the United States. The factual determinations provided in accordance with Title 40 CFR § 230.11 are used to determine whether the proposed discharge satisfies the discharge restrictions at Title 40 CFR § 230.10. Table D-8 (pages 1 and 2) presents the Navy's determination that the proposed shoreline protection satisfies the discharge restrictions specified in Title 40 CFR § 230.10.

D5.2.3. State Evaluation

As discussed in Section D5.2.2, the evaluation process involves identifying the substantive provisions of each pertinent state ARAR (listed in Section D5.1.1) and providing information for activities that discharge fill material into San Francisco Bay (as defined in the McAteer-Petris Act). The following paragraphs briefly summarize the Navy's determination of how the proposed shoreline protection satisfies the substantive provisions of the McAteer-Petris Act and the San Francisco Bay Plan. Table D-9 presents detailed information to support the evaluation of the proposed shoreline protection relative to the substantive provisions of the McAteer-Petris Act and the San Francisco Bay Plan.

San Francisco Bay Plan, Part III

Part III of the San Francisco Bay Plan identifies policies for the protection of various bay resources, including aquatic wildlife, water quality, tidal marshes, and subtidal areas. The substantive portions of these policies pertain to protection of tidal marshes, tidal flats, and subtidal areas. Table D-9 (page 1)

presents the Navy's determination that the proposed shoreline protection satisfies the substantive provisions of Part III of the San Francisco Bay Plan.

San Francisco Bay Plan, Part IV

Part IV of the San Francisco Bay Plan identifies policies pertaining to acceptable types of bay fill and mitigation measures to compensate for unavoidable loss of bay resources. Table D-9 (pages 1 and 2) presents the Navy's determination that the proposed shoreline protection satisfies the substantive provisions of Part IV of the San Francisco Bay Plan.

Title 14 Cal. Code Regs. Section 10700

Title 14 Cal. Code Regs. § 10700 specifies conditions under which "minor fill" of waters subject to its regulation is acceptable. These conditions relate to improving areas at which the present condition "adversely affects the enjoyment of the Bay and its shoreline." The existing chemical contamination at the Parcel E shoreline poses an unacceptable risk to humans and aquatic wildlife, and this environmental condition adversely affects the enjoyment of the Bay and its shoreline. Table D-9 (page 2) presents the Navy's determination that the proposed shoreline protection at Parcel E qualifies as "minor fill" in accordance with Title 14 Cal. Code Regs. § 10700.

D5.3. CONCLUSION

The information presented in this section and in Tables D-8 and D-9 demonstrates that the proposed shoreline protection for Parcel E complies with the substantive provisions of the federal CWA § 404 and the state McAteer-Petris Act and San Francisco Bay Plan. This determination is based on the findings that: (1) the analysis presented in Section 3.3.2.1 of the FS Report (summarized briefly in Section D2.7) verifies that there is no practicable alternative to addressing site contaminants within the intertidal zones and wetlands at Parcel E in a manner that avoids disturbance; (2) the proposed shoreline protection incorporates appropriate actions to minimize adverse impacts to waters of the United States and San Francisco Bay; and (3) compensatory mitigation will be performed at adjoining HPS Parcel E-2 (Shaw Environmental, Inc., 2009) in accordance with the substantive provisions at Title 33 CFR § 320.4(r), Title 40 CFR Part 230 Subpart J, and Part IV of the San Francisco Bay Plan.

Section D6. References

Atlantic States Marine Fisheries Commission, 2010. "Living Shorelines: Impacts of Erosion Control Strategies on Coastal Habitats." Habitat Management Series #10. J.C. Thomas-Blate, Editor. February. Available Online at: <http://www.asmfc.org/publications/habitat/hms10LivingShorelines.pdf>.

Barajas & Associates, Inc., 2008. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Battelle Memorial Institute and Woods Hole Group, 2001. "Hunters Point Shipyard Parcel F, Winter 2001 Sediment Dynamics Study Technical Memorandum." July 12.

Center for Coastal Resources Management, 2006. *Newsletter of the Center for Coastal Resource Management*. Winter 2006, Vol. 1, No. 2.

Church, J.A., J.M. Gregory, P. Huybrechts, M. Kuhn, K. Lambeck, M.T. Nhuan, D. Qin, and P.L. Woodworth, 2001. "Changes in Sea Level." Chapter 11 in *Climate Change 2001: The Scientific Basis.* J.T. Houghton, Y. Ding, D.J. Griggs, M. Noguer, P. van der Linden, X. Dai, K. Maskell, and C.I. Johnson (editors). Contribution of Working Group 1 to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge. Available Online at: <http://www.grida.no/climate/ipcc_tar/wg1/index.htm>.

Linsley, R.K., and J.B. Franzini, 1979. *Water-Resources Engineering*. McGraw-Hill Book Company.

Meehl, G.A., T.F. Stocker, W. Collins, P. Friedlingstein, A. Gaye, J. Gregory, A. Kitoh, R. Knutti, J. Murphy, A. Noda, S. Raper, I. Watterson, A. Weaver, and Z.C. Zhao, 2007. "Global Climate Projections." Chapter 10 in *Climate Change 2007: The Physical Science Basis.* S. Solomon, D. Qin, and M. Manning (editors). Contribution of Working Group 1 to the Fourth Assessment Report of the IPCC. Cambridge University Press, Cambridge. Available Online at: <http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>.

Merkel and Associates, Inc., 2004. "San Francisco-Oakland Bay Bridge, East Span Seismic Safety Project, Baywide Eelgrass (*Zostera marina* L.) Survey in San Francisco Bay: Pre-survey Screening Model and Eelgrass Survey Report." October.

Naval Sea Systems Command, 2004. "Historical Radiological Assessment, Volume II, Use of General Radioactive Materials, 1939 to 2003, Hunters Point Shipyard." August 31.

National Oceanic and Atmospheric Administration (NOAA), 2009. "NOAA Restoration Portal: Living Shorelines." Available Online at: <http://habitat.noaa.gov/restorationtechniques/public/shoreline_tab1.cfm> (accessed February 9, 2009).

RSMeans, 2010. "Heavy Construction Cost Data."

San Francisco Bay Conservation and Development Commission, 2008. "San Francisco Bay Plan." February.

San Francisco Redevelopment Agency, 2010. "Final Environmental Impact Report, Candlestick Point-Hunters Point Phase II." Volumes I through X. May 13.

Shaw Environmental, Inc., 2009. "Final Wetlands Mitigation and Monitoring Plan, Parcels B, E, and E-2, Hunters Point Shipyard, San Francisco, California." December.

SulTech, 2007. "Draft Parcels E and E-2 Shoreline Characterization Technical Memorandum, Hunters Point Shipyard, San Francisco, California." June 29.

Tetra Tech EC, Inc. (TtECI), 2007. "Final Removal Action Completion Report, Metal Debris Reef and Metal Slag Area Excavation Sites, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." November 30.

Tetra Tech EM Inc. (TtEMI), 2003. "Parcel E Nonstandard Data Gaps Investigation Wetlands Delineation and Functions and Values Assessment, Hunters Point Shipyard, San Francisco, California." August 14.

U.S. Army Corps of Engineers (USACE), 1987a. "Wetland Evaluation Technique, Volume II: Methodology." Technical Report WRP-DE-2.

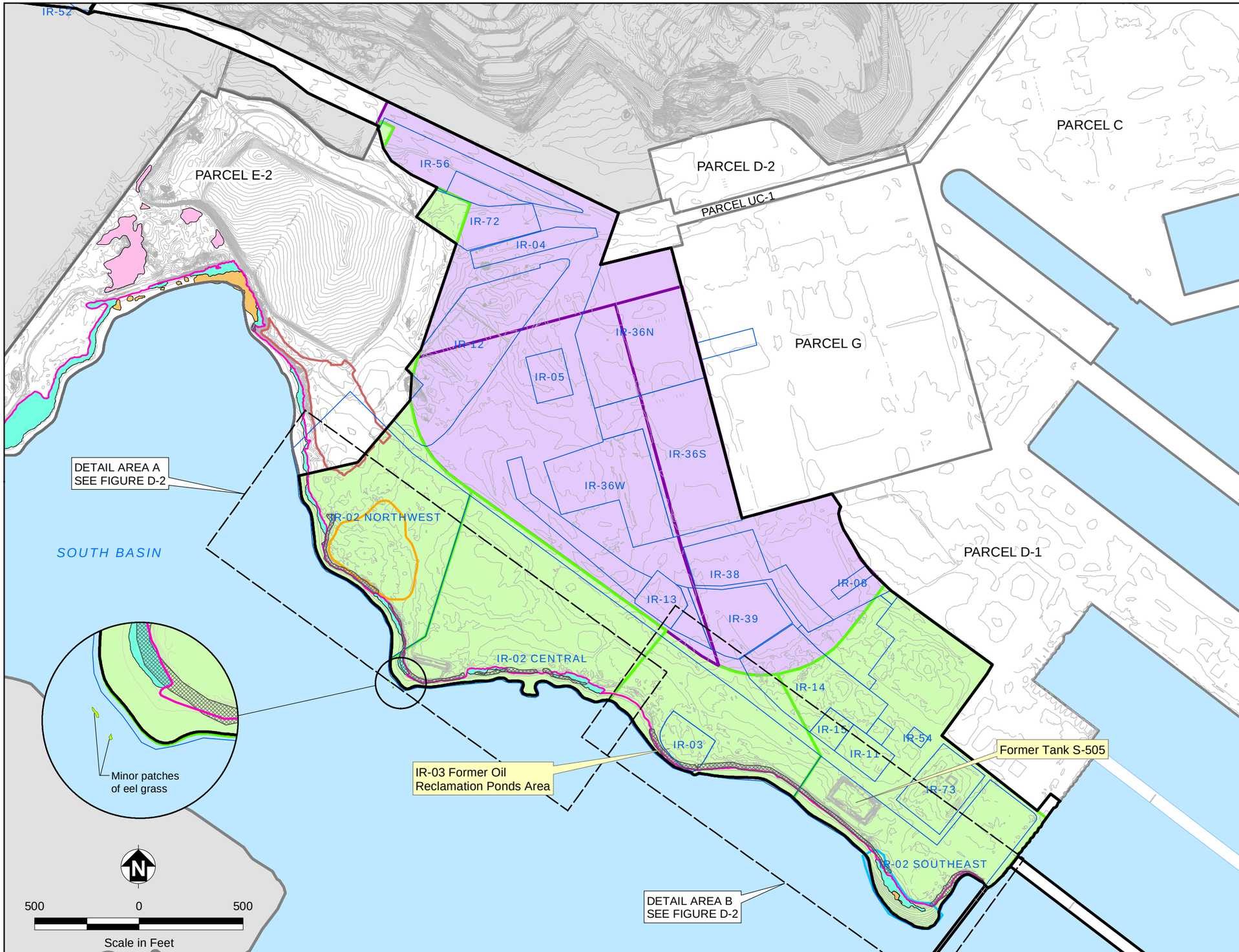
USACE, 1987b. "Corps of Engineers Wetlands Delineation Manual." Prepared by Environmental Laboratory. Wetlands Research Program Technical Report Y-87-1 (online edition). Available Online at: <http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf>.

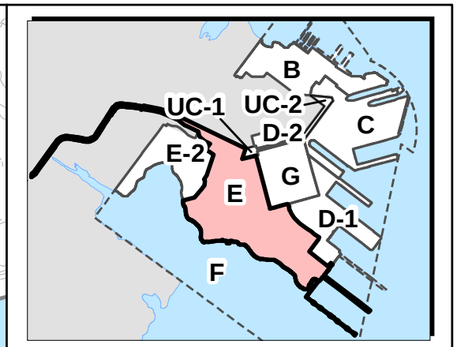
USACE, 1995. "Design of Coastal Revetments, Seawalls, and Bulkheads."

USACE, 2008. "Coastal Engineering Manual." April.

U.S. Environmental Protection Agency (EPA), 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA." Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01 and -02. EPA/540G-89/004. Available Online at: <http://www.epa.gov/superfund/policy/remedy/pdfs/540g-89004-s.pdf>.

Figures





Legend

- Freshwater Wetlands
- Emergent Tidal Wetland
- Intertidal Saltmarsh
- Eelgrass
- Riprap
- PCB Hotspot Removal Action Area
- Metal Debris Reef Removal Action Area
- IR-02 Northwest and Central Removal Action Area
- Onshore Extent of Intertidal Shoreline Zone
- IR Site Boundary
- Ground Surface Elevation (1-foot Interval)
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:
IR = Installation Restoration
HPS = Hunters Point Shipyard
PCB = polychlorinated biphenyl

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FIGURE D-1

PARCEL E SITE MAP

Feasibility Study Report for Parcel E

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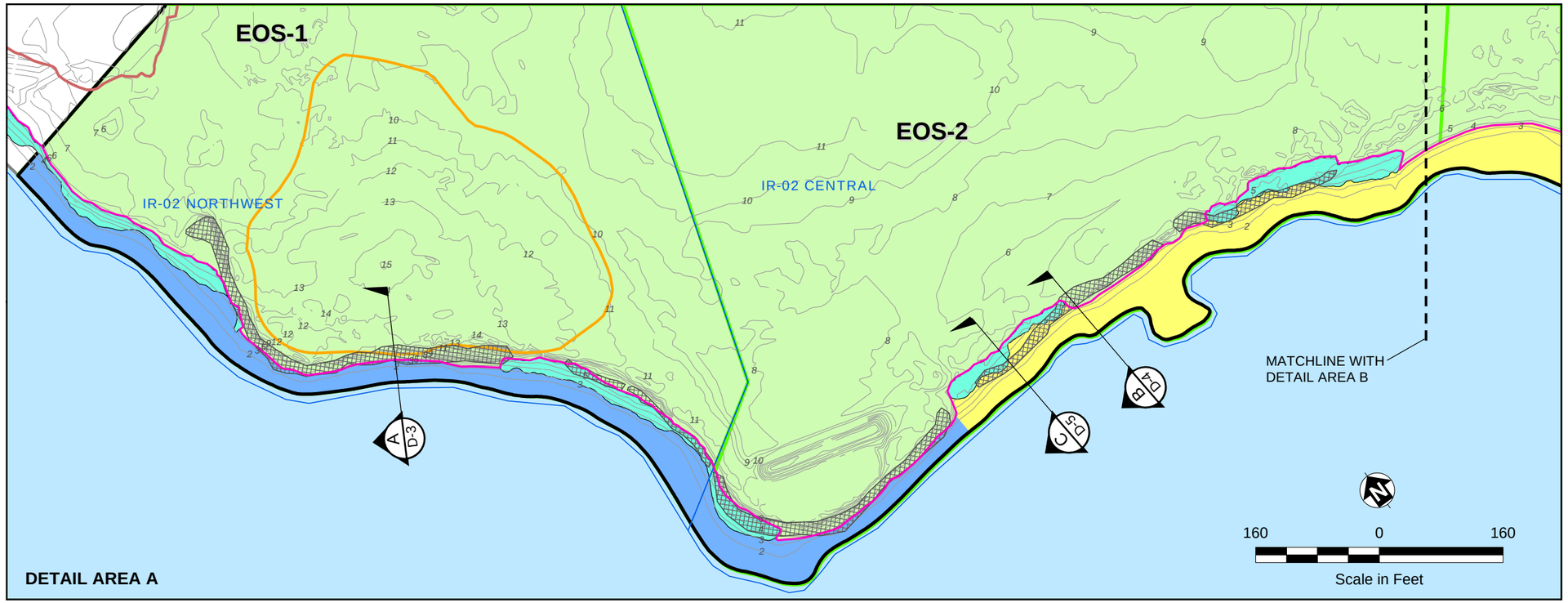

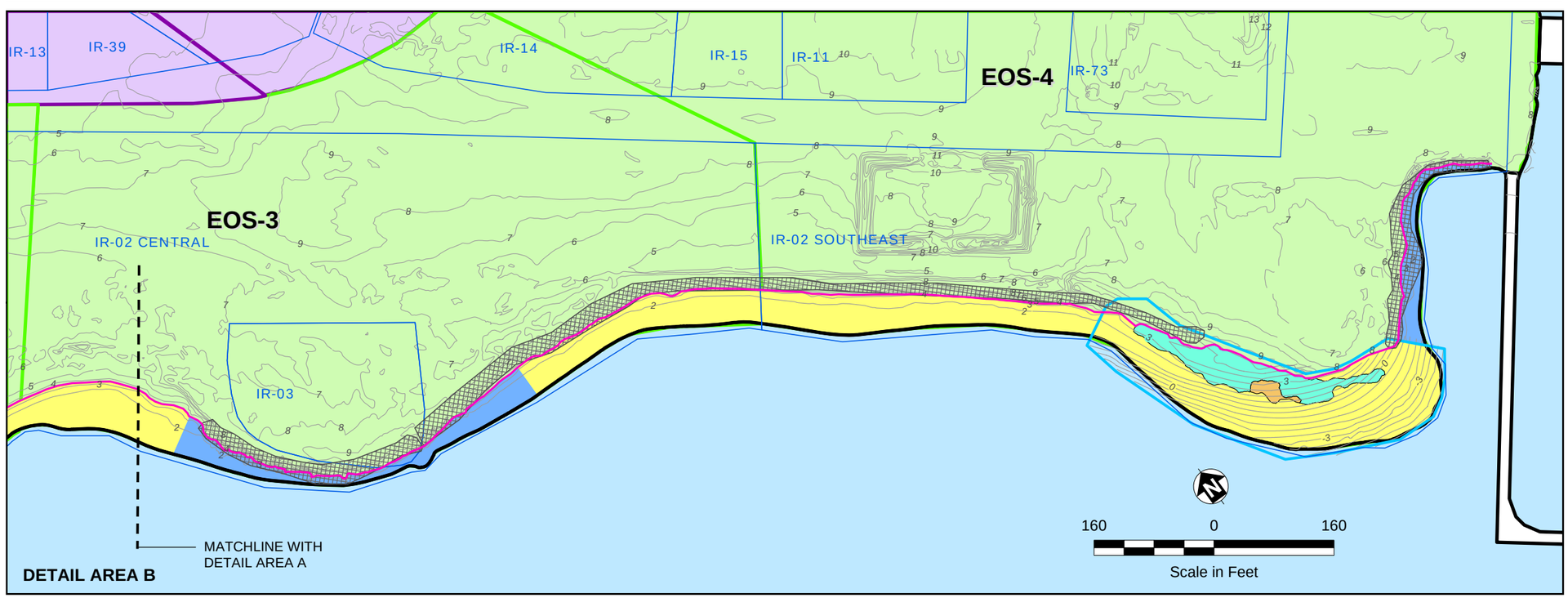

Legend

- Steep and Narrow Shoreline Areas
- Gradually Sloped and Wide Shoreline Areas
- Emergent Tidal Wetland
- Intertidal Saltmarsh
- Riprap
- PCB Hotspot Removal Action Area
- Metal Debris Reef Removal Action Area[a]
- IR-02 Northwest and Central Removal Action Area
- Onshore Extent of Intertidal Shoreline Zone
- IR Site Boundary
- Ground Surface Elevation (1-foot Interval)[b]
- Parcel E Boundary
- Other HPS Parcel
- Non-Navy Property

Parcel E Reuse Areas and Redevelopment Blocks

- Mixed Use
- Open Space

Notes:

IR = Installation Restoration
HPS = Hunters Point Shipyard
PCB = polychlorinated biphenyl

Cross Section
Figure Number

[a] Elevation contours in Metal Debris Reef reflect post-excavation ground surface; pre-excavation ground surface was significantly higher because debris were present.

[b] Elevations relative to National Geodetic Vertical Datum of 1929.

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FIGURE D-2

EXISTING SITE CONDITIONS NEAR PARCEL E SHORELINE

Feasibility Study Report for Parcel E

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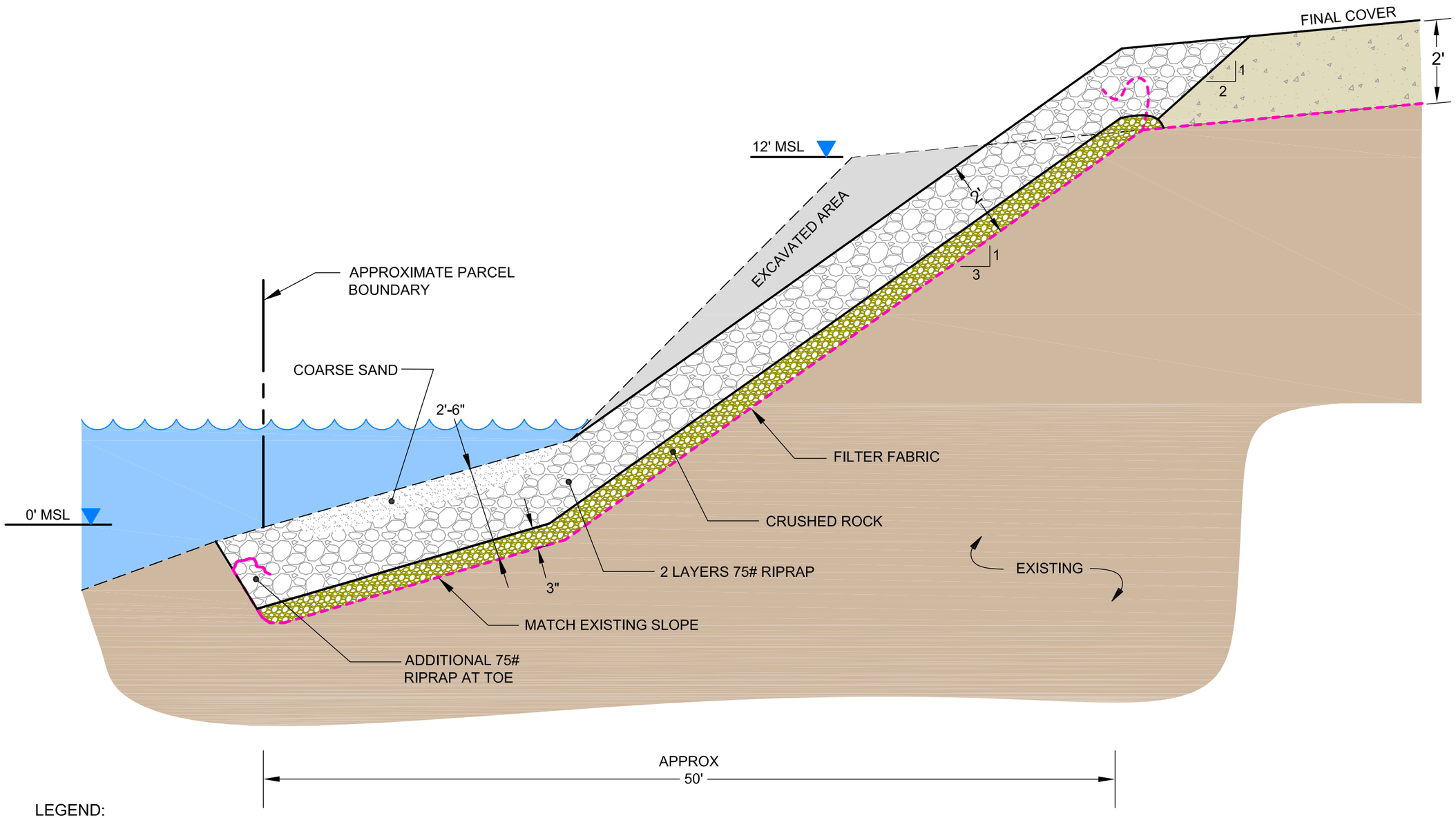

LEGEND:

	75# RIPRAP		SAN FRANCISCO BAY
	CRUSHED ROCK		EXCAVATED AREA
	EXISTING MATERIAL		APPROXIMATE PARCEL BOUNDARY
	COARSE SAND		FILTER FABRIC
			APPROXIMATE EXISTING GRADE
		MSL	MEAN SEA LEVEL

NOT TO SCALE

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FIGURE D-3
CONCEPTUAL CROSS SECTION A
TYPICAL ROCK REVETMENT

Feasibilty Study Report for Parcel E

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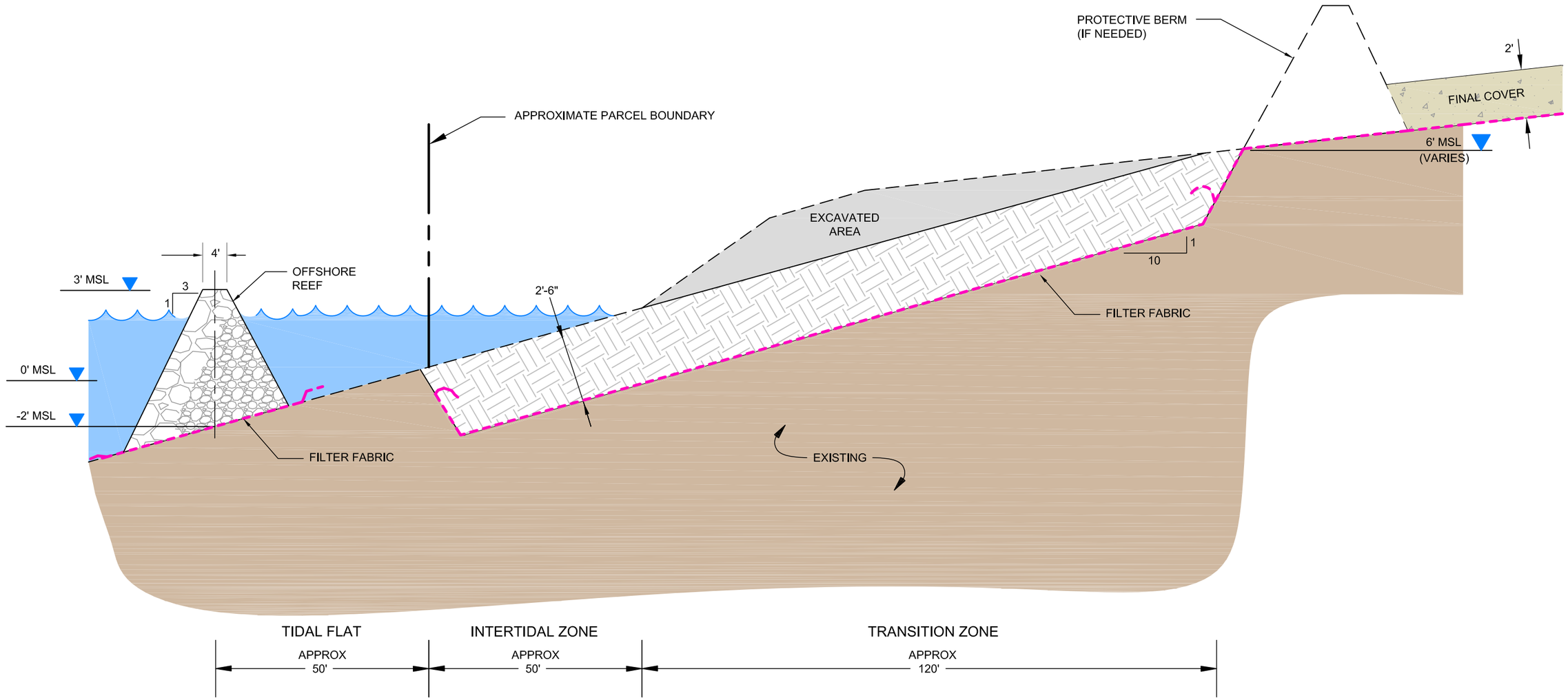

LEGEND:

	CORE STONE		SAN FRANCISCO BAY
	ARMOR STONE		APPROXIMATE PARCEL BOUNDARY
	IMPORTED FILL		FILTER FABRIC
	EXISTING MATERIAL		APPROXIMATE EXISTING GRADE
	EXCAVATED AREA	MSL	MEAN SEA LEVEL

NOT TO SCALE

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FIGURE D-4
CONCEPTUAL CROSS SECTION B
TYPICAL NATURAL SHORELINE
WITH OFFSHORE REEF

Feasibilty Study Report for Parcel E

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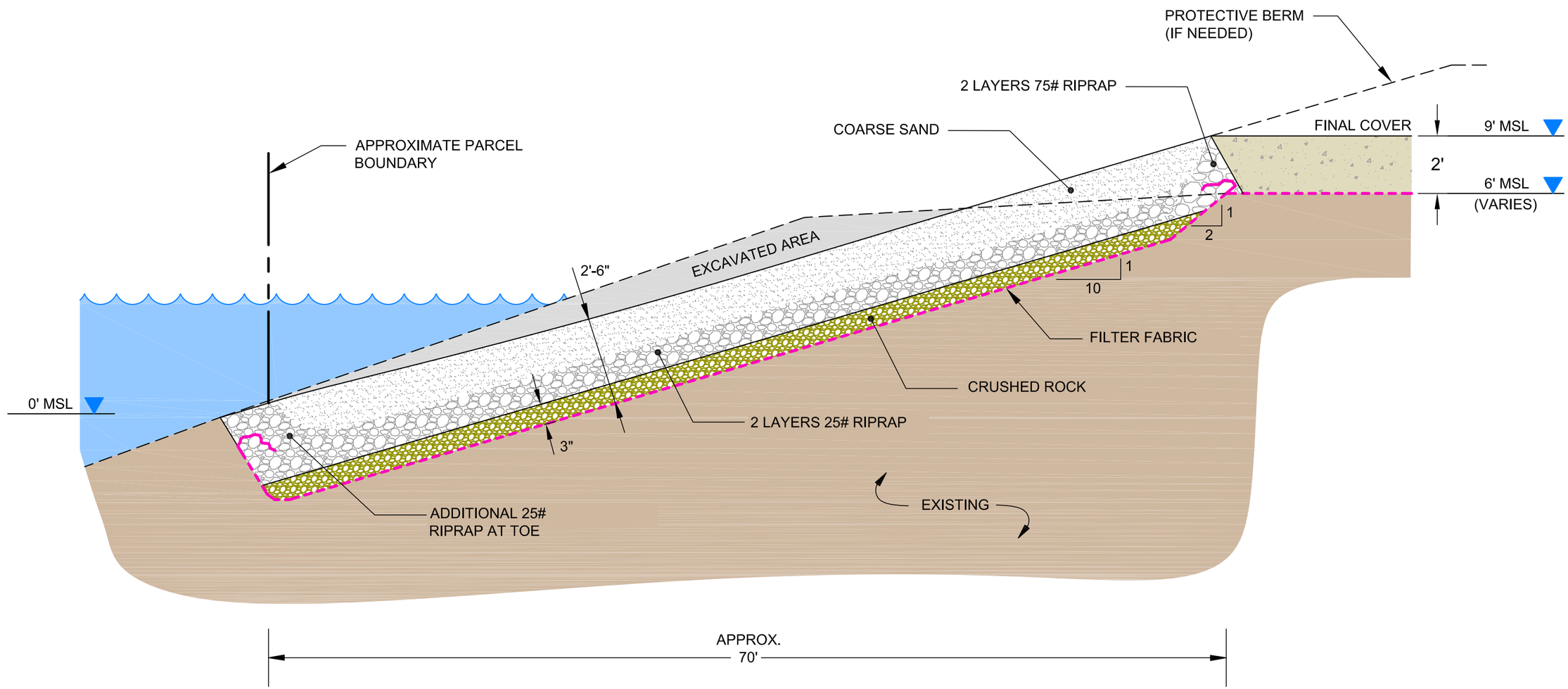

LEGEND:

	25# RIPRAP		SAN FRANCISCO BAY
	75# RIPRAP		EXCAVATED AREA
	CRUSHED ROCK		APPROXIMATE PARCEL BOUNDARY
	EXISTING MATERIAL		FILTER FABRIC
			APPROXIMATE EXISTING GRADE
	COARSE SAND	MSL	MEAN SEA LEVEL

NOT TO SCALE

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FIGURE D-5
CONCEPTUAL CROSS SECTION C
TYPICAL NATURAL SHORELINE
WITH UNDERLYING ROCK ARMOR

Feasibilty Study Report for Parcel E

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Tables

Table D-1. Initial Screening of Shoreline Protection Options
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Technology Type	Shoreline Protection Option	Description	Comments
Containment/ Shoreline Protection	Armoring	Protective Revetments	Install an erosion control structure consisting of riprap, large armor units, gabions, articulating concrete mats, or engineered concrete structures along the shoreline.	Retained for detailed evaluation. Rock revetment successfully implemented along HPS shoreline in the past.
		Seawalls	Install a massive concrete structure with its weight providing its stability. Prevents inland flooding from major storm events accompanied by large, powerful waves.	Eliminated High implementation cost. However, maintenance of existing seawalls may be incorporated as part of a shoreline protection alternative.
		Bulkheads	Install vertical retaining walls to hold or prevent soil from sliding seaward. Reduces land erosion and loss to the sea; does not mitigate coastal flooding or wave damage.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
	Structural Stabilization	Breakwaters	Install rock structure offshore or adjacent to headlands with crest above MHHW. Protects shore from large, powerful waves from major storm events.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Groins	Install narrow rock or timber structure(s) perpendicular to shoreline. Reduces erosion associated with longshore currents.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Nearshore Sills	Install narrow rock structure(s) parallel to shoreline with crest at or below MHHW. Rock may be substituted with natural material (such as oyster shells) and be combined with vegetation to reduce erosion from wave action.	Eliminated as stand-alone option[1] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.

Table D-1. Initial Screening of Shoreline Protection Options *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Technology Type	Shoreline Protection Option	Description	Comments
Containment/ Shoreline Protection *(cont.)*	Structural Stabilization *(cont.)*	Offshore Reefs	Install rock structure offshore with crest at or below MHHW. Rock may be substituted with natural material (such as oyster shells) and be combined with vegetation to reduce erosion from wave action.	Eliminated as stand-alone option[1] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
	Nonstructural Stabilization	Aquatic Vegetation (submerged or intertidal)	Plant aquatic vegetation either offshore or within intertidal zone. Reduces erosion from wave action.	Eliminated as stand-alone option[1] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
		Sand Fill (or other clean, imported soil type meeting design objectives)	Place soil to prevent direct exposure to contaminated shoreline sediment. May be combined with aquatic vegetation offshore and within intertidal zone to reduce erosion from wave action.	Eliminated as stand-alone option[1] Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs.
	Hybrid Stabilization	Natural Shoreline Materials with Offshore Reef	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock structure offshore[2], with crest at or below MHHW to reduce wave energy, and plant aquatic vegetation to reduce erosion potential.	Retained for detailed evaluation. Assumes that offshore reef and aquatic vegetation could be developed in a manner that adequately controls erosion potential in intertidal shoreline zone.
		Natural Shoreline Materials with Underlying Rock Armor	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock armoring layer under soil if wave action causes erosion of soil.	Retained for detailed evaluation. Stabilization options successfully implemented following removal action at Metal Debris Reef in 2007.

Table D-1. Initial Screening of Shoreline Protection Options *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Technology Type	Shoreline Protection Option	Description	Comments
Containment/ Shoreline Protection *(cont.)*	Shoreline Nourishment	Berms or Dunes	Place additional sand (in a berm or dune) at higher tidal elevations to protect onshore property and provide stabilizing soil source following storm-related erosion.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs. Difficult to implement at narrow Parcel E shoreline (substantial excavation would be required).
		Feeder Beach	Construct a wider beach to protect onshore property and provide stabilizing soil source following storm-related erosion.	Eliminated Would not fully contain shoreline sediment from potential wave-induced erosion and would not satisfy RAOs. Difficult to implement at narrow Parcel E shoreline (substantial excavation would be required).

Notes: Shaded stabilization options are eliminated from further detailed evaluation unless otherwise noted.

1. Eliminated as stand-alone stabilization option but may be incorporated with hybrid stabilization option.
2. Offshore reef consisting of rocks is identified as a representative structural element for this hybrid stabilization option; however, alternative structural elements may be proposed that meet the design objectives and provide equal (or superior) performance relative to effectiveness, implementability, and cost. Alternative structural elements may use natural materials (such as oyster shells) or may involve placing the structure closer to the shore (such as a nearshore sill). See Table D-2 for a more detailed evaluation of this option.

HPS = Hunters Point Shipyard

MHHW = mean higher high water

RAOs = remedial action objectives

Sources:

Atlantic States Marine Fisheries Commission, 2010. "Living Shorelines: Impacts of Erosion Control Strategies on Coastal Habitats." Habitat Management Series #10. J.C. Thomas-Blate, Editor. February. Available Online at: <http://www.asmfc.org/publications/habitat/hms10LivingShorelines.pdf>.

U.S. Army Corps of Engineers, 2006. "Coastal Engineering Manual." April.

Table D-2. Detailed Evaluation of Shoreline Protection Options
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

General Response Action	Technology Type	Shoreline Protection Option	Description	Effectiveness	Implementability	Cost	Comments
Containment/ Shoreline Protection	Armoring	Rock Revetment	Install an erosion control structure consisting of riprap, large armor units, gabions, articulating concrete mats, or engineered concrete structures along the shoreline.	• Provides a robust containment structure to control shoreline erosion and prevent exposure to contaminated sediments • Short-term effects could be managed through proper construction techniques • Inhibits pedestrian access and limits shoreline recreation • Not visually appealing • Comparable degree of ecological function relative to existing shoreline conditions	• Readily implementable • Would comply with ARARs • Minor long-term O&M	• About $142,000 to construct typical 100-foot shoreline section • Cost would apply to all sections of shoreline	Viable protection option for steep and narrow shoreline areas. Successfully implemented at similar shoreline area at HPS Parcel B (IR Site 07). Revetment design may be adjusted to incorporate localized, low-profile areas where soil and vegetation could be placed (for aesthetic considerations).
	Hybrid Stabilization	Natural Shoreline Materials with Offshore Reef	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock structure offshore[1], with crest at or below MHHW to reduce wave energy, and plant aquatic vegetation to reduce erosion potential.	• Low reliability in controlling erosion and preventing exposure to contaminated sediments • Construction of offshore reef would impact existing aquatic habitat • Limits access for shoreline recreation • Provides habitat for aquatic wildlife • Visually appealing • Improved ecological function relative to existing shoreline conditions; offshore reef would lessen ecological function of tidal flats	• Construction of offshore reef requires specialized labor and equipment • Construction of offshore reef may not comply with ARARs • Potentially significant long-term O&M	• About $261,000 to construct typical 100-foot shoreline section • Cost would apply to only gradually sloped and wide shoreline areas • Cost to implement in steep and narrow areas would be significantly higher	Not a viable protection option because of (1) low reliability in controlling erosion and preventing exposure to contaminated sediments, and (2) significant implementation issues related to constructing the offshore reef.
		Natural Shoreline Materials with Underlying Rock Armor	Place soil to prevent direct exposure to contaminated shoreline sediment. Install rock armoring layer under soil if wave action causes erosion of soil.	• Provides a robust protective structure to control shoreline erosion and prevent exposure to contaminated sediments • Short-term effects could be managed through proper construction techniques • Does not inhibit pedestrian access or limit shoreline recreation • Visually appealing • Improved ecological function relative to existing shoreline conditions	• Readily implementable • Would comply with ARARs • Potentially significant long-term O&M	• About $215,000 to construct typical 100-foot shoreline section • Cost would apply to only gradually sloped and wide shoreline areas • Cost to implement in steep and narrow areas would be significantly higher	Viable protection option for gradually sloped and wide shoreline areas. Stabilization option successfully implemented following removal action at Metal Debris Reef in 2007.

Notes: Only shoreline protection options retained for further evaluation (see Table D-1) are included in this table.

1 Offshore reef consisting of rocks is identified as a representative structural element for this hybrid stabilization option; however, alternative structural elements may be proposed that meet the design objectives and provide equal (or superior) performance relative to effectiveness, implementability, and cost. Alternative structural elements may use natural materials (such as oyster shells) or may involve placing the structure closer to the shore (such as a near-shore sill). This option was determined to not be a viable protection option for reasons unrelated to the material type and offshore location of the reef.

ARARs = applicable or relevant and appropriate requirements

HPS = Hunters Point Shipyard

MHHW = mean higher high water

O&M = operation and maintenance

Table D-3. Cost Detail for Rock Revetment Shoreline (Typical 100-Foot-Long Section)
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Production Rate (daily)	Duration (days)	Unit Price	Cost	Remarks
Excavate shoreline area to 2.5 feet bgs (excavator) in wet conditions	440	bcy	1000	1	$ 3.65	$ 1,604	Means 2010 Heavy Construction: 31 23 16.42 0250, plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Load excavated material (track loader) in wet conditions	440	bcy	1190	1	$ 2.58	$ 1,137	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material), plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Haul soil to secondary screening area (22 cy off-road hauler)	572	lcy	594	1	$ 3.58	$ 2,045	Means 2010 Heavy Construction: 31 23 23.20 5060
Debris handling to facilitate radiological screening (track loader)	44	bcy	10	5	$ 8.61	$ 379	Means 2010 Heavy Construction: 31 23 23.15 6070 (assumes debris is 10% of excavation volume, unit rate adjusted to reflect slower production rate)
Radiological screening	11,880	sf			$ 0.30	$ 3,564	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)
Soil analysis for disposal (4-point composite sample - 1 per 500 bcy)	1	each			$ 1,042.00	$ 1,042	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)
Load material for disposal (track loader)	440	bcy	1190	1	$ 1.72	$ 758	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material)
Transport and disposal of excavated material							
Class II Beneficial Reuse Soil to Altamont	208	ton			$ 38.82	$ 8,071	Assumed Fraction of Total Waste: 35%
Class II Soil to Altamont	149	ton			$ 72.42	$ 10,754	Assumed Fraction of Total Waste: 25%
Class I Non-RCRA Soil to Kettleman Hills	89	ton			$ 81.15	$ 7,230	Assumed Fraction of Total Waste: 15%
Class I RCRA Direct Landfill Soil to Kettleman Hills	59	ton			$ 130.04	$ 7,724	Assumed Fraction of Total Waste: 10%
Class I RCRA Stabilization Soil to Kettleman Hills	59	ton			$ 172.24	$ 10,231	Assumed Fraction of Total Waste: 10%
Disposal of radiologically impacted waste	30	ton			$ 120.00	$ 3,564	Assumed Fraction of Total Waste: 5%
Furnish and install crushed gravel	44	bcy	1190	1	$ 23.05	$ 1,014	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
Furnish and install geofabric	640	sy	2400	1	$ 4.30	$ 2,753	Means 2010 Heavy Construction: 31 32 19.16 1510, plus 50% for work in water
Furnish and install riprap armor [(1)]	290	lcy	62	5	$ 89.98	$ 26,093	Means 2010 Heavy Construction: 31 37 13.10 010, plus 25% for work in water
Furnish and install (spread) coarse sand	220	bcy	1190	1	$ 23.05	$ 5,072	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
Compact coarse sand	220	bcy	2300	1	$ 1.32	$ 291	Means 2010 Heavy Construction: 31 23 23.23 5020, plus 100% for work in water
Mobilization and demobilization	1	ls				$ 9,304	10% of costs
TOTAL (Per 100 lf of Shoreline)						$ 102,631	

Notes:
[(1)] The required weight for an individual armor unit is 72 pounds for a 2.3-foot wave on a 3:1 slope (Hudson Formula, U.S. Army Corps of Engineers, 1977. "Shore Protetion Manual.").
bcy = bank cubic yards
lcy = loose cubic yards
ls = lump sum
sf = square feet
sy = square yard

Table D-4. Cost Detail for Removal of Overburden (Typical 100-Foot-Long Section)
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Production Rate (daily)	Duration (days)	Unit Price	Cost	Remarks	
Excavate shoreline area (excavator)	300	bcy	1000	1	$ 2.43	$ 729	Means 2010 Heavy Construction: 31 23 16.42 0250	
Load excavated material (track loader)	300	bcy	1190	1	$ 1.72	$ 517	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material)	
Haul soil to secondary screening area (22 cy off-road hauler)	390	lcy	594	1	$ 3.58	$ 1,394	Means 2010 Heavy Construction: 31 23 23.20 5060	
Debris handling to facilitate radiological screening (track loader)	30	bcy	10	3	$ 8.61	$ 258	Means 2010 Heavy Construction: 31 23 23.15 6070 (assumes debris is 10% of excavation volume, unit rate adjusted to reflect slower production rate)	
Radiological screening	8,100	sf			$ 0.30	$ 2,430	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)	
Soil analysis for disposal (4-point composite sample - 1 per 500 cy)	1	each			$ 1,042.00	$ 1,042	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)	
Load material for disposal (track loader)	300	bcy	1190	1	$ 1.72	$ 517	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material)	
Transport and disposal of excavated material								
Class II Benificial Reuse Soil to Altamont	142	ton			$ 38.82	$ 5,503	Assumed Fraction of Total Waste:	35%
Class II Soil to Altamont	101	ton			$ 72.42	$ 7,333	Assumed Fraction of Total Waste:	25%
Class I Non-RCRA Soil to Kettleman Hills	61	ton			$ 81.15	$ 4,930	Assumed Fraction of Total Waste:	15%
Class I RCRA Direct Landfill Soil to Kettleman Hills	41	ton			$ 130.04	$ 5,267	Assumed Fraction of Total Waste:	10%
Class I RCRA Stabilization Soil to Kettleman Hills	41	ton			$ 172.24	$ 6,976	Assumed Fraction of Total Waste:	10%
Disposal of radiologically impacted waste	20	ton			$ 120.00	$ 2,430	Assumed Fraction of Total Waste:	5%
TOTAL (Per 100 lf of Shoreline)						$ 39,325		

Notes:
bcy = bank cubic yards
lcy = loose cubic yards
sf = square feet

Table D-5. Cost Detail for Natural Shoreline with Offshore Reef (Typical 100-Foot-Long Section)
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Production Rate (daily)	Duration (days)	Unit Price	Cost	Remarks
Excavate shoreline area to 2.5 feet bgs (excavator) in wet conditions	830	bcy	1000	1	$ 3.65	$ 3,026	Means 2010 Heavy Construction: 31 23 16.42 0250, plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Load excavated material (track loader) in wet conditions	830	bcy	1190	1	$ 2.58	$ 2,145	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material), plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Haul soil to secondary screening area (22 cy off-road hauler)	1,079	lcy	594	2	$ 3.58	$ 3,858	Means 2010 Heavy Construction: 31 23 23.20 5060
Debris handling to facilitate radiological screening (track loader)	83	bcy	10	9	$ 8.61	$ 715	Means 2010 Heavy Construction: 31 23 23.15 6070 (assumes debris is 10% of excavation volume, unit rate adjusted to reflect slower production rate)
Radiological screening	22,410	sf			$ 0.30	$ 6,723	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)
Soil analysis for disposal (4-point composite sample - 1 per 500 cy)	1	each			$ 1,042.00	$ 1,042	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)
Load material for disposal (track loader)	830	bcy	1190	1	$ 1.72	$ 1,430	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material)
Transport and disposal of excavated material							
Class II Benificial Reuse Soil to Altamont	392	ton			$ 38.82	$ 15,224	Assumed Fraction of Total Waste: 35%
Class II Soil to Altamont	280	ton			$ 72.42	$ 20,287	Assumed Fraction of Total Waste: 25%
Class I Non-RCRA Soil to Kettleman Hills	168	ton			$ 81.15	$ 13,639	Assumed Fraction of Total Waste: 15%
Class I RCRA Direct Landfill Soil to Kettleman Hills	112	ton			$ 130.04	$ 14,571	Assumed Fraction of Total Waste: 10%
Class I RCRA Stabilization Soil to Kettleman Hills	112	ton			$ 172.24	$ 19,299	Assumed Fraction of Total Waste: 10%
Disposal of radiologically impacted waste	56	ton			$ 120.00	$ 6,723	Assumed Fraction of Total Waste: 5%
Furnish and install (spread) coarse sand	830	bcy	1190	1	$ 23.05	$ 19,135	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
Compact coarse sand	830	bcy	2300	1	$ 1.32	$ 1,097	Means 2010 Heavy Construction: 31 23 23.23 5020, plus 100% for work in water
Planting	5	msf	5.2	1	$ 161.07	$ 805	Means 2010 Heavy Construction: 31 92 26.13 0130, plus 50% for work in water
Seeding (broadcast)	5	msf	5.2	1	$ 147.80	$ 739	Means 2010 Heavy Construction: 31 92 26.13 0220, plus 50% for work in water
Furnish and install geofabric	560	sy	2400	1	$ 4.30	$ 2,409	Means 2010 Heavy Construction: 31 32 19.16 1510, plus 50% for work in water
Furnish and install breakwater - core rock	350	lcy	62	6	$ 143.96	$ 50,386	Means 2010 Heavy Construction: 31 37 13.10 010, plus 100% for work in open water (barge)
Furnish and install breakwater - armor rock	140	lcy	62	3	$ 179.95	$ 25,193	Means 2010 Heavy Construction: 31 37 13.10 010, plus 150% for work in open water (barge)
Mobilization and demobilization	1	ls				$ 12,782	10% of costs
TOTAL (Per 100 lf of Shoreline)						$ 221,228	

Notes:
bcy = bank cubic yards
lcy = loose cubic yards
ls = lump sum
msf = metric square feet
sf = square feet
sy = square yard

Table D-6. Cost Detail for Natural Shoreline with Underlying Rock Armor (Typical 100-Foot-Long Section)
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Production Rate (daily)	Duration (days)	Unit Price	Cost	Remarks
Excavate shoreline area to 2.5 feet bgs (excavator) in wet conditions	830	bcy	1000	1	$ 3.65	$ 3,026	Means 2010 Heavy Construction: 31 23 16.42 0250, plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Load excavated material (track loader) in wet conditions	830	bcy	1190	1	$ 2.58	$ 2,145	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material), plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Haul soil to secondary screening area (22 cy off-road hauler)	1,079	lcy	594	2	$ 3.58	$ 3,858	Means 2010 Heavy Construction: 31 23 23.20 5060
Debris handling to facilitate radiological screening (track loader)	83	bcy	10	9	$ 8.61	$ 715	Means 2010 Heavy Construction: 31 23 23.15 6070 (assumes debris is 10% of excavation volume, unit rate adjusted to reflect slower production rate)
Radiological screening	22,410	sf			$ 0.30	$ 6,723	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)
Soil analysis for disposal (4-point composite sample - 1 per 500 cy)	1	each			$ 1,042.00	$ 1,042	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)
Load material for disposal (track loader)	830	bcy	1190	1	$ 1.72	$ 1,430	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material)
Transport and disposal of excavated material							
Class II Benificial Reuse Soil to Altamont	392	ton			$ 38.82	$ 15,224	Assumed Fraction of Total Waste: 35%
Class II Soil to Altamont	280	ton			$ 72.42	$ 20,287	Assumed Fraction of Total Waste: 25%
Class I Non-RCRA Soil to Kettleman Hills	168	ton			$ 81.15	$ 13,639	Assumed Fraction of Total Waste: 15%
Class I RCRA Direct Landfill Soil to Kettleman Hills	112	ton			$ 130.04	$ 14,571	Assumed Fraction of Total Waste: 10%
Class I RCRA Stabilization Soil to Kettleman Hills	112	ton			$ 172.24	$ 19,299	Assumed Fraction of Total Waste: 10%
Disposal of radiologically impacted waste	56	ton			$ 120.00	$ 6,723	Assumed Fraction of Total Waste: 5%
Furnish and install crushed gravel	83	bcy	1190	1	$ 23.05	$ 1,914	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
Furnish and install geofabric	1,110	sy	2400	1	$ 4.30	$ 4,774	Means 2010 Heavy Construction: 31 32 19.16 1510, plus 50% for work in water
Furnish and install riprap armor [(1)]	350	lcy	62	6	$ 89.98	$ 31,491	Means 2010 Heavy Construction: 31 37 13.10 010, plus 25% for work in water
Furnish and install (spread) coarse sand	530	bcy	1190	1	$ 23.05	$ 12,219	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
Compact coarse sand	530	bcy	2300	1	$ 1.32	$ 700	Means 2010 Heavy Construction: 31 23 23.23 5020, plus 100% for work in water
Mobilization and demobilization	1	ls				$ 15,908	10% of costs
TOTAL (Per 100 lf of Shoreline)						$ 175,689	

Notes:
[(1)] The required weight for an individual armor unit is 22 pounds for a 2.3-foot wave on a 10:1 slope (Hudson Formula, U.S. Army Corps of Engineers, 1977. "Shore Protetion Manual.").
bcy = bank cubic yards
lcy = loose cubic yards
ls = lump sum
sf = square feet
sy = square yard

Table D-7. Cost Summary of Shoreline Protection Options (Typical 100-Foot-Long Section)

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Option 1: Rock Revetment	**Quantity**	**Unit**	**Cost**
Radiological Screening			$ 3,943
Soil Excavation and Handling	440	cy	$ 4,787
Contaminated Soil Transportation and Disposal	594	tons	$ 49,375
Shoreline Protection Construction	100	lf	$ 44,526
Total per 100 Feet of Shoreline			$ 102,631
Option 2: Natural Shoreline with Offshore Reef	**Quantity**	**Unit**	**Cost**
Radiological Screening			$ 7,438
Soil Excavation and Handling	830	cy	$ 9,029
Contaminated Soil Transportation and Disposal	1,121	tons	$ 92,216
Shoreline Protection Construction	100	lf	$ 112,546
Total per 100 Feet of Shoreline			$ 221,228
Option 3: Natural Shoreline with Underlying Rock Armor	**Quantity**	**Unit**	**Cost**
Radiological Screening			$ 7,438
Soil Excavation and Handling	830	cy	$ 9,029
Contaminated Soil Transportation and Disposal	1,121	tons	$ 92,216
Shoreline Protection Construction	100	lf	$ 67,006
Total per 100 Feet of Shoreline			$ 175,689
Options 1, 2, and 3: Removal of Overburden	**Quantity**	**Unit**	**Cost**
Radiological Screening			$ 2,688
Soil Excavation and Handling	300	cy	$ 2,640
Contaminated Soil Transportation and Disposal	405	tons	$ 33,996
Shoreline Protection Construction	0	lf	$ -
Total per 100 Feet of Shoreline			$ 39,325

Notes:

cy = cubic yards

lf = linear feet

Table D-8. Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Coastal Zone Management Act (16 USC §§ 1451 through 1464) [b]		
15 CFR § 930.30	Conduct activities in a manner consistent with approved state management programs to the maximum extent practicable.	Remedial alternatives at Parcel E will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the approved state coastal zone management program. See Table D-9 for an evaluation relative to the substantive provisions of the approved state coastal zone management program (San Francisco Bay Plan).
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) [b]		
Restrictions on Discharge (40 CFR § 230.10)		
40 CFR § 230.10(a)	No discharge of dredged or fill material into waters of the United States shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.	The evaluation presented in Appendix D and Section 3 of the FS Report verifies that there is no practicable alternative to addressing site contaminants within the intertidal zones and wetlands at Parcel E in a manner that avoids disturbance (because, as described in Section D2, site characterization has identified contamination in the intertidal zones and wetlands requiring intrusive cleanup). The proposed remedial alternatives, except for the no action alternative, incorporate appropriate actions to minimize adverse impacts to waters of the United States.
40 CFR § 230.10(b)	No discharge of dredged or fill material shall be permitted if it: (1) causes or contributes to violations of any applicable state water quality standard; (2) violates any applicable toxic effluent standard or prohibition under CWA § 307; (3) jeopardizes the continued existence of, or results in the destruction or adverse modification of habitat associated with, endangered or threatened species under the FESA; or (4) violates any requirements to protect marine sanctuaries designated under the Marine Protection, Research and Sanctuaries Act.	The proposed excavation and backfilling, under the proposed remedial alternatives detailed in Section D5, would be performed with appropriate controls (e.g., clean import fill placed at low tide with silt curtains or other appropriate measures), so that no state water quality standards or applicable toxic effluent standards are violated. Ecological risk assessments performed at Parcel E have not identified any endangered or threatened species under the FESA. HPS and the adjoining offshore property is not a designated marine sanctuary.

Table D-8 Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) *(continued)* [b]		
Restrictions on Discharge (40 CFR § 230.10) (continued)		
40 CFR § 230.10(c)	No discharge of dredged or fill material shall be permitted that will cause or contribute to significant degradation of waters of the United States including: (1) significantly adverse effects of the discharge of pollutants on human health or welfare; (2) significantly adverse effects of the discharge of pollutants on aquatic wildlife and other wildlife dependent on aquatic ecosystems; (3) significantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity; and (4) significantly adverse effects of the discharge of pollutants on recreational, aesthetic, and economic values.	The excavation and backfilling within waters of the United States, under the proposed remedial alternatives detailed in Section 4 of the FS Report, are necessary to protect human health and the environment. Relative to the no action alternative, which would not protect human health and the environment, the proposed remedial alternatives would not cause or contribute to significant degradation of waters of the United States. See discussion below (and in Section D5) relative to the factual determinations specified at 40 CFR § 230.11.
40 CFR § 230.10(d)	No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem.	The proposed excavation and backfilling within waters of the United States, under the proposed remedial alternatives detailed in Section 4 of the FS Report, will incorporate appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem. See discussion below (and in Section D5) relative to the potential actions described at 40 CFR §§ 230.70 through 230.77.
Factual Determinations (40 CFR § 230.11 and 40 CFR § 230, Subparts C through F)		
40 CFR §§ 230.11(a) and 230.20	These sections identify specific information to be included in factual determinations regarding the nature and degree of effect the proposed discharge will have on the physical substrate.	The existing physical substrate consists of artificial fill placed during creation of Parcel E (during the 1940s). The artificial fill contains primarily sand and gravel but also includes construction and industrial waste. Past waste disposal activities are the primary source of chemical contamination (copper, lead, mercury, zinc, DDT, and PCBs at concentrations posing a risk to aquatic wildlife) within the existing shoreline sediment. The remedial alternatives include a combination of two shoreline protection options (as evaluated in Appendix D): (1) hybrid stabilization consisting primarily of clean imported sand and gravel that would be similar to the existing substrate, with supplemental rock to prevent erosion, and (2) rock revetment consisting of crushed rock overlain by riprap revetment. The alternatives would disturb the existing shoreline sediment; however, because existing sediment is contaminated and poses a risk to aquatic wildlife, the proposed alternatives would provide a net increase in environmental value.

Table D-8 Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) *(continued)* [b]		
Factual Determinations (40 CFR § 230.11 and 40 CFR § 230, Subparts C through F) (continued)		
40 CFR §§ 230.11(b) and 230.23 through 230.25	These sections identify specific information to be included in factual determinations regarding the nature and degree of effect the proposed discharge will have on the water circulation and fluctuation.	All discharges would be performed with appropriate controls (e.g., clean import fill placed at low tide with silt curtains or other appropriate measures), so that water chemistry, clarity, color, odor, taste, dissolved gas levels, nutrients, and salinity would not be affected by the proposed alternatives. In addition, the proposed discharges would not extend into tidal flats and thus would not significantly affect the current patterns, water circulation, or normal water fluctuations offshore of Parcel E.
40 CFR §§ 230.11(c) and 230.21	These sections identify specific information to be included in factual determinations regarding the nature and degree of effect the proposed discharge will have in terms of potential changes in suspended particulates and turbidity.	All discharges would be performed with appropriate controls (e.g., clean import fill placed at low tide with silt curtains or other appropriate measures), so there would be no significant change in suspended particulates and turbidity or dissolved oxygen offshore of Parcel E.
40 CFR §§ 230.11(d) and 230.22	These sections identify specific information to be included in factual determinations regarding the degree to which the discharged material will introduce, relocate, or increase contaminants.	All discharges would be performed with appropriate controls (e.g., clean import fill placed at low tide with silt curtains or other appropriate measures), so that inorganic or organic contaminants would not be introduced, relocated, or increased offshore of Parcel E.
40 CFR §§ 230.11(e), 230.31, and 230.32	These sections identify specific information to be included in factual determinations regarding the nature and degree of effect the proposed discharge will have on the structure and function of the aquatic ecosystem and organisms.	The proposed discharges would not extend into tidal flats and thus would not significantly affect the aquatic ecosystem offshore of Parcel E. In addition, the quality of the intertidal sediment to be excavated and replaced with revetment is degraded by chemical contamination (copper, lead, mercury, zinc, DDT, and PCBs) at concentrations posing a risk to aquatic wildlife. As a result, the proposed alternatives would provide a net increase in environmental value to the aquatic ecosystem.
40 CFR § 230.11(f)	These sections identify specific information to be included in factual determinations regarding the characteristics of the proposed disposal site as it relates to the dispersion of dredged or fill material in waters of the United States.	All discharges would be performed with appropriate controls (e.g., clean import fill placed at low tide with silt curtains or other appropriate measures), so no violations of water quality standards should occur. In addition, the proposed alternatives are needed to protect human health and the environment and to support the planned open space reuse along the shoreline of Parcel E.
40 CFR § 230.11(g)	These sections identify specific information to be included in factual determinations regarding the cumulative effects of the discharge on the aquatic ecosystem.	All discharges would be performed with appropriate controls (e.g., clean import fill placed at low tide with silt curtains or other appropriate measures), so no detrimental cumulative impacts to the aquatic ecosystem should occur. In addition, the proposed discharges would not extend into tidal flats and therefore would not significantly affect the mudflats offshore of Parcel E. The proposed alternatives evaluated for Parcel E would destroy on-site tidal wetlands; this loss is unavoidable because the on-site wetlands are collocated with chemical contamination requiring remedial action. The Navy proposed on-site mitigation (at the adjoining Parcel E-2) for the tidal marshes at HPS (Shaw Environmental, Inc., 2009).

Table D-8 Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) *(continued)* [b]		
Factual Determinations (40 CFR § 230.11 and 40 CFR § 230, Subparts C through F) (continued)		
40 CFR § 230.11(h)	These sections identify specific information to be included in factual determinations regarding the secondary (indirect) effects of the discharge on the aquatic ecosystem.	The proposed discharges are not expected to cause any adverse secondary effects to the aquatic ecosystem. The proposed alternatives would not significantly affect the current patterns, water circulation, or normal water fluctuations offshore of Parcel E, and would provide a net increase in environmental value to the aquatic ecosystem.
Actions to Minimize Adverse Effects (40 CFR § 230, Subpart H)		
40 CFR § 230.41	These sections identify specific information to be included in factual determinations regarding the effects of the discharge on wetlands.	The proposed alternatives evaluated for Parcel E would destroy on-site tidal and freshwater wetlands; this loss is unavoidable because the on-site wetlands are collocated with chemical contamination requiring remedial action. The Navy proposed on-site mitigation (at the adjoining Parcel E-2) for the tidal and freshwater wetlands at HPS (Shaw Environmental, Inc., 2009).
40 CFR § 230.42	These sections identify specific information to be included in factual determinations regarding the effects of the discharge on mudflats.	The proposed discharges would not extend into tidal flats and therefore would not significantly affect the mudflats offshore of Parcel E.
40 CFR § 230.53	These sections identify specific information to be included in factual determinations regarding the effects of the discharge on aesthetics.	The shoreline at Parcel E contains surface debris (consisting primarily of wood, concrete, and metal) that was placed during shipyard operations. The surface debris reduces the existing aesthetic value of the shoreline. The proposed remedial alternatives, although designed primarily to protect human health and the environment, would enhance the shoreline aesthetics relative to existing conditions.
40 CFR § 230.70	This section describes specific actions concerning the location of the discharge to minimize adverse impacts.	The contamination that extends into waters of the United States must be excavated and backfilled to protect human health and the environment. The location of the discharge cannot be changed.
40 CFR § 230.71	This section describes specific actions concerning the material to be discharged to minimize adverse impacts.	The backfill would consist of clean imported fill that meets chemical acceptance criteria (that are protective of human health and the environment).
40 CFR § 230.72	This section describes specific actions controlling the material after discharge to minimize adverse impacts.	The backfill material would be placed at low tide to minimize impact.
40 CFR § 230.73	This section describes specific actions affecting the method of discharge to minimize adverse impacts.	Silt curtains or other appropriate control measures would be installed offshore to confine suspended particulates and turbidity to a small area where settling can occur.
40 CFR § 230.74	This section describes specific actions related to technology to minimize adverse impacts.	Appropriate maintenance and operation of equipment would be performed, and workers would be trained to properly implement control measures that minimize adverse impacts to waters of the United States.

Table D-8 Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) *(continued)* [b]		
Actions to Minimize Adverse Effects (40 CFR § 230, Subpart H) (continued)		
40 CFR § 230.75	This section describes specific actions to minimize adverse impacts to plant and animal populations.	The existing shoreline habitat at Parcel E is of a low ecological value, primarily because chemical contamination poses a risk to aquatic wildlife. The proposed cleanup would create conditions that have a higher ecological value relative to existing conditions.
40 CFR § 230.76	This section describes specific actions to minimize adverse impacts on human use.	The existing shoreline conditions at Parcel E pose a risk to humans. The proposed cleanup and restoration are necessary to support the planned open space reuse along the shoreline of Parcel E, and would provide for shoreline access.
40 CFR § 230.77	These sections describe other specific actions to minimize adverse impacts.	Consistent with 40 CFR § 230.77(d), the environmental benefits of the proposed cleanup and restoration along the Parcel E shoreline outweigh the loss of the existing conditions, which are contaminated and of low ecological value.
Compensatory Mitigation for Losses of Aquatic Resources (40 CFR § 230, Subpart J)		
40 CFR § 230.93	This section identifies general requirements for compensatory mitigation to offset losses from unavoidable impacts to waters of the United States.	The remedial alternatives contemplate shoreline construction that would result in the discharge of fill material into on-site wetlands, the unavoidable loss of which would be mitigated by the Navy (at the adjoining Parcel E-2) in accordance with the substantive provisions of 40 CFR § 230.93. The Navy prepared a preliminary plan for the on-site mitigation of tidal and freshwater wetlands at HPS (Shaw Environmental, Inc., 2009). This preliminary plan will be refined, as appropriate, during the remedial design for Parcel E-2. The unavoidable loss of other (nonwetland) aquatic resources is not significant because: • The impact to nonwetland special aquatic sites is minimized because proposed discharges will not extend into tidal flats. • The existing shoreline habitat at Parcel E is of low ecological value, primarily because chemical contamination poses a risk to aquatic wildlife. • The proposed cleanup and wetlands restoration will create conditions that have a higher ecological value relative to existing conditions. As a result, no mitigation is required for other (nonwetland) aquatic resources at Parcel E that will be lost as part of the cleanup process.
40 CFR § 230.94(c)	This section identifies required content for mitigation plans, including ecological performance standards and monitoring requirements.	The Navy prepared a preliminary plan for the on-site mitigation of tidal and freshwater wetlands at the adjoining HPS Parcel E-2 (Shaw Environmental, Inc., 2009). This plan addresses the substantive provisions of 40 CFR § 230.94(c). This preliminary plan will be refined, as appropriate, during the remedial design for Parcel E-2.

Table D-8 Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) *(continued)* [b]		
Compensatory Mitigation for Losses of Aquatic Resources (40 CFR § 230, Subpart J)		
40 CFR § 230.95	This section specifies details regarding ecological performance standards that should be included in mitigation plans.	The Navy prepared a preliminary plan for the on-site mitigation of tidal and freshwater wetlands at the adjoining HPS Parcel E-2 (Shaw Environmental, Inc., 2009). This plan addresses the substantive provisions of 40 CFR § 230.95. This preliminary plan will be refined, as appropriate, during the remedial design for Parcel E-2.
40 CFR § 230.96	This section specifies details regarding ecological monitoring requirements that should be included in mitigation plans.	The Navy prepared a preliminary plan for the on-site mitigation of tidal and freshwater wetlands at the adjoining HPS Parcel E-2 (Shaw Environmental, Inc., 2009). This plan addresses the substantive provisions of 40 CFR § 230.96. This preliminary plan will be refined, as appropriate, during the remedial design for Parcel E-2.
40 CFR § 230.97	This section identifies the long-term management methods for compensatory mitigation projects.	Long-term management methods will be incorporated, as appropriate, into the site-specific mitigation plan to be prepared during the remedial design for Parcel E-2.
USACE Permits for Discharges into Waters of the United States (33 CFR Parts 320, 323, and 330)		
33 CFR § 320.4	Subsections 320.4(a) through 320.4(r) identify general policies for evaluating permit applications for proposed discharge of dredged or fill material into waters of the United States.	(a) *Public Interest Review:* The provisions of 33 CFR § 320.4(a) are procedural and therefore not substantive. The Navy's evaluation process includes regulatory review and public participation that satisfies the requirements of CERCLA and the NCP. (b) *Effect on Wetlands:* The proposed alternatives evaluated for Parcel E would destroy on-site tidal and freshwater wetlands; this loss is unavoidable because the on-site wetlands are collocated with chemical contamination requiring remedial action. The Navy proposed on-site mitigation (at the adjoining Parcel E-2) for tidal and freshwater wetlands at HPS (Shaw Environmental, Inc., 2009). (c) *Fish and Wildlife:* The proposed discharges would not extend into tidal flats and therefore would not significantly affect fish and wildlife offshore of Parcel E. In addition, the quality of the intertidal sediment to be excavated and replaced with revetment is degraded by chemical contamination (copper, lead, mercury, zinc, DDT, and PCBs) at concentrations posing a risk to aquatic wildlife. As a result, the proposed alternatives are needed to protect fish and other aquatic wildlife. (d) *Water Quality:* All discharges would be performed with appropriate controls (clean import fill placed at low tide with silt curtains or other appropriate measures), so that no violations of water quality standards should occur. (e) *Historic, Cultural, Scenic, and Recreational Values:* The proposed alternatives are needed to protect human health and the environment and to support the planned open space reuse of Parcel E. The Parcel E shoreline consists of artificial fill and does not contain any identified historic or cultural resources.

Table D-8 Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) *(continued)* [b]		
USACE Permits for Discharges into Waters of the United States (33 CFR Parts 320, 323, and 330) (continued)		
33 CFR § 320.4 *(continued)*	*(see above)*	(f) *Effects on Limits of Territorial Sea:* The proposed discharges would not extend into tidal flats and therefore would not significantly affect the coast line or base line from which the territorial sea is measured (ordinary low water level). (g) *Consideration of Property Ownership:* The onshore property at Parcel E and offshore property at Parcel F is owned by the Navy. (h) *Activities Affecting Coastal Resources:* The proposed alternatives comply with the substantive provisions of the CZMA and approved state coastal zone management program (see Table D-9). (i) *Activities Affecting Marine Sanctuaries:* HPS and the adjoining offshore property is not a designated marine sanctuary. (j) *Other Federal, State, or Local Requirements:* The provisions of 33 CFR § 320.4(j) are procedural and therefore not substantive. The Navy's evaluation process includes regulatory review to ensure compliance with the substantive provisions of other federal and state ARARs. (k) *Safety of Impoundment Structures:* The proposed alternatives do not include construction of an impoundment structure. (l) *Floodplain Management:* Parcel E is not located in a floodplain. (m) *Water Supply/Conservation:* Proposed alternatives do not affect water supply. (n) *Energy Conservation and Development:* The proposed alternatives do not involve energy conservation or development. (o) *Navigation:* The proposed discharges would not extend into tidal flats and therefore would not significantly affect navigation. (p) *Environmental Benefits:* The proposed alternatives would disturb the existing shoreline sediment; however, because existing sediment is contaminated and poses a risk to aquatic wildlife, the proposed alternatives would provide a net benefit to the environment. (q) *Economics:* The provisions of 33 CFR § 320.4(q) apply only to activities performed by private entities, and do not apply to the cleanups activities to be performed by the Navy. *(r)* *Mitigation:* The proposed alternatives incorporate actions to (1) minimize impacts to special aquatic sites by not extending the discharge into tidal flats; (2) minimize adverse effects as required in 40 CFR Part 230, Subpart H; and (3) compensate for unavoidable loss of significant aquatic resources (tidal and freshwater wetlands). The Navy's mitigation approach was previously discussed under heading for 40 CFR Part 230, Subpart J.

Table D-8 Evaluation of Shoreline Area and Adjacent Wetlands based on Federal ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
Clean Water Act, as Amended, § 404 (Title 33 USC § 1344) *(continued)* [b]		
USACE Permits for Discharges into Waters of the United States (33 CFR Parts 320, 323, and 330) (continued)		
33 CFR § 330.1(e)(3)	This section specifies that, for discharges into wetlands, the notification process include a wetlands delineation. If the adverse impacts to wetlands are more than minimal, the permittee may be required to mitigate the wetland loss.	A wetlands delineation was performed in 2001 and 2002, and was submitted to USACE for review to ensure technical adequacy and compliance with all substantive requirements (Tetra Tech EM Inc., 2003). USACE responded, on July 30, 2003, that it had no comments. The Navy's mitigation approach was previously discussed under heading for 40 CFR Part 230, Subpart J.

Notes:

a Only the substantive provisions of the requirements cited in this table are ARARs.

b Statutes and policies and their citations are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statues and policies does not indicate that the Navy accepts the entire statute or policy as ARARs. Specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

§ = Section
§§ = Sections
ARARs = applicable or relevant and appropriate requirements
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CWA = Coastal Water Act
CZMA = Coastal Zone Management Act
DDT = dichlorodiphenyltrichloroethane
FESA = Federal Endangered Species Act
FS = Feasibility Study
HPS = Hunters Point Shipyard
Navy = Department of the Navy
NCP = National Oil and Hazardous Substances Pollution Contingency Plan
PCBs = polychlorinated biphenyls
USACE = U.S. Army Corps of Engineers
USC = United States Code

Sources:

Shaw Environmental, Inc., 2009. "Final Wetlands Mitigation and Monitoring Plan, Parcels B, E, and E-2, Hunters Point Shipyard, San Francisco, California." December.

Tetra Tech EM Inc., 2003. "Parcel E Nonstandard Data Gaps Investigation Wetlands Delineation and Functions and Values Assessment, Hunters Point Shipyard, San Francisco, California." August 14.

Table D-9. Evaluation of Shoreline Area and Adjacent Wetlands based on State ARARs
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
McAteer-Petris Act (California Government Code §§ 66600 through 66661) [b]		
Bay Plan at Cal. Code Regs, tit. 14, §§ 10110 through 11990	Reduce fill and disposal of dredged material in San Francisco Bay, maintain marshes and mudflats to the fullest extent possible to conserve wildlife, abate pollution, and protect the beneficial uses of the San Francisco Bay.	The Bay Plan, developed under the authority of the McAteer-Petris Act, is an approved state coastal zone management program. The proposed remedial alternatives for Parcel E will be consistent with the enforceable policies of the Bay Plan to the maximum extent practicable. The remainder of this table identifies the substantive provisions of the McAteer-Petris Act and the Bay Plan, and presents specific information to support this determination.
Part III of Bay Plan (Findings and Policies Concerning Tidal Marshes and Tidal Flats around the Bay, Policies 1 and 5)	Tidal marshes and tidal flats should be conserved to the fullest possible extent. Projects harming tidal marshes and tidal flats should be allowed only for purposes providing substantial public benefits and only if there is no feasible alternative. Restoration projects should include a monitoring program with biological and physical goals and success criteria.	The evaluation presented in Appendix D and Section 3 of the FS Report verifies that there is no practicable alternative to addressing site contaminants within the intertidal zones and wetlands at Parcel E in a manner that avoids disturbance (because, as described in Section D2, site characterization has identified contamination in the intertidal zones and wetlands requiring intrusive cleanup). The proposed remedial alternatives, except for the no action alternative, incorporate appropriate actions to minimize adverse impacts to San Francisco Bay. The remedial alternatives evaluated for Parcel E (Sections 3, 4, and 5 of FS Report) involve varying degrees of excavation of contaminated sediment to protect human health and the environment. In addition, the remedial alternatives evaluated for Parcel E would destroy on-site tidal marshes, the loss of which would be mitigated by the Navy at the adjoining Parcel E-2. The Navy proposed on-site mitigation for the tidal marshes at HPS, including the tidal marshes at Parcel E (Shaw Environmental, Inc., 2009). Damage to on-site tidal flats would be avoided because excavation would not extend into shoreline areas located below mean sea level.
Part III of Bay Plan (Findings and Policies Concerning Subtidal Areas in the Bay, Policies 1 and 2)	Filling or dredging in subtidal areas should be designed to minimize and, if feasible, avoid any harmful effects. Projects harming subtidal areas with an abundance and diversity of aquatic wildlife should be allowed only for purposes providing substantial public benefits and only if there is no feasible alternative.	No filling is proposed in subtidal areas (defined in the Bay Plan as the land and water below mean low tide) as part of the proposed remedial alternatives for Parcel E.
Part IV of Bay Plan (Findings and Policies Concerning Safety of Fills in the Bay, Policies 4 and 5)	To prevent damage by flooding, shoreline structures should be designed to consider future rise in sea level and subsidence for the expected life of the project.	Following excavation of contaminated shoreline sediment, shoreline protection features would be installed to prevent erosion and protect the integrity of the remedial action. The remedial alternatives evaluated in the FS Report include shoreline protection features that are integrated with the elevations of the upland portions of Parcel E. The resulting conceptual designs, which will be refined in the remedial design following remedy selection in the ROD, are adequate to protect inland property from extreme high water levels associated with a 100-year return period and also considered potential subsidence. The conceptual design of the shoreline protection, as integrated with the upland soil cover, provides an adequate degree of protection for future sea level rise.

Table D-9 Evaluation of Shoreline Area and Adjacent Wetlands based on State ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
McAteer-Petris Act (California Government Code §§ 66600 through 66661) [b] *(continued)*		
Part IV of Bay Plan (Findings and Policies Concerning Shoreline Protection around the Bay, Policies 2, 3 and 4)	Riprap revetments should be constructed of properly sized and placed material. Protective projects should be maintained to ensure that the shoreline will be protected from tidal erosion. Protective projects should include nonstructural methods such as marsh vegetation where feasible.	Appendix D evaluates a range of shoreline protection options, and identifies hybrid stabilization (using both structural and nonstructural shoreline protection features) and rock revetment as the two options to be incorporated into the remedial alternatives evaluated in the FS Report. The conceptual designs identified in Appendix D, which will be refined in the remedial design following remedy selection in the ROD, are adequate to prevent tidal erosion.
Part IV of Bay Plan (Findings and Policies Concerning Fills in Accord with the Bay Plan, Policy 1)	Fills in accordance with the Bay Plan should be the minimum necessary to achieve its purpose and meet one of the following criteria outlined in Bay Plan policies: (a) filling supports bay-related purposes; (b) filling is needed for infrastructure for which there is no other alternative; or (c) filling is minor and needed to improve shoreline appearance or public access.	The remedial alternatives evaluated for Parcel E (Sections 3, 4, and 5 of FS Report) involve varying degrees of excavation of contaminated sediment to protect human health and the environment that require minor filling of on-site tidal marshes, the loss of which would be mitigated by the Navy, and the bay. The excavation and associated backfilling is the minimum required to protect human health and the environment and is needed to support future open space reuse of Parcel E.
Cal. Code Regs, tit. 14, § 10700	Minor fill to improve shoreline appearance is permissible if (A1) the fill is necessary because the present appearance adversely affects the enjoyment of the Bay and its shoreline; (A2) it is either physically impractical or economically infeasible to improve the appearance without filling; (B) the amount of filling is the minimum necessary to improve shoreline appearance; (C) the proposed project would improve the shoreline appearance; and (D) the fill would not adversely affect enjoyment of the bay and its shoreline, and the fill would not have any adverse effect on present or future use designated in the Bay Plan.	The shoreline construction activities evaluated for Parcel E constitute minor fill based on the following statements: (A1) The shoreline at Parcel E contains surface debris (consisting primarily of wood, concrete, and metal) and chemical contamination that adversely affects its potential recreational value. (A2) The evaluation presented in Appendix D and Section 3 of the FS Report verifies that it is physically impractical to address site contaminants and collocated debris within the intertidal zones and wetlands at Parcel E in a manner that avoids filling (because, as described in Section D2, site characterization has identified contamination and collocated debris in the intertidal zones and wetlands requiring intrusive cleanup). (B) The excavation and associated backfilling is the minimum required to achieve the design objectives which, although developed primarily to protect human health and the environment, also serve to improve the shoreline appearance. (C) The proposed remedial alternatives, although designed primarily to protect human health and the environment, would enhance the shoreline appearance relative to existing conditions. (D) The proposed remedial alternatives, except for the no action alternative, incorporate appropriate actions to ensure that, relative to existing site conditions, the proposed filling would not adversely affect the present or future use of the bay or its shoreline.

Table D-9 Evaluation of Shoreline Area and Adjacent Wetlands based on State ARARs *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Citation [a]	Requirement [a]	Information in Support of Evaluation
McAteer-Petris Act (California Government Code §§ 66600 through 66661) [b] *(continued)*		
Part IV of Bay Plan (Findings and Policies Concerning Mitigation, Policies 1, 2, and 4 through 7)	Measures to compensate for unavoidable adverse impacts to natural resources of the bay should be required. Mitigation projects should be sited as close to the impact site as practicable. The amount and type of mitigation should be based on an analysis of the probability of success of the mitigation project, the expected delay between the impact and the functioning mitigation site, and the type and quality of ecological functions of the mitigation site compared with the impacted site.	The evaluation presented in Appendix D and Section 3 of the FS Report verifies that there is no practicable alternative to addressing site contaminants within the intertidal zones and wetlands at Parcel E in a manner that avoids disturbance (because, as described in Section D2, site characterization has identified contamination in the intertidal zones and wetlands requiring intrusive cleanup). As a result, the remedial alternatives evaluated for Parcel E would destroy on-site tidal marshes, the loss of which would be mitigated by the Navy. The Navy proposed on-site mitigation for the tidal marshes at adjoining HPS Parcel E-2 (Shaw Environmental, Inc., 2009). Damage to other natural resources of the bay, including on-site tidal flats, would be avoided because excavation would not extend into shoreline areas located below mean sea level. The Navy will perform mitigation in accordance with the substantive provisions of 40 CFR Part 230, 33 CFR Part 320, and Part IV of the San Francisco Bay Plan.

Notes:

a Only the substantive provisions of the requirements cited in this table are ARARs.

b Statutes and policies and their citations are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statues and policies does not indicate that the Navy accepts the entire statute or policy as ARARs. Specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs

§ = Section
§§ = Sections
ARAR = Applicable or relevant and appropriate requirement
Bay Plan = San Francisco Bay Plan
Cal. Code Regs. = California Code of Regulations
CFR = Code of Federal Regulations
FS = Feasibility Study
HPS = Hunters Point Shipyard
Navy = Department of the Navy
ROD = record of decision
tit. = Title

Sources:

Shaw Environmental, Inc., 2009. "Final Wetlands Mitigation and Monitoring Plan, Parcels B, E, and E-2, Hunters Point Shipyard, San Francisco, California." December.

Appendix E. Remedial Alternatives Cost Estimates

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Table E-59. Alternative N-5 – Dewatering (and Treatment) Volume
Table E-60. Alternative N-6 – Capital Cost Detail
Table E-61. Alternative N-6 – Production Rate Assumptions
Table E-62. Alternative N-6 – Radiological Screening Assumptions
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Table E-64. NAPL Alternatives – Soil Laboratory Analyses Cost Detail
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Table E-66. NAPL Alternatives – Monitoring Well Installation Cost Detail
Table E-67. NAPL Alternatives – General Labor Classifications and Rates
Table E-68. NAPL Alternatives – In-Situ Bioremediation Monitoring and Monitored Natural Attenuation Cost Detail
Table E-69. NAPL Alternatives – Long-Term Groundwater Monitoring Cost Detail
Table E-70. NAPL Alternatives – Institutional Controls Cost Detail
Table E-71. NAPL Alternatives – Geosynthetic Liner Cost Detail

Acronyms and Abbreviations

ECHOS	Environmental Cost Handling Options and Solutions
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
NAPL	nonaqueous-phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OMB	Office of Management and Budget
OSWER	Office of Solid Waste and Emergency Response
O&M	operation and maintenance
PV	present value

Section E1. Introduction

This appendix presents cost estimates of the alternatives developed and evaluated for remediation of soil and sediment, groundwater, and nonaqueous-phase liquid (NAPL) at Parcel E, Hunters Point Shipyard in San Francisco, California. Alternatives S-1, GW-1, and N-1 are the no action alternatives for soil and sediment, groundwater, and NAPL, respectively; thus, they have no costs associated with their implementation and do not necessitate any formal cost documentation. Soil and sediment at Parcel E has five remedial alternatives, including Alternative S-1. Groundwater at Parcel E also has five remedial alternatives, including Alternative GW-1. Alternatives GW-3A, GW-3B, and GW-4 include different options for treatment of volatile organic compounds at the Building 406 Trichloroethene Plume. NAPL at Parcel E has seven remedial alternatives, including Alternative N-1. Alternatives N-4A and N-4B include different options to treat residual contamination remaining in the subsurface, after source removal by thermally enhanced NAPL extraction.

This appendix describes the methodology used to prepare these estimates. Following the text are tables documenting the estimated costs. The tables are organized as follows:

- Tables E-1 through E-26 present the estimated costs for soil and sediment Alternatives S-2 through S-5
- Tables E-27 through E-44 present the estimated costs for groundwater Alternatives GW-2, GW-3A, GW-3B, and GW-4
- Tables E-45 through E-71 present the estimated costs for NAPL Alternatives N-2, N-3, N-4A,N-4B, N-5, and N-6

Cost estimates were prepared in accordance with U.S. Environmental Protection Agency (EPA) guidance entitled "A Guide to Developing and Documenting Cost Estimates during the Feasibility Study" (EPA, 2000).

Section E2. Purpose of Estimates

Cost estimates developed for the detailed analysis of each alternative are used for comparative purposes in the Feasibility Study (FS) and to ultimately support remedy selection in the Record of Decision. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) includes the following language in its description of the cost criterion for the detailed analysis and remedy selection:

> "The types of costs that shall be assessed include the following: 1) Capital costs, including both direct and indirect costs; 2) Annual operations and maintenance costs; and 3) Net present value of capital and operation and maintenance (O&M) costs (Title 40 Code of Federal Regulations, Section 300.430 [e][9][iii][G])."

Accordingly, the estimates for each of the alternatives have been divided into these three main categories.

The costs presented in this appendix have an estimated accuracy of plus 50 percent to minus 30 percent in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 guidelines for conducting FSs (EPA, 1988).

Section E3. Cost Estimate Methodology

For the most part, costs were developed using the Environmental Cost Handling Options and Solutions (ECHOS) cost database developed by the RS Means Company, Inc. The ECHOS publications used were the *Environmental Remediation Cost Data – Assemblies, 11th Annual Edition* and *Environmental Remediation Cost Data – Unit Price, 11th Annual Edition*, which provide unit and assembly costs for activities specific to remediation projects (RS Means Company, Inc., 2005a and 2005b). ECHOS is maintained and published by the RS Means Company, Inc.

Costs were also developed using the RS Means Company, Inc. publication *Heavy Construction Cost Data, 23rd Annual Edition*, which provides unit and assembly costs for activities specific to heavy construction projects (RS Means Company, Inc., 2009).

Costs provided in the RS Means Company, Inc. publications are national averages. These average costs were adjusted for local labor, material, and equipment costs. The costs do not reflect project safety levels, project management, project design, project oversight, contingencies, or profit. Means provides guidelines for applying design, oversight, contingency, overhead and profit; for relating national-average unit costs to specific regions of the country; and for applying markups related to site safety levels.

Costs for the unique characteristics of some elements of the remediation alternatives, that are not included in the RS Means Company, Inc. publications, were estimated based on vendor quotes and professional judgment. Spreadsheets were used to tabulate annual costs for each alternative and present value.

Section E4. Cost Estimate Components

Cost estimates for the remedial alternatives include capital costs, annual O&M costs, and periodic costs. Costs are presented as present worth and as present value (PV) to consider the PV calculated based on a discount factor. Each of these costs is discussed in further detail in the following subsections.

E4.1. CAPITAL COSTS

Capital costs include direct and indirect costs. Costs incurred for equipment, material, labor, construction, development, and implementation of remedial technologies are included as direct costs. Indirect costs include health and safety supplies, site supervision, engineering oversight, overhead, profit, and start up. Indirect costs are included in the estimate as either a separate line item or as a percentage of the direct capital cost.

E4.2. ANNUAL OPERATION AND MAINTENANCE AND PERIODIC COSTS

Annual O&M costs include costs incurred after construction. These costs are necessary to ensure the effectiveness of a remedial action. Annual O&M costs typically include operating labor, consumable materials, purchased services (e.g., laboratory analyses), equipment replacement, maintenance, sampling, permit fees, annual reports, and site reviews.

Periodic costs occur once every few years or once during the entire O&M period. Examples include periodic reviews, equipment replacement or rehabilitation, site closeout, and remedy failure and replacement. Periodic reviews include 5-year reviews, as required by the NCP; however, because 5-year reviews are performed for all of Hunters Point Shipyard under the environmental restoration program, these costs are a small component of the periodic costs. A small incremental cost was added to the annual O&M costs for each alternative to account for the 5-year reviews.

E4.3 PRESENT VALUE ANALYSIS

Remedial action projects typically involve construction costs that are expended at the beginning of a project (capital costs) and costs in subsequent years (O&M and periodic costs). PV analysis is a method to evaluate expenditures that occur over different periods of time. This standard methodology allows for cost comparisons of different remedial alternatives on the basis of a single cost figure for each alternative. This single value, referred to as the PV, is the amount needed to be set aside at the initial point in time

(base year) to ensure that funds will be available in the future as they are needed. PV analysis uses a discount rate and period of analysis to calculate the PV of each expenditure.

E4.3.1 Discount Rate

A discount rate is the difference between interest and inflation rates. When inflation is neglected, the discount rate is simply an interest rate and is used to account for the time value of money. A dollar is worth more today than in the future because, if invested today, the dollar would earn interest. The choice of a discount rate is important because the selected rate directly affects the PV of a cost estimate, which is then used in making a remedy selection decision.

EPA policy on the use of discount rates for cost analysis is stated in the preamble to the NCP (55 Federal Register 8722) and in Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-20 (EPA, 1993). Discount rates used in economic analysis by the federal government are specified in the Office of Management and Budget (OMB) Circular A-94 (OMB, 1992). The current real discount rate for a 30-year stream of payments is 2.7 percent, as specified by OMB Circular No. A-94, Appendix C, Revised December 2008 (OMB, 2008). A real discount rate is a forecast of real interest rates from which the inflation premium has been removed and based on the economic assumptions from the current fiscal year's budget. Real rates are to be used for discounting real (constant-dollar) flows, as is often required in cost-effectiveness analyses.

E4.3.2 Present Value

The PV of a series of equal annual future payments, such as annual O&M payments, is calculated using the following equation:

$$PV = \sum_{t=1}^{n} \frac{x_t}{(1+i)^t}$$

where

PV	=	present value
x_t	=	payment in year t (t = 0 for present or base year)
i	=	discount factor
t	=	number of years following construction that expenditure start
n	=	number of years that the stream of equal annual future payments will run

The PV of a single periodic future payment is calculated using the following equation:

$$PV = \frac{x_t}{(1+i)^t}$$

where

PV	=	present value
x_t	=	payment in year t (t = 0 for present or base year)
i	=	discount factor
t	=	number of years following construction that expenditure occur

The PV of a remedial alternative represents the sum of the PVs of all future payments associated with the project. The PV for this cost estimate is determined using present dollars.

E4.4 CONTINGENCY ALLOWANCES

Contingency allowances are included in cost estimates to cover unknowns or unanticipated conditions associated with construction and O&M activities. Contingency is typically added as a percentage to the total cost of those activities. A common approach is to assign a contingency percentage to FS costs based on engineering judgment (EPA, 2000). A contingency allowance of 20 percent was included in each alternative's cost estimate. The assigned 20-percent contingency is consistent with EPA guidance for developing cost estimates for FSs (EPA, 2000)

Section E5. References

Office of Management and Budget (OMB), 1992. Circular No. A-94, Revised. "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs." October 29. Available Online at: <http://www.whitehouse.gov/omb/circulars/a094/a094.html>.

OMB, 2008. Circular No. A-94, Revised. "Appendix C, Discount Rates for Cost-Effectiveness, Lease Purchase, and Related Analyses." December. Available Online at: <http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html>.

RS Means Company, Inc., 2005a. *Environmental Remediation Cost Data – Assemblies, 11th Annual Edition*. Kingston, Massachusetts.

RS Means Company, Inc., 2005b. *Environmental Remediation Cost Data – Unit Price, 11th Annual Edition*. Kingston, Massachusetts.

RS Means Company, Inc., 2009. *Heavy Construction Cost Data – 23rd Annual Edition*. Kingston, Massachusetts.

U.S. Environmental Protection Agency (EPA), 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under Comprehensive Environmental Response, Compensation, and Liability Act." Interim Final. Office of Solid Waste and Emergency Response. Washington, DC. October.

EPA, 1993. Memorandum: Revisions to OMB Circular A-94 on Guidelines and Discount for Benefit-Cost Analysis. OSWER 9355.3-20. June 25.

EPA, 2000. "A Guide to Developing and Documenting Cost Estimates during the Feasibility Study." EPA 540-R-00-002, OSWER 9355.0-75. July.

Tables

Table E-1. Soil and Sediment Alternatives Cost Estimate Summary

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternative	Total Capital Cost	Total O&M Cost	Total Periodic Cost	Period of Analysis[2]	Total Cost[3]	Present Value[4]
S-1	$ -	$ -	$ -	32 years	$ -	$ -
S-2	$ 24,549,979	$ 2,841,789	$ 5,568,652	32 years	$ 39,552,503	$ 35,184,308
S-3	$ 36,066,261	$ 2,841,789	$ 5,471,677	32 years	$ 53,255,671	$ 48,719,497
S-4	$ 37,311,751	$ 2,841,789	$ 5,471,677	32 years	$ 54,750,260	$ 50,190,697

Notes:

[1] Appended tables summarize backup calculations for all cost estimates provided

[2] Period of analysis assumes the base year is 2010

[3] Total cost includes a 20 percent contingency factor

[4] Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html

Table E-2. Alternative S-2 - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 10,007,192	$ -	$ -	$ 10,007,192	$ 12,008,630	1.000	$ 12,008,630	Design, ICs, permitting, fuel line removal, steam line closure and removal, shoreline revetment, asphalt covers, GCL covers, and soil covers
1	$ 14,542,787	$ -	$ -	$ 14,542,787	$ 17,451,344	0.974	$ 16,992,545	
2	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.948	$ 107,773	Annual inspection and maintained landscaping
3	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.923	$ 104,940	Annual inspection and maintained landscaping
4	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.899	$ 102,181	Annual inspection and maintained landscaping
5	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.875	$ 99,495	Annual inspection and maintained landscaping
6	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.852	$ 155,420	5-Year review, annual inspection, and maintained landscaping
7	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.830	$ 94,332	Annual inspection and maintained landscaping
8	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.808	$ 91,852	Annual inspection and maintained landscaping
9	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.787	$ 89,437	Annual inspection and maintained landscaping
10	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.766	$ 87,086	Annual inspection and maintained landscaping
11	$ -	$ 94,726	$ 1,798,977	$ 1,893,704	$ 2,272,444	0.746	$ 1,695,190	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
12	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.726	$ 82,567	Annual inspection and maintained landscaping
13	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.707	$ 80,396	Annual inspection and maintained landscaping
14	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.689	$ 78,283	Annual inspection and maintained landscaping
15	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.671	$ 76,225	Annual inspection and maintained landscaping
16	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.653	$ 119,070	5-Year review, annual inspection, and maintained landscaping
17	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.636	$ 72,269	Annual inspection and maintained landscaping
18	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.619	$ 70,369	Annual inspection and maintained landscaping
19	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.603	$ 68,519	Annual inspection and maintained landscaping
20	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.587	$ 66,718	Annual inspection and maintained landscaping
21	$ -	$ 94,726	$ 1,798,977	$ 1,893,704	$ 2,272,444	0.572	$ 1,298,715	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
22	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.556	$ 63,256	Annual inspection and maintained landscaping
23	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.542	$ 61,593	Annual inspection and maintained landscaping
24	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.528	$ 59,974	Annual inspection and maintained landscaping
25	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.514	$ 58,397	Annual inspection and maintained landscaping
26	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.500	$ 91,221	5-Year review, annual inspection, and maintained landscaping
27	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.487	$ 55,367	Annual inspection and maintained landscaping
28	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.474	$ 53,911	Annual inspection and maintained landscaping
29	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.462	$ 52,494	Annual inspection and maintained landscaping
30	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.450	$ 51,114	Annual inspection and maintained landscaping
31	$ -	$ 94,726	$ 1,798,977	$ 1,893,704	$ 2,272,444	0.438	$ 994,969	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
TOTALS	**$ 24,549,979**	**$ 2,841,789**	**$ 5,568,652**	**$ 32,960,419**	**$ 39,552,503**		**$ 35,184,308**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30-year (or greater) duration, as specified for federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-3. Alternative S-3 - Cash Flow Analysis
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	OandM Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 14,668,544	$ -	$ -	$ 14,668,544	$ 17,602,253	1.000	$ 17,602,253	Design, ICs, permitting, fuel line removal, steam line closure and removal, shoreline revetment, asphalt covers, GCL covers, soil covers, and hot spot removal
1	$ 21,397,716	$ -	$ -	$ 21,397,716	$ 25,677,260	0.974	$ 25,002,200	
2	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.948	$ 107,773	Annual inspection and maintained landscaping
3	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.923	$ 104,940	Annual inspection and maintained landscaping
4	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.899	$ 102,181	Annual inspection and maintained landscaping
5	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.875	$ 99,495	Annual inspection and maintained landscaping
6	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.852	$ 155,420	5-Year review, annual inspection, and maintained landscaping
7	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.830	$ 94,332	Annual inspection and maintained landscaping
8	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.808	$ 91,852	Annual inspection and maintained landscaping
9	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.787	$ 89,437	Annual inspection and maintained landscaping
10	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.766	$ 87,086	Annual inspection and maintained landscaping
11	$ -	$ 94,726	$ 1,766,652	$ 1,861,379	$ 2,233,654	0.746	$ 1,666,253	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
12	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.726	$ 82,567	Annual inspection and maintained landscaping
13	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.707	$ 80,396	Annual inspection and maintained landscaping
14	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.689	$ 78,283	Annual inspection and maintained landscaping
15	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.671	$ 76,225	Annual inspection and maintained landscaping
16	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.653	$ 119,070	5-Year review, annual inspection, and maintained landscaping
17	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.636	$ 72,269	Annual inspection and maintained landscaping
18	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.619	$ 70,369	Annual inspection and maintained landscaping
19	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.603	$ 68,519	Annual inspection and maintained landscaping
20	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.587	$ 66,718	Annual inspection and maintained landscaping
21	$ -	$ 94,726	$ 1,766,652	$ 1,861,379	$ 2,233,654	0.572	$ 1,276,546	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
22	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.556	$ 63,256	Annual inspection and maintained landscaping
23	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.542	$ 61,593	Annual inspection and maintained landscaping
24	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.528	$ 59,974	Annual inspection and maintained landscaping
25	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.514	$ 58,397	Annual inspection and maintained landscaping
26	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.500	$ 91,221	5-Year review, annual inspection, and maintained landscaping
27	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.487	$ 55,367	Annual inspection and maintained landscaping
28	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.474	$ 53,911	Annual inspection and maintained landscaping
29	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.462	$ 52,494	Annual inspection and maintained landscaping
30	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.450	$ 51,114	Annual inspection and maintained landscaping
31	$ -	$ 94,726	$ 1,766,652	$ 1,861,379	$ 2,233,654	0.438	$ 977,985	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
TOTALS	**$ 36,066,261**	**$ 2,841,789**	**$ 5,471,677**	**$ 44,379,726**	**$ 53,255,671**		**$ 48,719,497**	

Notes:
(1) Based on a 2.7% discount factor for projects with a 30-year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-4. Alternative S-4 - Cash Flow Analysis
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 15,172,671	$ -	$ -	$ 15,172,671	$ 18,207,205	1.000	$ 18,207,205	Design, ICs, permitting, fuel line removal, steam line closure and removal, shoreline revetment, asphalt covers, GCL covers, soil covers, hot spot removal, exceedance removal, and SVE
1	$ 22,139,080	$ -	$ -	$ 22,139,080	$ 26,566,896	0.974	$ 25,868,448	
2	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.948	$ 107,773	Annual inspection and maintained landscaping
3	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.923	$ 104,940	Annual inspection and maintained landscaping
4	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.899	$ 102,181	Annual inspection and maintained landscaping
5	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.875	$ 99,495	Annual inspection and maintained landscaping
6	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.852	$ 155,420	5-Year review, annual inspection, and maintained landscaping
7	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.830	$ 94,332	Annual inspection and maintained landscaping
8	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.808	$ 91,852	Annual inspection and maintained landscaping
9	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.787	$ 89,437	Annual inspection and maintained landscaping
10	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.766	$ 87,086	Annual inspection and maintained landscaping
11	$ -	$ 94,726	$ 1,766,652	$ 1,861,379	$ 2,233,654	0.746	$ 1,666,253	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
12	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.726	$ 82,567	Annual inspection and maintained landscaping
13	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.707	$ 80,396	Annual inspection and maintained landscaping
14	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.689	$ 78,283	Annual inspection and maintained landscaping
15	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.671	$ 76,225	Annual inspection and maintained landscaping
16	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.653	$ 119,070	5-Year review, annual inspection, and maintained landscaping
17	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.636	$ 72,269	Annual inspection and maintained landscaping
18	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.619	$ 70,369	Annual inspection and maintained landscaping
19	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.603	$ 68,519	Annual inspection and maintained landscaping
20	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.587	$ 66,718	Annual inspection and maintained landscaping
21	$ -	$ 94,726	$ 1,766,652	$ 1,861,379	$ 2,233,654	0.572	$ 1,276,546	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
22	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.556	$ 63,256	Annual inspection and maintained landscaping
23	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.542	$ 61,593	Annual inspection and maintained landscaping
24	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.528	$ 59,974	Annual inspection and maintained landscaping
25	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.514	$ 58,397	Annual inspection and maintained landscaping
26	$ -	$ 94,726	$ 57,240	$ 151,966	$ 182,360	0.500	$ 91,221	5-Year review, annual inspection, and maintained landscaping
27	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.487	$ 55,367	Annual inspection and maintained landscaping
28	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.474	$ 53,911	Annual inspection and maintained landscaping
29	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.462	$ 52,494	Annual inspection and maintained landscaping
30	$ -	$ 94,726	$ -	$ 94,726	$ 113,672	0.450	$ 51,114	Annual inspection and maintained landscaping
31	$ -	$ 94,726	$ 1,766,652	$ 1,861,379	$ 2,233,654	0.438	$ 977,985	10-Year shoreline revetment review and rehabilitation, 10-year asphalt rehabilitation, 5-year review, annual inspection, and maintained landscaping
TOTALS	**$ 37,311,751**	**$ 2,841,789**	**$ 5,471,677**	**$ 45,625,216**	**$ 54,750,260**		**$ 50,190,697**	

Notes:
(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-5. Alternative S-2 - Capital Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	230	working days
	12	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price	Cost	Comments
DISTRIBUTIVE COSTS	**DISTRIBUTIVE COSTS SUBTOTAL =**			**$ 3,315,207**	**Includes labor and temporary facilities**
Labor	**Labor Subtotal =**			**$ 3,187,552**	
Total project professional/technical labor cost				$ 2,200,640	See backup worksheet "LABOR"
Total project field/construction operations labor cost				$ 489,808	See backup worksheet "LABOR"
Total project radiological screening labor cost				$ 173,264	See backup worksheet "LABOR"
Total project clerical administrative labor cost				$ 323,840	See backup worksheet "LABOR"
Temporary Facilities	**Temporary Facilities Subtotal =**			**$ 127,655**	
Furnished Field Office Trailer (50' x 10' w/ air conditioning)	12	mo	$ 767.56	$ 9,211	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0450
Office Equipment Rental	12	mo	$ 802.12	$ 9,625	Dell (http://www.dell.com), March 2009.
Office Supplies	12	mo	$ 115.75	$ 1,389	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0120
City Water Supply	12	mo	$ 84.18	$ 1,010	Means 2009 Heavy Construction. Page 14, 01 51 13.80 0700
Telephone Bill	12	mo	$ 108.94	$ 1,307	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0140
Field Office Electrical Bill	12	mo	$ 204.27	$ 2,451	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0160
Portable Toilets (6)	12	mo	$ 635.09	$ 7,621	Means 2009 Heavy Construction. Page 472. 01 54 33 6410
Rental Trucks (8) (for supervisory staff)	12	mo	$ 7,920.00	$ 95,040	Hertz Equipment Rental (http://www.hertzequip.com), March 2009.
CAPITAL COSTS	**CAPITAL COSTS SUBTOTAL =**			**$ 21,234,772**	**Includes mob/demob, construction activites, design, and intitutional controls**
Mobilization and Demobilization	**Mobilization and Demobilization Subtotal =**			**$ 27,632**	
Excavator, 0.5 CY capacity	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Excavator, 1.5 CY capacity	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Conveyer system with misters and radiological detectors	6	ea	$ 562.05	$ 3,372	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dump truck, 8 CY (12 ton payload)	6	ea	$ 562.05	$ 3,372	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dozer, 200 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Grader, self-propelled, 30,000 lb.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dozer, 300 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Roller, Vibratory, 25 Ton	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Truck Tractor, 6x4, 450 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Water Tanker, 5000 gal	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Asphalt Paver, 130 H.P.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Tandem Rollers, 10 Ton	4	ea	$ 562.05	$ 2,248	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Roller, Pneum. Whl, 12 Ton	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Sheepsfoot Roller, 240 H.P.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Office Trailers (assumed 100 mile haul) (2)	2	ea	$ 1,225.62	$ 2,451	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0800 (unit cost multiplied by 2 to account for mob & demob)
Water truck for dust suppression, 6,000 gallon capacity (1)	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Health & Safety Equipment	**Health and Safety Equipment Subtotal =**			**$ 333,249**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	20	ea	$ 11,500.00	$ 230,000	Assumed $50 per field worker per day
Water truck for dust suppression, 6,000 gallon capacity (1)	12	mo	$ 8,604.10	$ 103,249	Means 2009 Heavy Construction. Page 472. 01 54 33.40 6950
Site Preparation	**Site Preparation Subtotal =**			**$ 910,906**	
Grade soil staging area (3 acres)	14,520	sy	$ 0.92	$ 13,302	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Install soil staging area liner (3 acre, 80 mil HDPE, for rad screening and stockpiling areas)	130,680	sf	$ 4.18	$ 546,557	Means 2005 Environmental Remediation - Assemblies. Pg 3-90. 33 08 0573
Grade laydown area (200 ft x 100 ft)	2,222	sy	$ 0.92	$ 2,036	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	2,222	sy	$ 13.37	$ 29,709	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
Site security (24-hours uniformed watchman at entrance)	8,640	hr	$ 33.55	$ 289,872	Means 2009 Heavy Construction. Page 20. 01 56 32.50 0020
Aerial survey (2' contours)	128	ac	$ 117.61	$ 15,031	Means 2009 Heavy Construction. Pg 22. 02 21 13.16 1850
Subsurface utility surveying	12	day	$ 1,200.00	$ 14,400	Quote from Subtronic Surveying (800) 998-3463, March 2009.
Construction SWPPP implementation	1	ea	$ 30,000.00	$ 30,000	

Table E-5. Alternative S-2 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	230	working days
	12	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price	Cost	Comments
CAPITAL COSTS *(continued)*			**CAPITAL COSTS SUBTOTAL =**	**$ 21,234,772**	**Includes mob/demob, construction activites, design, and intitutional controls**
Air Monitoring			**Air Monitoring Subtotal =**	**$ 236,698**	
Ambient air monitor rental (12 total -placement frequency biased towards prevailing winds and residential areas)	12	mo	$ 12,169.55	$ 146,035	Means 2005 Environmental Remediation - Unit Price. Pg 9-10. 33 02 0315
Analysis - principal organic hazardous constituents (1 per monitor per week)	99	ea	$ 362.29	$ 35,711	Means 2005 Environmental Remediation - Unit Price. Pg 9-38. 33 02 1802
Analysis - hydrocarbons (1 per monitor per week)	99	ea	$ 125.89	$ 12,409	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1811
Analysis - mercury (1 per monitor per week)	99	ea	$ 42.66	$ 4,205	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1815
Analysis - cyanide (1 per monitor per week)	99	ea	$ 51.76	$ 5,102	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1816
Portable ambient air analyzer rental	12	mo	$ 2,238.08	$ 26,857	Means 2005 Environmental Remediation - Unit Price. Pg 9-11. 33 02 0328
Portable combustible gas/oxygen indicator rental	12	mo	$ 531.54	$ 6,379	Means 2005 Environmental Remediation - Unit Price. Pg 9-11. 33 02 0330
Decontamination			**Decontamination Subtotal =**	**$ 34,819**	
Pressure washer (1,800 psi, 5gpm)	12	mo	$ 1,150.00	$ 13,800	Hertz Equipment Rental (http://www.hertzequip.com)
Pressure washer operation (assume 2 hr/day)	460	hr	$ 45.69	$ 21,019	Means 2005 Environmental Remediation - Unit Price. Pg 9-168. 33 17 0823
Steam Lines			**Steam Lines Subtotal =**	**$ 1,023,148**	
Steam Line Closure and Removal	1.00	ea	$ 1,023,148.21	$ 1,023,148	See Backup Worksheet "STEAM LINE"
Fuel Lines			**Fuel Lines Subtotal =**	**$ 315,678**	
Fuel Line Removal	1.00	ea	$ 315,677.71	$ 315,678	See Backup Worksheet "FUEL LINE"
Shoreline Protection			**Shoreline Protection Subtotal =**	**$ 8,158,992**	
Shoreline protection	1.00	ea	$ 8,158,992.22	$ 8,158,992	See Backup Worksheet "SHORELINE PROTECTION"
Asphalt Covers			**Asphalt Covers Subtotal =**	**$ 2,947,988**	
Install 6" Aggregate Base Course	127,000	sy	$ 13.37	$ 1,698,041	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
Install 2" Asphalt Cover	127,000	sy	$ 9.84	$ 1,249,947	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0120
Asphalt Repair Covers			**Asphalt Repair Covers Subtotal =**	**$ 818,835**	
Install 1" Asphalt Repair Cover	159,378	sy	$ 5.14	$ 818,835	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0300
HDPE Liner			**HDPE Liner Subtotal =**	**$ 955,104**	
Install 60-mil HDPE liner in IR-02	326,700	sf	$ 2.92	$ 955,104	Means 2005 Environmental Remediation - Unit Price. Pg 9-85. 33 08 0572
Soil Covers			**Soil Covers Subtotal =**	**$ 2,384,154**	
Soil analysis (1 per 1000 CY)	189	ea	$ 539.00	$ 101,619	See "LAB COST" Worksheet for Detail
Fill material, delivered from off-site	188,533	CY	$ 8.39	$ 1,582,321	Means 2005 Environmental Remediation - Unit Price; Pg 4-23. 17 03 0424
Spread dumped material	188,533	CY	$ 2.33	$ 438,800	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020
Compact soil cover, 12" lifts, 3 passes	188,533	CY	$ 1.39	$ 261,413	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620
Landscaping			**Landscaping Subtotal =**	**$ 63,461**	
Seeding and vegetative cover	58	ac	$ 806.25	$ 47,109	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401
Hydrofertilizer	2,545,200	sf	$ 0.004	$ 11,148	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180
Watering	58	ac	$ 89.06	$ 5,204	Means 2005 Environmental Remediation - Unit Price. Pg 4-9; 18 05 0413
Site Restoration			**As-Built Survey Subtotal =**	**$ 288,309**	
Soil staging area liner removal	130,680	sf	$ 2.09	$ 273,279	Assumed that removal cost would be half of the installation cost
As-built aerial survey (2' contours)	128	ac	$ 117.61	$ 15,031	Means 2009 Heavy Construction. Pg 22. 02 21 13.16 1850
Design			**Design Subtotal =**	**$ 2,617,702**	
Design assumed to be 12% of construction cost (including permitting)				$ 2,617,702	Includes: Remedial Design, Design Basis Report, Safety and Health Plan, Contingency Plan, QA/QC Plan, QAPP, and Cost Estmates; consistent with EPA guidance (pp. 5-13, EPA, 2000)
Institutional Contols			**Institutional Controls Subtotal =**	**$ 118,097**	
Total institutional contols cost				$ 118,097	See Backup Worksheet "INSTITUTIONAL CONTROLS"
TOTAL PROJECT CAPITAL COST			**TOTAL PROJECT CAPITAL COST =**	**$ 24,549,979**	**Includes Distributive Costs**
Total Construction Cost				$ 21,814,180	
Total Design Cost				$ 2,617,702	
Total Institutional Controls Cost				$ 118,097	
			TOTAL COST PER SQFT OF PARCEL =	**$ 4.41**	

General Assumptions:

Work will be performed in Level D PPE

Values from the "Means 2005 Environmental Remediation - Unit Price" and "Means 2005 Environmental Remediation - Assemblies" were multiplied by a factor of = 113% to account for an inflation rate of 3.1 percent per annum.

Table E-6. Alternative S-3 - Capital Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	266	working days
	14	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price	Cost	Comments
DISTRIBUTIVE COSTS	**DISTRIBUTIVE COSTS SUBTOTAL =**			**$ 4,699,357**	**Includes labor and temporary facilities**
Labor	**Labor Subtotal =**			**$ 4,550,426**	
Total project professional/technical labor cost				$ 2,545,088	See backup worksheet "LABOR"
Total project field/construction operations labor cost				$ 566,474	See backup worksheet "LABOR"
Total project radiological screening labor cost				$ 1,064,336	See backup worksheet "LABOR"
Total project clerical administrative labor cost				$ 374,528	See backup worksheet "LABOR"
Temporary Facilities	**Temporary Facilities Subtotal =**			**$ 148,931**	
Furnished Field Office Trailer (50' x 10' w/ air conditioning)	14	mo	$ 767.56	$ 10,746	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0450
Office Equipment Rental	14	mo	$ 802.12	$ 11,230	Dell (http://www.dell.com), March 2009.
Office Supplies	14	mo	$ 115.75	$ 1,621	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0120
City Water Supply	14	mo	$ 84.18	$ 1,179	Means 2009 Heavy Construction. Page 14, 01 51 13.80 0700
Telephone Bill	14	mo	$ 108.94	$ 1,525	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0140
Field Office Electrical Bill	14	mo	$ 204.27	$ 2,860	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0160
Portable Toilets (6)	14	mo	$ 635.09	$ 8,891	Means 2009 Heavy Construction. Page 472. 01 54 33 6410
Rental Trucks (8) (for supervisory staff)	14	mo	$ 7,920.00	$ 110,880	Hertz Equipment Rental (http://www.hertzequip.com), March 2009.
CAPITAL COSTS	**CAPITAL COSTS SUBTOTAL =**			**$ 30,411,800**	**Includes mob/demob, construction activites, design, and intitutional controls**
Mobilization and Demobilization	**Mobilization and Demobilization Subtotal =**			**$ 27,632**	
Excavator, 0.5 CY capacity	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Excavator, 1.5 CY capacity	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Conveyer system with misters and radialogical detectors	6	ea	$ 562.05	$ 3,372	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dump truck, 8 CY (12 ton payload)	6	ea	$ 562.05	$ 3,372	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dozer, 200 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Grader, self-propelled, 30,000 lb.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dozer, 300 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Roller, Vibratory, 25 Ton	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Truck Tractor, 6x4, 450 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Water Tanker, 5000 gal	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Asphalt Paver, 130 H.P.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Tandem Rollers, 10 Ton	4	ea	$ 562.05	$ 2,248	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Roller, Pneum. Whl, 12 Ton	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Sheepsfoot Roller, 240 H.P.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Office Trailers (assumed 100 mile haul) (2)	2	ea	$ 1,225.62	$ 2,451	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0800 (unit cost multiplied by 2 to account for mob & demob)
Water truck for dust suppression, 6,000 gallon capacity (1)	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Health and Safety Equipment	**Health and Safety Equipment Subtotal =**			**$ 386,457**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	20	ea	$ 13,300.00	$ 266,000	Assumed $50 per field worker per day
Water truck for dust suppression, 6,000 gallon capacity (1)	14	mo	$ 8,604.10	$ 120,457	Means 2009 Heavy Construction. Page 472. 01 54 33.40 6950
Pre-Construction Demolition	**Pre-Construction Demolition Subtotal =**			**$ 9,034**	
Monitoring well abandonment	1.00	ea	$ 9,033.60	$ 9,034	See Backup Worksheet "WELL ABANDONMENT"
Site Preparation	**Site Preparation Subtotal =**			**$ 944,696**	
Grade soil staging area (3 acres)	14,520	sy	$ 0.92	$ 13,302	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Install soil staging area liner (3 acre, 80 mil HDPE, for rad screening and stockpiling areas)	130,680	sf	$ 4.18	$ 546,557	Means 2005 Environmental Remediation - Assemblies. Pg 3-90. 33 08 0573
Grade laydown area (200 ft x 100 ft)	2,222	sy	$ 0.92	$ 2,036	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	2,222	sy	$ 13.37	$ 29,709	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
Site security (24-hours uniformed watchman at entrance)	10,080	hr	$ 33.55	$ 338,184	Means 2009 Heavy Construction. Page 20. 01 56 32.50 0020
Aerial survey (2' contours)	4	ac	$ 117.61	$ 508	Means 2009 Heavy Construction. Pg 22. 02 21 13.16 1850
Subsurface utility surveying	12	day	$ 1,200.00	$ 14,400	Quote from Subtronic Surveying (800) 998-3463, March 2009.
Construction SWPPP implementation	1	ea	$ 30,000.00	$ 30,000	

Table E-6. Alternative S-3 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	266	working days
	14	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price	Cost	Comments
CAPITAL COSTS *(continued)*	**CAPITAL COSTS SUBTOTAL =**			**$ 30,411,800**	**Includes mob/demob, construction activites, design, and intitutional controls**
Air Monitoring	**Air Monitoring Subtotal =**			**$ 275,565**	
Ambient air monitor rental (12 total -placement frequency biased towards prevailing winds and residential areas)	14	mo	$ 12,169.55	$ 170,374	Means 2005 Environmental Remediation - Unit Price. Pg 9-10. 33 02 0315
Analysis - principal organic hazardous constituents (1 per monitor per week)	114	ea	$ 362.29	$ 41,301	Means 2005 Environmental Remediation - Unit Price. Pg 9-38. 33 02 1802
Analysis - hydrocarbons (1 per monitor per week)	114	ea	$ 125.89	$ 14,352	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1811
Analysis - mercury (1 per monitor per week)	114	ea	$ 42.66	$ 4,864	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1815
Analysis - cyanide (1 per monitor per week)	114	ea	$ 51.76	$ 5,900	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1816
Portable ambient air analyzer rental	14	mo	$ 2,238.08	$ 31,333	Means 2005 Environmental Remediation - Unit Price. Pg 9-11. 33 02 0328
Portable combustible gas/oxygen indicator rental	14	mo	$ 531.54	$ 7,442	Means 2005 Environmental Remediation - Unit Price. Pg 9-11. 33 02 0330
Decontamination	**Decontamination Subtotal =**			**$ 40,408**	
Pressure washer (1,800 psi, 5gpm)	14	mo	$ 1,150.00	$ 16,100	Hertz Equipment Rental (http://www.hertzequip.com)
Pressure washer operation (assume 2 hr/day)	532	hr	$ 45.69	$ 24,308	Means 2005 Environmental Remediation - Unit Price. Pg 9-168. 33 17 0823
Excavations	**Excavations Subtotal =**			**$ 8,794,334**	
Excavation of Tier 1 Locations	1.00	ea	$ 8,794,334.40	$ 8,794,334	See Backup Worksheet "TIER 1 EXCAVATIONS"
Water Treatment	**Water Treatment Subtotal =**			**$ 117,563**	
Water Treatment System	1.00	ea	$ 60,005.90	$ 60,006	See Backup Worksheet "WATER TREATMENT"
Metals wastewater analysis (1 sample per day + 10% QC samples)	72	ea	$ 130.00	$ 9,295	STL Laboratories, San Francisco, CA (March 2009)
PCBs/Pesticides wastewater analysis (1 sample per day + 10% QC samples)	72	ea	$ 205.00	$ 14,658	STL Laboratories, San Francisco, CA (March 2009)
PAHs wastewater analysis (1 sample per day + 10% QC samples)	72	ea	$ 150.00	$ 10,725	STL Laboratories, San Francisco, CA (March 2009)
VOCs wastewater analysis (1 sample per day + 10% QC samples)	72	ea	$ 130.00	$ 9,295	STL Laboratories, San Francisco, CA (March 2009)
SVOCs wastewater analysis (1 sample per day + 10% QC samples)	72	ea	$ 190.00	$ 13,585	STL Laboratories, San Francisco, CA (March 2009)
Steam Lines	**Steam Lines Subtotal =**			**$ 1,023,148**	
Steam Line Closure and Removal	1.00	ea	$ 1,023,148.21	$ 1,023,148	See Backup Worksheet "STEAM LINE"
Fuel Lines	**Fuel Lines Subtotal =**			**$ 315,678**	
Fuel Line Removal	1.00	ea	$ 315,677.71	$ 315,678	See Backup Worksheet "FUEL LINE"
Shoreline Protection	**Shoreline Protection Subtotal =**			**$ 8,158,992**	
Shoreline protection	1.00	ea	$ 8,158,992.22	$ 8,158,992	See Backup Worksheet "SHORELINE PROTECTION"
Asphalt Covers	**Asphalt Covers Subtotal =**			**$ 2,802,007**	
Install 6" Aggregate Base Course	120,711	sy	$ 13.37	$ 1,613,956	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
Install 2" Asphalt Cover	120,711	sy	$ 9.84	$ 1,188,051	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0120
Asphalt Repair Covers	**Asphalt Repair Covers Subtotal =**			**$ 818,835**	
Install 1" Asphalt Repair Cover	159,378	sy	$ 5.14	$ 818,835	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0300
HDPE Liner	**HDPE Liner Subtotal =**			**$ 955,104**	
Install 60-mil HDPE liner in IR-02	326,700	sf	$ 2.92	$ 955,104	Means 2005 Environmental Remediation - Unit Price. Pg 9-85. 33 08 0572
Soil Covers	**Soil Covers Subtotal =**			**$ 2,384,154**	
Soil analysis (1 per 1000 CY)	189	ea	$ 539.00	$ 101,619	See "LAB COST" Worksheet for Detail
Fill material, delivered from off-site	188,533	CY	$ 8.39	$ 1,582,321	Means 2005 Environmental Remediation - Unit Price; Pg 4-23. 17 03 0424
Spread dumped material	188,533	CY	$ 2.33	$ 438,800	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020
Compact soil cover, 12" lifts, 3 passes	188,533	CY	$ 1.39	$ 261,413	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620
Landscaping	**Landscaping Subtotal =**			**$ 63,461**	
Seeding and vegetative cover	58	ac	$ 806.25	$ 47,109	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401
Hydrofertilizer	2,545,200	sf	$ 0.004	$ 11,148	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180
Watering	58	ac	$ 89.06	$ 5,204	Means 2005 Environmental Remediation - Unit Price. Pg 4-9; 18 05 0413
Site Restoration	**As-Built Survey Subtotal =**			**$ 289,182**	
Soil staging area liner removal	130,680	sf	$ 2.09	$ 273,279	Assumed that removal cost would be half of the installation cost
As-built aerial survey (2' contours)	135	ac	$ 117.61	$ 15,904	Means 2009 Heavy Construction. Pg 22. 02 21 13.16 1850

Table E-6. Alternative S-3 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	266	working days
	14	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price		Cost	Comments
CAPITAL COSTS *(continued)*			**CAPITAL COSTS SUBTOTAL =**	**$**	**30,411,800**	**Includes mob/demob, construction activites, design, and intitutional controls**
Design			**Design Subtotal =**	**$**	**3,851,589**	
Design assumed to be 12% of construction cost (including permitting)				$	3,851,589	Includes: Remedial Design, Design Basis Report, Safety and Health Plan, Contingency Plan, QA/QC Plan, QAPP, and Cost Estmates; consistent with EPA guidance (pp. 5-13, EPA, 2000)
Institutional Contols			**Institutional Controls Subtotal =**	**$**	**118,097**	
Total institutional contols cost				$	118,097	See Backup Worksheet "INSTITUTIONAL CONTROLS"
TOTAL PROJECT CAPITAL COST			**TOTAL PROJECT CAPITAL COST =**	**$**	**36,066,261**	**Includes Distributive Costs**
Total Construction Cost				$	32,096,575	
Total Design Cost				$	3,851,589	
Total Institutional Controls Cost				$	118,097	
			TOTAL COST PER SQFT OF PARCEL =	**$**	**191.59**	

General Assumptions:

Work will be performed in Level D PPE

Values from the "Means 2005 Environmental Remediation - Unit Price" and "Means 2005 Environmental Remediation - Assemblies" were multiplied by a factor of = 113% to account for an inflation rate of 3.1 percent per annum.

Table E-7. Alternative S-4 - Capital Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	273	working days
	14	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price	Cost	Comments
DISTRIBUTIVE COSTS	**DISTRIBUTIVE COSTS SUBTOTAL =**			**$ 4,985,721**	**Includes labor and temporary facilities**
Labor	**Labor Subtotal =**			**$ 4,836,790**	
Total project professional/technical labor cost				$ 2,910,900	See backup worksheet "LABOR"
Total project field/construction operations labor cost				$ 311,438	See backup worksheet "LABOR"
Total project radiological screening labor cost				$ 1,237,600	See backup worksheet "LABOR"
Total project clerical administrative labor cost				$ 376,852	See backup worksheet "LABOR"
Temporary Facilities	**Temporary Facilities Subtotal =**			**$ 148,931**	
Furnished Field Office Trailer (50' x 10' w/ air conditioning)	14	mo	$ 767.56	$ 10,746	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0450
Office Equipment Rental	14	mo	$ 802.12	$ 11,230	Dell (http://www.dell.com), March 2009.
Office Supplies	14	mo	$ 115.75	$ 1,621	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0120
City Water Supply	14	mo	$ 84.18	$ 1,179	Means 2009 Heavy Construction. Page 14, 01 51 13.80 0700
Telephone Bill	14	mo	$ 108.94	$ 1,525	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0140
Field Office Electrical Bill	14	mo	$ 204.27	$ 2,860	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0160
Portable Toilets (6)	14	mo	$ 635.09	$ 8,891	Means 2009 Heavy Construction. Page 472. 01 54 33 6410
Rental Trucks (8) (for supervisory staff)	14	mo	$ 7,920.00	$ 110,880	Hertz Equipment Rental (http://www.hertzequip.com), March 2009.
CAPITAL COSTS	**CAPITAL COSTS SUBTOTAL =**			**$ 32,326,030**	**Includes mob/demob, construction activites, design, and intitutional controls**
Mobilization and Demobilization	**Mobilization and Demobilization Subtotal =**			**$ 27,632**	
Excavator, 0.5 CY capacity	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Excavator, 1.5 CY capacity	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Conveyer system with misters and radiological detectors	6	ea	$ 562.05	$ 3,372	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dump truck, 8 CY (12 ton payload)	6	ea	$ 562.05	$ 3,372	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dozer, 200 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Grader, self-propelled, 30,000 lb.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dozer, 300 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Roller, Vibratory, 25 Ton	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Truck Tractor, 6x4, 450 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (unit cost multiplied by 2 to account for mob & demob)
Water Tanker, 5000 gal	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Asphalt Paver, 130 H.P.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Tandem Rollers, 10 Ton	4	ea	$ 562.05	$ 2,248	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Roller, Pneum. Whl, 12 Ton	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Sheepsfoot Roller, 240 H.P.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Office Trailers (assumed 100 mile haul) (2)	2	ea	$ 1,225.62	$ 2,451	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0800 (unit cost multiplied by 2 to account for mob & demob)
Water truck for dust suppression, 6,000 gallon capacity (1)	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Health & Safety Equipment	**Health and Safety Equipment Subtotal =**			**$ 393,457**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	20	ea	$ 13,650.00	$ 273,000	Assumed $50 per field worker per day
Water truck for dust suppression, 6,000 gallon capacity (1)	14	mo	$ 8,604.10	$ 120,457	Means 2009 Heavy Construction. Page 472. 01 54 33.40 6950
Site Preparation	**Site Preparation Subtotal =**			**$ 944,696**	
Grade soil staging area (3 acres)	14,520	sy	$ 0.92	$ 13,302	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Install soil staging area liner (3 acre, 80 mil HDPE, for rad screening and stockpiling areas)	130,680	sf	$ 4.18	$ 546,557	Means 2005 Environmental Remediation - Assemblies. Pg 3-90. 33 08 0573
Grade laydown area (200 ft x 100 ft)	2,222	sy	$ 0.92	$ 2,036	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	2,222	sy	$ 13.37	$ 29,709	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
Site security (24-hours uniformed watchman at entrance)	10,080	hr	$ 33.55	$ 338,184	Means 2009 Heavy Construction. Page 20. 01 56 32.50 0020
Aerial survey (2' contours)	4	ac	$ 117.61	$ 508	Means 2009 Heavy Construction. Pg 22. 02 21 13.16 1850
Subsurface utility surveying	12	day	$ 1,200.00	$ 14,400	Quote from Subtronic Surveying (800) 998-3463, March 2009.
Construction SWPPP implementation	1	ea	$ 30,000.00	$ 30,000	
Pre-Construction Demolition	**Pre-Construction Demolition Subtotal =**			**$ 9,034**	
Monitoring well abandonment	1.00	ea	$ 9,033.60	$ 9,034	See Backup Worksheet "WELL ABANDONMENT"

Table E-7. Alternative S-4 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	273	working days
	14	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price	Cost	Comments
CAPITAL COSTS *(continued)*			**CAPITAL COSTS SUBTOTAL =**	**$ 32,326,030**	**Includes mob/demob, construction activites, design, and intitutional controls**
Air Monitoring			**Air Monitoring Subtotal =**	**$ 277,313**	
Ambient air monitor rental (12 total -placement frequency biased toward prevailing winds and residential areas)	14	mo	$ 12,169.55	$ 170,374	Means 2005 Environmental Remediation - Unit Price. Pg 9-10. 33 02 0315
Analysis - principal organic hazardous constituents (1 per monitor per week)	117	ea	$ 362.29	$ 42,388	Means 2005 Environmental Remediation - Unit Price. Pg 9-38. 33 02 1802
Analysis - hydrocarbons (1 per monitor per week)	117	ea	$ 125.89	$ 14,729	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1811
Analysis - mercury (1 per monitor per week)	117	ea	$ 42.66	$ 4,992	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1815
Analysis - cyanide (1 per monitor per week)	117	ea	$ 51.76	$ 6,055	Means 2005 Environmental Remediation - Unit Price. Pg 9-39. 33 02 1816
Portable ambient air analyzer rental	14	mo	$ 2,238.08	$ 31,333	Means 2005 Environmental Remediation - Unit Price. Pg 9-11. 33 02 0328
Portable combustible gas/oxygen indicator rental	14	mo	$ 531.54	$ 7,442	Means 2005 Environmental Remediation - Unit Price. Pg 9-11. 33 02 0330
Decontamination			**Decontamination Subtotal =**	**$ 41,048**	
Pressure washer (1,800 psi, 5gpm)	14	mo	$ 1,150.00	$ 16,100	Hertz Equipment Rental (http://www.hertzequip.com)
Pressure washer operation (assume 2 hr/day)	546	hr	$ 45.69	$ 24,948	Means 2005 Environmental Remediation - Unit Price. Pg 9-168. 33 17 0823
SVE System			**Excavations Subtotal =**	**$ 151,169**	
Install SVE System	1.00	ea	$ 151,168.74	$ 151,169	See Backup Worksheet "SVE/AS." Split to reflect removal of air sparging cost (AS included in groundwater alternatives)
Excavations			**Excavations Subtotal =**	**$ 9,444,214**	
Excavation of Tier 1 and Tier 2 Locations	1.00	ea	$ 9,444,213.89	$ 9,444,214	See Backup Worksheet "ALL EXCAVATIONS"
Water Treatment			**Water Treatment Subtotal =**	**$ 124,647**	
Water Treatment System	1.00	ea	$ 60,005.90	$ 60,006	See Backup Worksheet "WATER TREATMENT"
Metals wastewater analysis (1 sample per day + 10% QC samples)	80	ea	$ 130.00	$ 10,439	STL Laboratories, San Francisco, CA (March 2009)
PCBs/Pesticides wastewater analysis (1 sample per day + 10% QC samples)	80	ea	$ 205.00	$ 16,462	STL Laboratories, San Francisco, CA (March 2009)
PAHs wastewater analysis (1 sample per day + 10% QC samples)	80	ea	$ 150.00	$ 12,045	STL Laboratories, San Francisco, CA (March 2009)
VOCs wastewater analysis (1 sample per day + 10% QC samples)	80	ea	$ 130.00	$ 10,439	STL Laboratories, San Francisco, CA (March 2009)
SVOCs wastewater analysis (1 sample per day + 10% QC samples)	80	ea	$ 190.00	$ 15,257	STL Laboratories, San Francisco, CA (March 2009)
Steam Lines			**Steam Lines Subtotal =**	**$ 1,023,148**	
Steam Line Closure and Removal	1.00	ea	$ 1,023,148.21	$ 1,023,148	See Backup Worksheet "STEAM LINE"
Fuel Lines			**Fuel Lines Subtotal =**	**$ 315,678**	
Fuel Line Removal	1.00	ea	$ 315,677.71	$ 315,678	See Backup Worksheet "FUEL LINE"
Shoreline Protection			**Shoreline Protection Subtotal =**	**$ 8,158,992**	
Shoreline protection	1.00	ea	$ 8,158,992.22	$ 8,158,992	See Backup Worksheet "SHORELINE PROTECTION"
Asphalt Covers			**Asphalt Covers Subtotal =**	**$ 2,802,007**	
Install 6" Aggregate Base Course	120,711	sy	$ 13.37	$ 1,613,956	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
Install 2" Asphalt Cover	120,711	sy	$ 9.84	$ 1,188,051	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0120
Asphalt Repair Covers			**Asphalt Repair Covers Subtotal =**	**$ 818,835**	
Install 1" Asphalt Repair Cover	159,378	sy	$ 5.14	$ 818,835	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0300
HDPE Liner			**HDPE Liner Subtotal =**	**$ 955,104**	
Install 60-mil HDPE liner in IR-02	326,700	sf	$ 2.92	$ 955,104	Means 2005 Environmental Remediation - Unit Price. Pg 9-85. 33 08 0572
Soil Covers			**Soil Covers Subtotal =**	**$ 2,384,154**	
Soil analysis (1 per 1000 CY)	189	ea	$ 539.00	$ 101,619	See "LAB COST" Worksheet for Detail
Fill material, delivered from off-site	188,533	CY	$ 8.39	$ 1,582,321	Means 2005 Environmental Remediation - Unit Price; Pg 4-23. 17 03 0424
Spread dumped material	188,533	CY	$ 2.33	$ 438,800	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020
Compact soil cover, 12" lifts, 3 passes	188,533	CY	$ 1.39	$ 261,413	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620
Landscaping			**Landscaping Subtotal =**	**$ 63,461**	
Seeding and vegetative cover	58	ac	$ 806.25	$ 47,109	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401
Hydrofertilizer	2,545,200	sf	$ 0.004	$ 11,148	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180
Watering	58	ac	$ 89.06	$ 5,204	Means 2005 Environmental Remediation - Unit Price. Pg 4-9; 18 05 0413
Site Restoration			**As-Built Survey Subtotal =**	**$ 288,309**	
Soil staging area liner removal	130,680	sf	$ 2.09	$ 273,279	Assumed that removal cost would be half of the installation cost
As-built aerial survey (2' contours)	128	ac	$ 117.61	$ 15,031	Means 2009 Heavy Construction. Pg 22. 02 21 13.16 1850

Table E-7. Alternative S-4 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	273	working days
	14	months
Operations and Maintenance / Monitoring Period:	7965	days
	360	months

Description	Quantity	Unit	Unit Price		Cost	Comments
CAPITAL COSTS *(continued)*			**CAPITAL COSTS SUBTOTAL =**	**$**	**32,326,030**	**Includes mob/demob, construction activites, design, and intitutional controls**
Design			**Design Subtotal =**	**$**	**3,985,034**	
Design assumed to be 12% of construction cost (including permitting)				$	3,985,034	Includes: Remedial Design, Design Basis Report, Safety and Health Plan, Contingency Plan, QA/QC Plan, QAPP, and Cost Estmates; consistent with EPA guidance (pp. 5-13, EPA, 2000)
Institutional Contols			**Institutional Controls Subtotal =**	**$**	**118,097**	
Total institutional contols cost				$	118,097	See Backup Worksheet "INSTITUTIONAL CONTROLS"
TOTAL PROJECT CAPITAL COST			**TOTAL PROJECT CAPITAL COST =**	**$**	**37,311,751**	**Includes Distributive Costs**
Total Construction Cost				$	33,208,620	
Total Design Cost				$	3,985,034	
Total Institutional Controls Cost				$	118,097	
			TOTAL COST PER SQFT OF PARCEL =	**$**	**198.21**	

General Assumptions:

Work will be performed in Level D PPE

Values from the "Means 2005 Environmental Remediation - Unit Price" and "Means 2005 Environmental Remediation - Assemblies" were multiplied by a factor of = 113% to account for an inflation rate of 3.1 percent per annum.

Table E-8. Alternative S-2 - General Labor Classifications and Rates

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Labor Classification	Position	Labor Rate (per hour)	Level of Effort (% on Project)	Staff Required (number)	Unit Cost (per project hour)
Professional/Technical					
	Senior Project Manager	$ 165.00	10	1	$ 16.50
	Project Manager	$ 123.00	50	1	$ 61.50
	Senior Engineer, Geologist or Scientist	$ 165.00	10	1	$ 16.50
	Project Engineer, Geologist or Scientist	$ 123.00	100	2	$ 246.00
	Quality Control Officer	$ 95.00	100	1	$ 95.00
	Health and Safety Officer	$ 95.00	100	1	$ 95.00
	Assistant (Junior) Project Engineer, Geologist or Scientist (Soil segregation, profiling)	$ 79.00	100	8	$ 632.00
	Drafter/Designer	$ 67.00	50	1	$ 33.50
Field/Construction Operations					
	Superintendent	$ 142.60	100	1	$ 142.60
	Foreman	$ 123.60	100	1	$ 123.60
Radiological Screening					
	Radiological Screening/Field Technician (pre-excavation screeners)	$ 91.00	100	16	$ 1,456.00
	Radiological Screening/Field Technician (post-excavation screeners)	$ 91.00	100	18	$ 1,638.00
Clerical/Administrative					
	Procurement Specialist	$ 123.00	100	1	$ 123.00
	Project Accountant/Billing	$ 55.00	50	1	$ 27.50
	Administrative Assistant/General Clerical	$ 51.00	50	1	$ 25.50

Notes:

1. Equipment operator rates are included in equipment operation estimates
2. Labor rates are based on a 2009 rate schedule

Table E-9. Soil Alternatives - Maintained Landscaping Area Estimates

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Area Name	Area (ac)	Area (sf)	Remarks
Estimated Covers Areas			
Soil Covers Area	58.4	2,545,200	2-foot soil cover, general fill
HDPE Liner	7.5	326,700	Behind slurry wall in IR-02, included in soils cover area (2-foot soil cover will be placed above HDPE Liner)
IR-03 Covers	1.2	52,700	Not included in soil cover area, area addressed in NAPL alternatives
New Asphalt Covers Area	24.9	1,086,400	6" aggregate base course with 2" asphalt cover
New Asphalt Cover in Railroad-Right-of-Way	1.3	56,600	Applies to Alternative S-2 only
Repair Existing Asphalt Covers Area	32.9	1,434,400	1-1/2" asphalt cover
Shoreline Area	0.0	0	See Appendix C for evaluation of shoreline protection options
No Treatment	9.0	391,600	Building footprints
Total Areas to be Covered =	128	5,566,900	

Table E-10. Soil Alternatives - Steam Line Closure and Removal Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
Sample pipe casing for asbestos	805	each	$ 14.00	$ 11,264	Quote fom Asbestos TEM Laboratories, Berkeley, CA (March 2009); assume three samples per access point
Access point asbestos abatement					Assume that all steam lines at access points is covered with ACM
Cover surfaces with 6 mil polyethylene sheeting	26,820	SF	$ 0.29	$ 7,778	Means 2005 Environmental Remediation - Unit Price. Pg 8-4. 25 01 0210; assume 100 SF of surface area to be covered at each access point
Remove pipe insulation with glove bag	1,341	LF	$ 25.26	$ 33,877	Means 2005 Environmental Remediation - Unit Price. Pg 8-7. 25 01 0419; assume 5 LF of pipe exposed at each access point
HEPA vacuum cleaner, 55 gal	1	each	$ 3,713.81	$ 3,714	Means 2005 Environmental Remediation - Unit Price. Pg 8-2. 25 01 0118; assume 5 LF of pipe exposed at each access point
Sample interior of steam lines	805	each	$ 539.00	$ 433,677	See "LAB COST" Worksheet for detail; assume three samples per access point
Close lines in place with grout	16,809	CF	$ 12.44	$ 209,138	Means 2009 Heavy Construction. Pg 81. 04 05 16.30 2000; assume that 90% of the lines meet in place closure requirements
Remove failed lines	5,364	LF	$ 11.14	$ 59,765	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900; assume that 10% of the lines will be removed
Collect and bag removed lines	24,138	CF	$ 4.11	$ 99,266	Means 2005 Environmental Remediation - Unit Price. Pg 8-8. 25 01 0502; assume 1 CY of material for every 6 LF of pipe removed
Dispose of pipe covered with ACM	894	CY	$ 166.70	$ 149,031	Means 2005 Environmental Remediation - Unit Price. Pg 8-8. 25 01 0506 and Pg 8-9. 25 01 0507 (average)
Transport pipe to disposal site	715	miles	$ 6.98	$ 4,989	Means 2009 Heavy Construction. Pg 38. 02 81 20.10 1260 and 1270 (average); assume a 20-mile roundtrip to disposal facility
Dispose of oily water in vacuum truck	44	hour	$ 242.03	$ 10,649	Means 2009 Heavy Construction. Pg 39. 02 81 20.10 3120; Assume each load take 4 hours total, 5,000-gallon truck
TOTAL				$ 1,023,148	

Notes:

ACM = asbestos-containing material

Values from the "Means 2005 Environmental Remediation - Unit Price" and "Means 2005 Environmental Remediation - Assemblies" were multiplied by an inflation factor (see "BACKUP" Worksheet)

Assume costs for Level C are included in Health & Safety line item in "BACKUP" Worksheet

Assume that no excess soil will be excavated and that rad screening will not be performed

Assume that all steam lines are an average of 8" in diameter

Estimated quantities based on steam line removal closeout reports for Parcel C and Parcel D.

Steam Line Info:

Number of access points	268	each	Assume 1 access point every 200 feet
Length of steam lines	53,640	LF	

Table E-11. Soil Alternatives - Fuel Line Removal Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
Excavate 2' deep trench along fuel line alignment with 1/2 CY excavator	754	CY	$ 7.86	$ 5,926	Means 2009 Heavy Construction. Pg 211. 31 23 16.13 0050
Remove failed lines	2,827	LF	$ 11.14	$ 31,498	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900
Collect and bag removed lines	12,722	CF	$ 4.11	$ 52,317	Means 2005 Environmental Remediation - Unit Price. Pg 8-8. 25 01 0502; assume 1 CY of material for every 6 LF of pipe removed (average)
Dispose of pipe covered with ACM	471	CY	$ 166.70	$ 78,544	Means 2005 Environmental Remediation - Unit Price. Pg 8-8. 25 01 0506 and Pg 8-9. 25 01 0507 (average)
Transport pipe to disposal site	377	miles	$ 6.98	$ 2,630	Means 2009 Heavy Construction. Pg 38. 02 81 20.10 1260 and 1270 (average); assume a 20-mile roundtrip to disposal facility
Confirmation sample collection (direct push)	62	each	$ 81.83	$ 5,089	Assume one sample per 50 feet of line + 10% QC samples, Means 2005 Environmental Remediation - Unit Price. Pg 9-24. 33 02 0648
Confirmation sample analysis	62	each	$ 539.00	$ 33,523	Assume one sample per 50 feet of line + 10% QC samples; see "LAB COST" Worksheet
Over excavate contaminated soils (20% contingency)	151	CY	$ 7.86	$ 1,185	Means 2009 Heavy Construction. Pg 211. 31 23 16.13 0050
Conveyer system rental with misters and radialogical detectors	0.2	months	$ 8,170.80	$ 1,634	Means 2009 Heavy Construction. Pg 466. 01 54 33.10 0800 (x6)
Radiological monitoring equipment for pre-excavation screening	0.2	months	$ 8,913.60	$ 1,783	Ludlum Model 44-2 1"x 1" NaI GAMMA Scintillator (unit rental cost provided by Suntrac Services, 1-800-579-4513, March 2009) (x16)
Haul soil to secondary screening area with 8 CY trucks	754	CY	$ 4.16	$ 3,136	Means 2009 Heavy Construction. Pg 230. 31 23 23.20 0114
Radiological monitoring equipment for post-excavation conveyor screening	0.2	months	$ 33,426.00	$ 6,685	Assumed to be 10 times the cost of the portable scintillator (x6)
Soil analysis for disposal (1 per 500 CY) (4 pt. composite samples)	2	each	$ 539.00	$ 813	See "LAB COST" Worksheet for Detail
Transport and disposal of excavated material					
Class II Benificial Reuse Soil to Altamont	0	ton	$ 38.82	$ -	Assumed Fraction of Total Waste: 0%
Class II Soil to Altamont	1,131	ton	$ 72.42	$ 81,893	Assumed Fraction of Total Waste: 100%
Soil analysis for import soil (1 per 1000 CY) (4 pt. composite samples)	1	each	$ 539.00	$ 539	See "LAB COST" Worksheet for Detail
Fill material, delivered from off-site	754	CY	$ 8.39	$ 6,327	Means 2005 Environmental Remediation - Unit Price; Pg 4-23. 17 03 0424
Compact backfill	754	CY	$ 2.86	$ 2,156	Means 2009 Heavy Construction. Pg 248. 31 23 23.23 7020
TOTAL				$ 315,678	

Notes:

Values from the "Means 2005 Environmental Remediation - Unit Price" and "Means 2005 Environmental Remediation - Assemblies" were multiplied by an inflation factor (see "BACKUP" Worksheet)

Assume costs for Level C are included in Health & Safety line item in "BACKUP" Worksheet

Estimated quantities based on steam line removal closeout reports for Parcel C and Parcel D.

Fuel Line Volumes and Areas:

Length of fuel lines	2,827	LF	
Area requiring excavation and backfill	8,481	SF	Assumed 3-foot-wide trench
Volume requiring excavation and backfill + 20% fluff factor	754	CY	Assumed 2-foot-deep trench + 20% soil fluff factor
Excavated material tonage	1,131	TN	Assumed unit weight of 1.5 TN/CY
Total number of 50'x50' grid surfaces estimated	3	surface grids	See Backup Worksheet "RAD SCREENING"
Total number of estimated equivalent grids	6	equivalent grids	See Backup Worksheet "RAD SCREENING"

Table E-12. Soil Alternatives - Shoreline Protection Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit			Unit Price	Cost	Remarks
Excavate shoreline area to 2.5 feet bgs (excavator) in wet conditions	40,560	bcy	1,000	41	$ 3.65	$ 147,890	Means 2010 Heavy Construction: 31 23 16.42 0250, plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Load excavated material (track loader) in wet conditions	40,560	bcy	1,190	35	$ 2.58	$ 104,815	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material), plus 50% for work in water (Means 2009 Heavy Construction: 31 23 16.42 4250)
Haul soil to secondary screening area (22 cy off-road hauler)	52,728	lcy	1,190	45	$ 3.58	$ 188,524	Means 2010 Heavy Construction: 31 23 23.20 5060
Debris handling to facilitate radiological screening (track loader)	4,056	bcy	75	55	$ 8.61	$ 34,938	Means 2010 Heavy Construction: 31 23 23.15 6070 (assumes debris is 10% of excavation volume, unit rate adjusted to reflect slower production rate)
Radiological screening	1,095,120	sf			$ 0.30	$ 328,536	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D)
Soil analysis for disposal (4-point composite sample - 1 per 500 bcy)	82	each			$ 1,042.00	$ 85,444	Consistent with cost estimate from Parcel E Radiological Addendum (Appendix D); includes additional costs for radiological analyses
Load material for disposal (track loader)	40,560	bcy	1,190	35	$ 1.72	$ 69,877	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/o material)
Transport and disposal of excavated material							
Class II Beneficial Reuse Soil to Altamont	19,165	ton			$ 38.82	$ 743,970	Assumed Fraction of Total Waste: 35%
Class II Soil to Altamont	13,689	ton			$ 72.42	$ 991,357	Assumed Fraction of Total Waste: 25%
Class I Non-RCRA Soil to Kettleman Hills	8,213	ton			$ 81.15	$ 666,517	Assumed Fraction of Total Waste: 15%
Class I RCRA Direct Landfill Soil to Kettleman Hills	5,476	ton			$ 130.04	$ 712,047	Assumed Fraction of Total Waste: 10%
Class I RCRA Stabilization Soil to Kettleman Hills	5,476	ton			$ 172.24	$ 943,117	Assumed Fraction of Total Waste: 10%
Disposal of radiologically impacted waste	2,738	ton			$ 120.00	$ 328,536	Assumed Fraction of Total Waste: 5%
Furnish and install crushed gravel	3,048	bcy	1,190	3	$ 23.05	$ 70,269	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
Furnish and install geofabric	42,000	sy	2,400	18	$ 4.30	$ 180,646	Means 2010 Heavy Construction: 31 32 19.16 1510, plus 50% for work in water
Furnish and install riprap armor [(1)]	15,360	lcy	248	62	$ 89.98	$ 1,382,016	Means 2010 Heavy Construction: 31 37 13.10 010, plus 25% for work in water
Furnish and install (spread) coarse sand	18,000	bcy	1,190	16	$ 23.05	$ 414,977	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
Compact coarse sand	18,000	bcy	2,300	8	$ 1.32	$ 23,789	Means 2010 Heavy Construction: 31 23 23.23 5020, plus 100% for work in water
Mobilization and demobilization	1	ls				$ 741,727	10% of costs
TOTAL						$ 8,158,992	

Notes:

[(1)] The required weight for an individual armor unit (for 2.3-foot design wave) is 72 pounds on a 3:1 slope and 22 pounds on a 10:1 slope (Hudson Formula, U.S. Army Corps of Engineers, 1977. "Shore Protetion Manual.").

bcy = bank cubic yards

lcy = loose cubic yards

ls = lump sum

sf = square feet

sy = square yard

Table E-12. Soil Alternatives - Shoreline Protection Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Notes (continued):

Shoreline Protection Quantities (Rock Revetment):					
Length of Protection	2,400	ft	2,400	ft	total length for rock revetment
Width of Protection (average)	48	ft	48	ft	48' wide strip
Volume of excavation (average)	4.4	cy/lf	10,560	cy	4.4 cy/lf @ 2.5'depth
Crushed gravel backfill	0.4	cy/lf	1,056	cy	3" thick
Geotextile fabric	6.4	sy/lf	15,360	sy	5' additional each end for anchorage
Riprap (2 layers, 72 # units)	2.9	cy/lf	6,960	cy	165 pcf rock weight, 38% voids, 1.6' layer thickness
Sand	2.2	cy/lf	5,280	cy	0.65' layer thickness plus fill voids in rock layer (38% of 1.6')
Disposal quantity	5.9	T/lf	14,256	T	assume 100 pcf = 1.35 t/cy
Overburden Removal Quantities:					
Length of Protection	3,360	ft	3,360	ft	assumes 70% of shoreline protection requires overburden removal
Volume of excavation (average)	3.0	cy/lf	10,080	cy	(to achieve design slope; 3:1 in existing narrow/steep areas;
Disposal quantity (average)	4.1	T/lf	13,608	T	10:1 in gradually sloped/wide areas)
Shoreline Protection Quantities (Natural Materials with Underlying Rock Armor):					
Length of Protection	2,400	ft	2,400	ft	total length for hybrid stabilization
Width of Protection (average)	90	ft	90	ft	90' wide strip
Volume of excavation (average)	8.3	cy/lf	19,920	cy	4.4 cy/lf @ 2.5'depth
Crushed gravel backfill	0.8	cy/lf	1,992	cy	3" thick
Geotextile fabric	11.1	sy/lf	26,640	sy	5' additional each end for anchorage
Riprap (2 layers, 22 # units)	3.5	cy/lf	8,400	cy	165 pcf rock weight, 38% voids, 1.05' layer thickness
Sand	5.3	cy/lf	12,720	cy	1.2' layer thickness plus fill voids in rock layer (38% of 1.6')
Disposal quantity	11.2	T/lf	26,892	T	assume 100 pcf = 1.35 t/cy

Table E-13. Alternative S-2 - Production Rate Assumptions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate	Total Amount	Days to Complete	Assumptions
SITE PREP				
Grade soil staging area (3 acres)	2,000 sy/day	14,520 sy	8 days	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Install soil staging area liner, includes rad screening and stockpiling areas (3 acre, 80 mil HDPE)	8,800 sf/day	130,680 sf	15 days	Means 2005 Environmental Remediation - Unit Cost. Pg 9-85. 33 08 0573 02081 2153 (8x)
Grade laydown area (200 ft x 100 ft)	2,000 sy/day	2,222 sy	2 days	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	5,000 sy/day	2,222 sy	1 days	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
STEAM LINE INVESTIGATION AND REMOVAL				
Sampling and abatement	3,000 LF/day	53,640 LF	18 days	See Backup Worksheet "STEAM LINE"
Close steam lines in place	1,050 CF/day	16,809 CF	17 days	Means 2009 Heavy Construction. Pg 81. 04 05 16.30 2000, See Backup Worksheet "STEAM LINE"
Remove steam lines	350 LF/day	5,364 LF	16 days	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900, See Backup Worksheet "STEAM LINE"
FUEL LINE REMOVAL				
Excavate trench	200 CY/day	754 CY	4 days	Means 2009 Heavy Construction. Page 211. 31 23 16.13 0050, See Backup Worksheet "FUEL LINE"
Remove 8" fuel line	175 LF/day	2,827 LF	17 days	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900, See Backup Worksheet "FUEL LINE"
Backfill and compact	185 CY/day	754 CY	5 days	Means 2009 Heavy Construction. Pg 248. 31 23 23.23 7020, See Backup Worksheet "FUEL LINE"
ASPHALT COVERS				
6" Aggregate base course	10,000 sy/day	120,711 sy	13 days	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
2" Asphalt cover	12,680 sy/day	120,711 sy	10 days	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0120 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
1" Asphalt repair cover	21,150 sy/day	159,378 sy	8 days	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0340 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
HDPE LINER				
Install HDPE Liner in IR-02	8,102 sf/day	326,700 sf	41 days	Means 2005 Environmental Remediation - Unit Price. Pg 9-85. 33 08 0572 (6x); see Backup Worksheet "AREAS"
SOIL COVERS				
Spread dumped material	6,000 CY/day	188,533 CY	32 days	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020 (6x); see Backup Worksheet "AREAS" (converted sf to CY - 2' soil cover); assume that soil spreading and compaction can occur simultaneously
Compact soil cover	5,205 CY/day	188,533 CY	37 days	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620 (3x); see Backup Worksheet "AREAS" (converted sf to CY - 2' soil cover)

Table E-13. Alternative S-2 - Production Rate Assumptions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate	Total Amount	Days to Complete	Assumptions
LANDSCAPING				
Hydroseeding	105,024 sf/day	2,545,200 sf	25 days	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401 02810 2002 (4x)
Spread hydrofertilizer	600,000 sf/day	2,545,200 sf	5 days	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180; see Backup Worksheet "AREAS"
SURVEY				
Aerial survey (2' contours)			1 day	
		TOTAL	**230 days**	

Notes:
Eight crews working to install 80-mil HDPE liner for staging area
Two crews simulataneously backfilling shoreline with rip rap
Two crews working simulataneously preparing both new asphalt covers and asphalt repair covers
Six crews working simulataneously spreading soil covers
Three crews working simulataneously to compact soil covers
Four hydroseeding crews working simultaneously
Two crews working to pull steam lines
Three crews working to grout steam lines
Six crews to install HDPE liner

Table E-14. Alternative S-2 - Radiological Screening Rate Assumptions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Unit Production Rate	Units	Comments	Production per Day	Assumptions	Total Production per day
Preliminary rad screen (Pre-Excavation) 50'x50' grids	1,250	ft^2/hr per crew [1]	2 hours per grid per crew	4 grids screened per day per crew	1 crew of 4 could scan 1 grid cell per 2 hour, 4 crews working simultaneously at all times, 8 hour day	16 grids
Excavate 1-foot depth across 50'x50' grid	94	CY/hr per excavator [2]	1 hours per grid per excavator	752 CY/day per excavator	50'x50'x1' = 2,500 ft^3 = 93 CY/grid, 93 CY/grid x 16 grids = 1488 CY	1,504 CY/day ≈ 16 grids
Transport excavated 50'x50'x1' volume to secondary rad screening area / soil staging area in 8 CY loads	32	CY/hr per truck [3]	15 min cycle, 4 loads per hour	256 CY/day per truck	256 CY/day/truck x 6 trucks = 1536 CY/day	1,536 CY/day ≈ 16 grids
Secondary rad screen by conveyor belt	250	CY/day per conveyor [4]	-	250 CY/day per conveyor	6 conveyors working full time with crews of 3, 250 CY/day/conveyor x 6 conveyor = 1,500 CY/day	1,500 CY/day ≈ 16 grids

Notes:

[1] Average production rate determined from screening operations at other Hunter's Point parcels

[2] Means 2009 Heavy Construction. Page 219. 31 23 16.42 0260 (75% production reduction due to 1' depth limit - 125 CY/hr x 0.75 = 94 CY/hr)

[3] Means 2009 Heavy Construction. Page 230. 31 23 23.20 0114

[4] Average production rate determined from screening operations at other Hunter's Point parcels

Table E-15. Soil Alternatives - Soil Laboratory Analyses Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analysis[1]		Cost per Sample
Encore Samplers for TPH-purgeable range (3 per sample)	**$**	**39.00**
Analysis	**$**	**500.00**
Volatile Organic Compounds (VOCs)	$	100.00
Semivolatile Organic Compounds (SVOCs)	$	190.00
Pesticides	$	80.00
Polychlorinated Biphenyls (PCBs)	$	65.00
Total Petroleum Hydrocarbons (TPH), purgeable range	$	90.00
Total Petroleum Hydrocarbons (TPH), extractable range	$	55.00
Total Threshold Limit Concentration (TTLC), CA Title 22 Metals (Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, N, Se, Ag, Tl, V, Zn)	$	110.00
Toxic Characteristic Leaching Procedure (TCLP), CA Title 22 Metals	$	50.00
Soluble Threshold Limit Concentration (STLC), CA Title 22 Metals	$	50.00
Total Cost/Sample:	**$**	**539.00**

Notes:

(1) Analytical costs provided by TestAmerica Laboratories Inc., San Francisco, CA, in March 2009 (925-484-1919)

Table E-16. Soil Alternatives - Institutional Controls Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Institutional Control	Task	Labor Rate (per hour)	Labor Hour (hours)	Labor Cost (project total)	Material Cost (project total)	Total Cost (project total)
Land Use Control (LUC) Remedial Design						
	LUC RD scoping meeting	$ 123.00	40	$ 4,920		$ 4,920
	Prepare draft LUC RD	$ 123.00	140	$ 17,220		$ 17,220
	Submit draft LUC RD	$ 123.00	40	$ 4,920	$ 1,000	$ 5,920
	BCT review period	$ 123.00	16	$ 1,968		$ 1,968
	BCT comments due	$ 123.00	16	$ 1,968		$ 1,968
	RTC meeting and BCT concurrence	$ 123.00	16	$ 1,968		$ 1,968
	Prepare draft final LUC RD	$ 123.00	80	$ 9,840		$ 9,840
	Submit draft final LUC RD	$ 123.00	24	$ 2,952	$ 1,000	$ 3,952
	BCT review and concurrence period	$ 123.00	48	$ 5,904		$ 5,904
	BCT concurrence letters due	$ 123.00	32	$ 3,936		$ 3,936
	Prepare final LUC RD with RTC	$ 123.00	40	$ 4,920		$ 4,920
	Submit final LUC RD with RTC	$ 123.00	16	$ 1,968	$ 1,000	$ 2,968
					Land Use Control Implemetation and Certification Subtotal =	$ 65,484.00
Covenant to Restrict Use of Property						
	Prepare draft covenant	$ 234.00	80	$ 18,720	$ 1,000	$ 19,720
	File covenant	$ 234.00	28	$ 6,587		$ 6,587
					Covenant to Restrict Use of Property Subtotal =	$ 26,306.50
Deed Restrictions						
	Prepare draft deed restrictions	$ 234.00	80	$ 18,720	$ 1,000	$ 19,720
	File deed restrictions	$ 234.00	28	$ 6,587		$ 6,587
					Deed Restrictions Subtotal =	$ 26,306.50
					Total Project Institutional Controls Cost	$ 118,097

Notes:

1. Material costs include ODCs for printing

Table E-17. Soil Alternatives - Institutional Controls Operations and Monitoring and Landscaping Maintenance Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Summary	Total	Total + 20% Contingency
Annual Cost for Institutional Controls and Maintained Landscaping Monitoring	$ 94,726.29	$ 113,671.55
5-Year Periodic Cost for Institutional Controls and Maintained Landscaping Monitoring	$ 57,240.00	$ 68,688.00
10-Year Periodic Cost for Asphalt Rehabilitation and Shoreline Protection Inspection and Rehabilitatior	$ 1,709,412.23	$ 2,051,294.68

Description	Task	Quantity	Unit	Unit Cost	Total Cost (project total)	Remarks
Annual Site Inspection						
	Inspection	20	hour	$ 79.00	$ 1,580	
	Report	30	hour	$ 79.00	$ 2,370	
					$ 3,950	
Annual Landscape Maintenance						
	Hydrofertilizer (1x per year)	2,545	sf x 1,000	$ 5.42	$ 13,801	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180
	Watering w/ 3,000-gallon tank truck (6x per year)	351	acre	$ 89.06	$ 31,223	Means 2005 Environmental Remediation - Unit Price. Pg 4-9. 18 05 0413
	Mowing (6x per year)	15,271	sf x 1,000	$ 3.00	$ 45,752	Means 2009 Heavy Construction. Page 273. 32 01 90.19 4160
					$ 90,776	
5-Year Site Inspection and Report						
	Inspection	120	hour	$ 79.00	$ 9,480	
	5-year engineering report	400	hour	$ 79.00	$ 31,600	
	Miscellaneous legal action	80	hour	$ 79.00	$ 6,320	
	Miscellaneous legal action	80	hour	$ 123.00	$ 9,840	
					$ 57,240	
10-Year Shoreline Protection Inspection and Rehabilitation						
	Inspection	120	hour	$ 79.00	$ 9,480	
	10-year shoreline protection report	400	hour	$ 79.00	$ 31,600	
	Replace riprap [(1)]	768	bcy	$ 89.98	$ 69,101	Means 2010 Heavy Construction: 31 37 13.10 010, plus 25% for work in water
	Replace coarse sand [(2)]	4,500	bcy	$ 24.38	$ 109,691	Means 2010 Heavy Construction: 31 23 23.15 6070 (w/ material + $5.25/bcy for granular, plus 25% for work in water)
	Mobilization/demobilization	1	ls		$ 17,879	10% of construction cost
	Quality Control Officer	40	hour	$ 95.00	$ 3,800	
	Health and Safety Officer	40	hour	$ 95.00	$ 3,800	
					$ 245,351	
10-Year Asphalt Rehabilitation						
	Mob/Demob Asphalt Paver, 130 H.P.	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob and demob)
	Mob/Demob Tandem Rollers, 10 Ton	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob and demob)
	Mob/Demob Roller, Pneum. Whl, 12 Ton	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob and demob)
	1" Asphalt Repair Cover	280,089	sy	$ 5.14	$ 1,439,013	Means 2009 Heavy Construction. Page 276. 32 12 16.13 030(
	Quality Control Officer	120	hour	$ 95.00	$ 11,400	
	Health and Safety Officer	120	hour	$ 95.00	$ 11,400	
					$ 1,464,061	

Notes:
(1) Assume that 5% of the total shoreline revetment riprap will need to be replaced every 10 years
(2) Assume that 25% of the total sand will need to be replaced every 10 years

Table E-18. Alternative S-3 - Excavation Volume Estimates

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Excavation Name	Length (feet)	Width (feet)	Area (feet)	Average Depth (feet)	Volume (ft^3)	Volume (CY)	Over Excavation Volume (CY)	Total Volume with 20% Fluff Factor (CY)	Excavation Perimeter	Quantity of Samples[1]	Location Type[2]
BLOCK EOS-1 (SHORELINE OPEN SPACE WESTERN PORTION)											
EX02B122	60	50	3,000	10	30,000	1,111	167	1,533	220	43	Tier 1 Location
EX02B250	20	20	400	6	2,400	89	13	123	80	12	TPH Location
EX02B256	50	40	2,000	9	18,000	667	100	920	180	33	Tier 1 Location
EX02B288	65	50	3,250	6	19,500	722	108	997	230	45	Tier 1 Location
EX02B412	115	40	4,600	4	18,400	681	102	940	310	62	Tier 1 Location
EX02B428	40	20	800	5	4,000	148	22	204	120	20	TPH Location
EX02B456	50	50	2,500	8.5	21,250	787	118	1,086	200	38	Tier 1 Location
EX02B524	85	50	4,250	5.5	23,375	866	130	1,195	270	55	Tier 1 Location
EX02B525	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02GR73SW	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
EX02GR93SW	40	40	1,600	9	14,400	533	80	736	160	28	Tier 1 Location
EX02GR117SW	40	40	1,600	7	11,200	415	62	572	160	28	TPH Location
EX02GR131SW	20	20	400	9	3,600	133	20	184	80	12	TPH Location
EX02GR132BT	50	20	1,000	8.5	8,500	315	47	434	140	23	TPH Location
EX02GR179SW	40	40	1,600	7	11,200	415	62	572	160	28	Tier 1 Location
EX02GR184SW	40	40	1,600	7	11,200	415	62	572	160	28	Tier 1 Location
Block EOS-1 Subtotals =			31,800	-	209,825	7,771	1,166	10,724	-	513	
BLOCK EOS-2 (SHORELINE OPEN SPACE CENTRAL PORTION)											
EX02B100	40	40	1,600	3.5	5,600	207	31	286	160	28	Tier 1 Location
EX02B398	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02B401	100	60	6,000	5	30,000	1,111	167	1,533	320	69	Tier 1 Location
EX02B403	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02B415	80	55	4,400	5	22,000	815	122	1,124	270	56	Tier 1 Location
EX02B461	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02SS320	40	40	1,600	2.5	4,000	148	22	204	160	28	Tier 1 Location
Block EOS-2 Subtotals =			18,400	-	85,600	3,170	476	4,375	-	267	
BLOCK EOS-3 (SHORELINE OPEN SPACE - IR03)											
EX02GP002	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02GP008	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02GP016A	20	20	400	16	6,400	237	36	327	80	12	TPH Location
EX02GP038	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02GP040	75	60	4500	16	72,000	2,667	400	3,680	270	56	TPH Location
EX02GP050	20	20	400	16	6,400	237	36	327	80	12	TPH Location
EX02GP051A	20	20	400	16	6,400	237	36	327	80	12	TPH Location
EX02MW146	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02MW173A	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX03SS368	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location

Table E-18. Alternative S-3 - Excavation Volume Estimates *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Excavation Name	Length (feet)	Width (feet)	Area (feet)	Average Depth (feet)	Volume (ft^3)	Volume (CY)	Over Excavation Volume (CY)	Total Volume with 20% Fluff Factor (CY)	Excavation Perimeter	Quantity of Samples[1]	Location Type[2]
BLOCK EOS-3 (SHORELINE OPEN SPACE - IR03) *(continued)*											
EX03TA40B	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
	Block EOS-3 Subtotals =		10,900	-	119,200	4,415	662	6,092	-	212	
BLOCK EOS-4 (SHORELINE OPEN SPACE SOUTHERN PORTION)											
EX02B355	20	20	400	8.5	3,400	126	19	174	80	12	TPH Location
EX02B369	75	40	3,000	3.5	10,500	389	58	537	230	44	Tier 1 Location
EX02B464	80	50	4,000	5	20,000	741	111	1,022	260	52	Tier 1 Location
EX02B468	20	20	400	3	1,200	44	7	61	80	12	TPH Location
EX02B497	70	40	2,800	4	11,200	415	62	572	220	42	Tier 1 Location
EX02B505	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX11B023[3]	-	-	1,157	3.5	4,050	150	23	207	160	26	Tier 1 Location
EX15B027	40	40	1,600	4	6,400	237	36	327	160	28	Tier 1 Location
EX380803	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
	Block EOS-4 Subtotals =		16,557	-	69,550	2,576	386	3,555	-	275	
BLOCK MU-1 (SHIPYARD SOUTH MULTI-USE WESTERN PORTION)											
EX01SS349	40	40	1,600	2.5	4,000	148	22	204	160	28	Tier 1 Location
EX05B094	60	40	2,400	10	24,000	889	133	1,227	200	37	Tier 1 Location
EX05B104	80	80	6,400	4	25,600	948	142	1,308	320	71	Tier 1 Location
EX05MW85A	80	80	6,400	5.5	35,200	1,304	196	1,799	320	71	Tier 1 Location
EX12MW17A	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX12MW18A	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX12SS16	60	40	2,400	2	4,800	178	27	245	200	37	Tier 1 Location
EX12SS17	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location
EX12TA08	40	40	1,600	10	16,000	593	89	818	160	28	Tier 1 Location
EX12TA10	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX13B003B	60	40	2,400	4	9,600	356	53	491	200	37	Tier 1 Location
EX13B004	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX13B007	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX13B010	40	40	1,600	4	6,400	237	36	327	160	28	Tier 1 Location
EX13B023	80	40	3,200	4	12,800	474	71	654	240	46	Tier 1 Location
EX36B027	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX36B062	60	40	2,400	10	24,000	889	133	1,227	200	37	Tier 1 Location
EX36B063	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX36B138	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
EX36B180	80	40	3,200	4	12,800	474	71	654	240	46	Tier 1 Location
	Block MU-1 Subtotals =		48,000	-	253,600	9,393	1,409	12,962	-	725	
BLOCK MU-2 (SHIPYARD SOUTH MULTI-USE SOUTHERN PORTION)											
EX14MW10A	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX14SS05	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location

Table E-18. Alternative S-3 - Excavation Volume Estimates *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Excavation Name	Length (feet)	Width (feet)	Area (feet)	Average Depth (feet)	Volume (ft^3)	Volume (CY)	Over Excavation Volume (CY)	Total Volume with 20% Fluff Factor (CY)	Excavation Perimeter	Quantity of Samples[1]	Location Type[2]
BLOCK MU-2 (SHIPYARD SOUTH MULTI-USE SOUTHERN PORTION) *(continued)*											
EX36B015	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX36B072	60	40	2,400	4	9,600	356	53	491	200	37	Tier 1 Location
EX36B116	40	40	1,600	4	6,400	237	36	327	160	28	Tier 1 Location
EX36B162	40	40	1,600	10	16,000	593	89	818	160	28	Tier 1 Location
	Block MU-2 Subtotals =		10,400	-	49,600	1,837	276	2,535	-	180	
BLOCK MU-3 (SHIPYARD SOUTH MULTI-USE NORTHERN PORTION)											
EX04B011	105	60	6,300	4	25,200	933	140	1,288	330	72	Tier 1 Location
EX04B012	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX04B015	40	40	1,600	3.5	5,600	207	31	286	160	28	Tier 1 Location
EX04B030	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX12TA13	40	40	1,600	6	9,600	356	53	491	160	28	Tier 1 Location
EX72SS23	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location
	Block MU-3 Subtotals =		14,300	-	65,200	2,415	362	3,332	-	214	
BLOCK EOS-5 (RAILROAD RIGHT-OF-WAY)											
EX52B009	40	40	1,600	6	9,600	356	53	491	160	28	Tier 1 Location
EX52SS02	20	20	400	3	1,200	44	7	61	80	12	TPH Location
EX52SS06	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
	Railroad Right-of-Way Subtotals =		3,600	-	15,600	578	87	797	-	69	
TOTALS			**153,957**	**-**	**868,175**	**32,155**	**4,823**	**44,373**	**-**	**2,456**	

Notes:

(1) Confirmation soil samples will be collected from both the sidewalls and bottom of each excavation with the following frequency:

Two sidewall samples (one shallow and one deep) will be collected on each sidewall for every 15 feet of excavation perimeter.

Bottom samples will be collected every 225 square feet, or at least one per excavation.

(2) Alternative S-3 includes excavation of Tier 1 locations (with COCs at concentrations greater than 10 times the remedial goals) and TPH locations (exceeding the TPH source criterion)

(3) Excavations are adjacent buildings and are not uniform in shape to order to protect building footprint.

Table E-19. Alternative S-3 - Tier 1 Excavations Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
Excavate areas with 1-1/2 CY excavator	44,373	CY	$ 2.86	$ 127,036	Means 2009 Heavy Construction. Pg 219. 31 23 16.42 0250; multiplied by 1.25 for reduced production rate due to screening
Coffer Dam	1	ls	$ 174,000.00	$ 174,000	See Parcel E-2 FS
Confirmation sample collection (direct push)	2,456	each	$ 81.83	$ 200,995	Means 2005 Environmental Remediation - Unit Price. Pg 9-24. 33 02 0648; see "ALT S-3 VOLUMES" Worksheet
Confirmation sample analysis	2,456	each	$ 539.00	$ 1,323,921	See "LAB COST" Worksheet; see "ALT S-3 VOLUMES" Worksheet
Over excavate contaminated soils	4,437	CY	$ 2.86	$ 12,704	Means 2009 Heavy Construction. Pg 219. 31 23 16.42 0250; multiplied by 1.25 for reduced production rate due to screening
Conveyer system rental with misters and radialogical detectors	4	months	$ 8,170.80	$ 32,683	Means 2009 Heavy Construction. Pg 466. 01 54 33.10 0800 (x6)
Operation of conveyer system	65	days	$ 594.24	$ 38,626	Means 2009 Heavy Construction. Pg 466. 01 54 33.10 0800 (x6)
Radiological monitoring equipment rental for pre-excavation screening	4	months	$ 7,200.00	$ 28,800	Ludlum Model 44-2 1"x 1" NaI GAMMA Scintillator (unit rental cost provided by Suntrac Services, 1-800-579-4513, March 2009) (x16)
Haul soil to secondary screening area with 8 CY trucks	48,811	CY	$ 4.16	$ 203,037	Means 2009 Heavy Construction. Pg 230. 31 23 23.20 0114
Radiological monitoring equipment for post-excavation conveyor	4	months	$ 27,000.00	$ 108,000	Assumed to be 10 times the cost of the portable scintillator (x6)
Soil analysis for disposal (1 per 500 CY) (4 pt. composite samples)	98	each	$ 539.00	$ 52,618	See "LAB COST" Worksheet for Detail
Transport and disposal of excavated material					
Class II Benificial Reuse Soil to Altamont	25,626	ton	$ 38.82	$ 994,787	Assumed Fraction of Total Waste: 35%
Class II Soil to Altamont	18,304	ton	$ 72.42	$ 1,325,578	Assumed Fraction of Total Waste: 25%
Class I Non-RCRA Soil to Kettleman Hills	10,982	ton	$ 81.15	$ 891,223	Assumed Fraction of Total Waste: 15%
Class I RCRA Direct LF Soil to Kettleman Hills	7,322	ton	$ 130.04	$ 952,102	Assumed Fraction of Total Waste: 10%
Class I RCRA Stabilization Soil to Kettleman Hills	7,322	ton	$ 172.24	$ 1,261,075	Assumed Fraction of Total Waste: 10%
Disposal of radiologically impacted waste	3,661	ton	$ 120.00	$ 439,297	Assumed Fraction of Total Waste: 5%
Soil analysis for import soil (1 per 1000 CY) (4 pt. composite samples)	44	each	$ 539.00	$ 23,917	See "LAB COST" Worksheet for Detail
Backfill excavations with unclassified fill (delivered, spread, compacted in 6-in. lifts)	44,373	ton	$ 13.61	$ 603,936	Means 2005 Environmental Remediation - Unit Price. Pg 4-23. 17 03 0423
TOTAL				$ 8,794,334	

Notes:

Values from the "Means 2005 Environmental Remediation - Unit Price" and "Means 2005 Environmental Remediation - Assemblies" were multiplied by an inflation factor (see "BACKUP" Worksheet)

Tier 1 Excavation Volumes and Areas:

Area requiring excavation and backfill	153,957	SF	
Volume requiring excavation	44,373	CY	
Volume of overexcavation due to chasing contamination	4,437	CY	Assume 10% of estimated volume
Total volume requiring excavation and backfill	48,811	CY	
Excavated material tonage	73,216	TN	Assumed unit weight of 1.5 TN/CY
Total number of 50'x50' grid surfaces estimated	94	surface grids	See Backup Worksheet "RAD SCREENING"
Total number of estimated equivalent grids	570	equivalent grids	See Backup Worksheet "RAD SCREENING"

Table E-20. Alternative S-3 - Production Rate Assumptions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate	Total Amount	Days to Complete	Assumptions
SITE PREP				
Grade soil staging area (3 acres)	2,000 sy/day	14,520 sy	8 days	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Install soil staging area liner, includes rad screening and stockpiling areas (3 acre, 80 mil HDPE)	8,800 sf/day	130,680 sf	15 days	Means 2005 Environmental Remediation - Unit Cost. Pg 9-85. 33 08 0573 02081 2153 (8x)
Grade laydown area (200 ft x 100 ft)	2,000 sy/day	2,222 sy	2 days	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	5,000 sy/day	2,222 sy	1 days	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
TIER 1 EXCAVATIONS				
Excavate 1'x50'x50' grid	16 grids/day	570 equiv. grids	36 days	See Backup Worksheet "RAD SCREENING"; see Backup Worksheet "TIER 1 EXCAVATIONS"
Backfill and compact	1,735 CY/day	48,811 CY	29 days	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620; assume that spreading and compaction of one excavation can happen concurrently with excavation of another area
STEAM LINE INVESTIGATION AND REMOVAL				
Sampling and abatement	3,000 LF/day	53,640 LF	18 days	See Backup Worksheet "STEAM LINE"
Close steam lines in place	1,050 CF/day	16809 CF	17 days	Means 2009 Heavy Construction. Pg 81. 04 05 16.30 2000; see Backup Worksheet "STEAM LINE"
Remove steam lines	350 LF/day	5364 LF	16 days	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900; see Backup Worksheet "STEAM LINE"
FUEL LINE REMOVAL				
Excavate trench	200 CY/day	754 CY	4 days	Means 2009 Heavy Construction. Page 211. 31 23 16.13 0050; see Backup Worksheet "FUEL LINE"
Remove 8" fuel line	175 LF/day	2827 LF	17 days	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900; see Backup Worksheet "FUEL LINE"
Backfill and compact	185 CY/day	754 CY	5 days	Means 2009 Heavy Construction. Pg 248. 31 23 23.23 7020; see Backup Worksheet "FUEL LINE"
ASPHALT COVERS				
6" Aggregate base course	10,000 sy/day	120,711 sy	13 days	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
2" Asphalt cover	12,680 sy/day	120,711 sy	10 days	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0120 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
1" Asphalt repair cover	21,150 sy/day	159,378 sy	8 days	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0340 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
HDPE LINER				
Install HDPE Liner in IR-02	8,102 sf/day	326,700 sf	41 days	Means 2005 Environmental Remediation - Unit Price. Pg 9-85. 33 08 0572 (6x); see Backup Worksheet "AREAS"

Table E-20. Alternative S-3 - Production Rate Assumptions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate	Total Amount	Days to Complete	Assumptions
SOIL COVERS				
Spread dumped material	6,000 CY/day	188,533 CY	32 days	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020 (6x); see Backup Worksheet "AREAS" (converted sf to CY - 2' soil cover); assume that soil spreading and compaction can occur simultaneously
Compact soil cover	5,205 CY/day	188,533 CY	37 days	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620 (3x); see Backup Worksheet "AREAS" (converted sf to CY - 2' soil cover)
LANDSCAPING				
Hydroseeding	105,024 sf/day	2,545,200 sf	25 days	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401 02810 2002 (4x)
Spread hydrofertilizer	600,000 sf/day	2,545,200 sf	5 days	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180, See Backup Worksheet "AREAS"
SURVEY				
Aerial survey (2' contours)			1 day	
		TOTAL	**266 days**	

Notes:
Eight crews working to install 80-mil HDPE liner for staging area
Two crews simulataneously backfilling shoreline with rip rap
Two crews working simulataneously preparing both new asphalt covers and asphalt repair covers
Six crews working simulataneously spreading soil covers
Three crews working simulataneously to compact soil covers
Four hydroseeding crews working simultaneously
Two crews working to pull steam lines
Three crews working to grout steam lines
Six crews to install HDPE liner

Table E-21. Soil Alternatives - Monitoring Well Decommissioning Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Well Decomissioning	Unit	Quantity	Unit Price	Cost	Comment
Mobilization and Demobilization					
Hollow-Stem Auger Drill Rig and Support Vehicle	mi	180	$ 6.00	$ 1,080.00	Estimate supplied by TestAmerica Drilling, January 2009
Well Abandonment					
Well Head Breakout	ea		$ 100.00	$ -	Estimate supplied by TestAmerica Drilling, January 2009
Over-Drilling (Hollow-Stem Auger)	day	1	$ 3,250.00	$ 3,250.00	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	day	1	$ 450.00	$ 450.00	Estimate supplied by TestAmerica Drilling, January 2009
Labor	day	1	$ 1,253.60	$ 1,253.60	Means 2009 Heavy Construction. Pg 479; 2 Laborers and 1 Equipment Operator (light)
Report	ea	1	$ 3,000.00	$ 3,000.00	
Total Well Decomissioning Cost				**$ 9,033.60**	

Table E-22. Soil Alternatives - Water Treatment System Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
Mobilize modular tank, 21,000 gal. (5)	4.5	hr	$ 950.00	$ 4,275	Quote from Baker Tanks, March 2009, (925) 439-8251 (unit cost multiplied by 2 to account for mob and demob)
Mobilization of clay and carbon filtration system	1	ls	$ 500.00	$ 500	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Organphillic clay, initial fill	1	ls	$ 4,945.00	$ 4,945	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Virgin coconut shell carbon acid washed (12x30), initial fill	6,000	lb	$ 1.25	$ 7,500	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Structural slab on grade (8 in. thick; 60 x 15 ft.)	900	sf	$ 10.48	$ 9,429	Means 2005 Environmental Remediation - Assemblies; Pg 3-60; 18 02 0322
Filter bags, 25 micron PDDA	1	ea	$ 3.20	$ 3	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Particulate filter cartridges, 5.0 micron	8	ea	$ 9.05	$ 72	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Equipment Rental					
Modular tank, 21,000 gal. (5)	4	mo	$ 1,036.00		Quote from Baker Tanks, March 2009, (925) 439-8251
Forklift, straight mast, 12' lift, 5,000 lb, 2 wheel drive, gas	4	mo	$ 1,775.00	$ 7,100	Means 2009 Heavy Construction. Pg 470. 01 54 33 40 2020
Feed pump (submersible 2", 120 gpm)	4	mo	$ 201.00	$ 804	Means 2009 Heavy Construction. Pg 471. 01 54 33 40 4700
Box weir	4	mo	$ 1,064.00	$ 4,256	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Electric centrifugal pump, 20 GPM	4	mo	$ 1,250.00	$ 5,000	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Electrical panel and cable	4	mo	$ 100.00	$ 400	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Particulate filter, PF 50 (2)	4	mo	$ 1,500.00	$ 6,000	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Clay vessel, 35 CY	4	mo	$ 225.00	$ 900	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Carbon vessels, 2,000 lbs (3)	4	mo	$ 2,277.00	$ 9,108	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Miscellaneous pipe, hose, adapters, etc. rental	4	mo	$ 1,000.00	$ 4,000	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Disposal of clay and carbon	1	ls	$ 3,070.00	$ 3,070	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Demobilization of clay and carbon filtration system	1	ls	$ 725.00	$ 725	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Delivery and pick-up hauling	1	ls	$ 1,260.00	$ 1,260	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Fuel Surcharge	1	ls	$ 378.00	$ 378	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
TOTAL				$ 60,006	

Table E-23. Alternatives S-4 - Excavation Volume Estimates

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Excavation Name	Length (feet)	Width (feet)	Area (feet)	Average Depth (feet)	Volume (ft^3)	Volume (CY)	Over Excavation Volume (CY)	Total Volume with 20% Fluff Factor (CY)	Excavation Perimeter	Quantity of Samples[1]	Exceedance Type[2]
BLOCK EOS-1 (SHORELINE OPEN SPACE WESTERN PORTION)											
EX02B122	60	50	3,000	10	30,000	1,111	167	1,533	220	43	Tier 1 Location
EX02B250	20	20	400	6	2,400	89	13	123	80	12	TPH Location
EX02B256	50	40	2,000	9	18,000	667	100	920	180	33	Tier 1 Location
EX02B288	65	50	3,250	6	19,500	722	108	997	230	45	Tier 1 Location
EX02B412	115	40	4,600	4	18,400	681	102	940	310	62	Tier 1 Location
EX02B428	40	20	800	5	4,000	148	22	204	120	20	TPH Location
EX02B442	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
EX02B456	50	50	2,500	8.5	21,250	787	118	1,086	200	38	Tier 1 Location
EX02B524	85	50	4,250	5.5	23,375	866	130	1,195	270	55	Tier 1 Location
EX02B525	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02GR71SW	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX02GR73SW	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
EX02GR93SW	40	40	1,600	9	14,400	533	80	736	160	28	Tier 1 Location
EX02GR117SW	40	40	1,600	7	11,200	415	62	572	160	28	TPH Location
EX02GR131SW	20	20	400	9	3,600	133	20	184	80	12	TPH Location
EX02GR132BT	50	20	1,000	8.5	8,500	315	47	434	140	23	TPH Location
EX02GR179SW	40	40	1,600	7	11,200	415	62	572	160	28	Tier 1 Location
EX02GR184SW	40	40	1,600	7	11,200	415	62	572	160	28	Tier 1 Location
EX02SS310	20	20	400	2.5	1,000	37	6	51	80	12	Tier 2 Location
EX02TA16A	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
	Block EOS-1 Subtotals =		33,400	-	215,225	7,971	1,196	11,000	-	563	
BLOCK EOS-2 (SHORELINE OPEN SPACE CENTRAL PORTION)											
EX02B100	40	40	1,600	3.5	5,600	207	31	286	160	28	Tier 1 Location
EX02B398	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02B401	100	60	6,000	5	30,000	1,111	167	1,533	320	69	Tier 1 Location
EX02B403	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02B405	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
EX02B415	80	55	4,400	5	22,000	815	122	1,124	270	56	Tier 1 Location
EX02B461	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02MW149	55	20	1,100	4	4,400	163	24	225	150	25	Tier 2 Location
EX02SS320	40	40	1,600	2.5	4,000	148	22	204	160	28	Tier 1 Location
	Block EOS-2 Subtotals =		19,900	-	91,600	3,393	509	4,682	-	304	
BLOCK EOS-3 (SHORELINE OPEN SPACE - IR03)											
EX02B098D	20	20	400	3.5	1,400	52	8	72	80	12	Tier 2 Location
EX02GP002	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02GP008	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02GP016A	20	20	400	16	6,400	237	36	327	80	12	TPH Location
EX02GP038	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02GP040	75	60	4500	16	72,000	2,667	400	3,680	270	56	TPH Location
EX02GP050	20	20	400	16	6,400	237	36	327	80	12	TPH Location
EX02GP051A	20	20	400	16	6,400	237	36	327	80	12	TPH Location
EX02MW146	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX02MW173A	20	20	400	10	4,000	148	22	204	80	12	TPH Location
EX03B220	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX03B343	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location

Table E-23. Alternatives S-4 - Excavation Volume Estimates *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Excavation Name	Length (feet)	Width (feet)	Area (feet)	Average Depth (feet)	Volume (ft^3)	Volume (CY)	Over Excavation Volume (CY)	Total Volume with 20% Fluff Factor (CY)	Excavation Perimeter	Quantity of Samples[1]	Exceedance Type[2]
BLOCK EOS-3 (SHORELINE OPEN SPACE - IR03) *(continued)*											
EX03B344	20	20	400	5	2,000	74	11	102	80	12	Tier 2 Location
EX03B345	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX03B367	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX03SS368	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location
EX03TA40B	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
	Block EOS-3 Subtotals =		13,300	-	127,400	4,719	708	6,512	-	287	
BLOCK EOS-4 (SHORELINE OPEN SPACE SOUTHERN PORTION)											
EX02B184	20	20	400	3.5	1,400	52	8	72	80	12	Tier 2 Location
EX02B355	20	20	400	8.5	3,400	126	19	174	80	12	TPH Location
EX02B369	75	40	3,000	3.5	10,500	389	58	537	230	44	Tier 1 Location
EX02B464	80	50	4,000	5	20,000	741	111	1,022	260	52	Tier 1 Location
EX02B468	20	20	400	3	1,200	44	7	61	80	12	TPH Location
EX02B493	20	20	400	5	2,000	74	11	102	80	12	Tier 2 Location
EX02B497	70	40	2,800	4	11,200	415	62	572	220	42	Tier 1 Location
EX02B505	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX02B506	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX02G105	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX02GR93SW	20	20	400	5	2,000	74	11	102	80	12	Tier 2 Location
EX11B023[3]	-	-	1,157	3.5	4,050	150	23	207	160	26	Tier 1 Location
EX11B024	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX11SS022	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX14B026	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
EX15B027	40	40	1,600	4	6,400	237	36	327	160	28	Tier 1 Location
EX380803	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
	Block EOS-4 Subtotals =		19,757	-	81,350	3,013	452	4,158	-	374	
BLOCK MU-1 (SHIPYARD SOUTH MULTI-USE WESTERN PORTION)											
EX01SS349	40	40	1,600	2.5	4,000	148	22	204	160	28	Tier 1 Location
EX05B094	60	40	2,400	10	24,000	889	133	1,227	200	37	Tier 1 Location
EX05B104	80	80	6,400	4	25,600	948	142	1,308	320	71	Tier 1 Location
EX05MW85A	80	80	6,400	5.5	35,200	1,304	196	1,799	320	71	Tier 1 Location
EX12MW17A	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX12MW18A	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX12SS16	60	40	2,400	2	4,800	178	27	245	200	37	Tier 1 Location
EX12SS17	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location
EX12SS18	20	20	400	2	800	30	4	41	80	12	Tier 2 Location
EX12TA08	40	40	1,600	10	16,000	593	89	818	160	28	Tier 1 Location
EX12TA10	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX13B003B	60	40	2,400	4	9,600	356	53	491	200	37	Tier 1 Location
EX13B004	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX13B007	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX13B010	40	40	1,600	4	6,400	237	36	327	160	28	Tier 1 Location
EX13B021	40	20	800	4	3,200	119	18	164	120	20	Tier 2 Location
EX13B023	80	40	3,200	4	12,800	474	71	654	240	46	Tier 1 Location
EX36B027	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location

Table E-23. Alternatives S-4 - Excavation Volume Estimates *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Excavation Name	Length (feet)	Width (feet)	Area (feet)	Average Depth (feet)	Volume (ft^3)	Volume (CY)	Over Excavation Volume (CY)	Total Volume with 20% Fluff Factor (CY)	Excavation Perimeter	Quantity of Samples[1]	Exceedance Type[2]
BLOCK MU-1 (SHIPYARD SOUTH MULTI-USE WESTERN PORTION) *(continued)*											
EX36B056	20	20	400	3.5	1,400	52	8	72	80	12	Tier 2 Location
EX36B062	60	40	2,400	10	24,000	889	133	1,227	200	37	Tier 1 Location
EX36B063	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX36B078	20	20	400	3.5	1,400	52	8	72	80	12	Tier 2 Location
EX36B105	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX36B136	20	20	400	3	1,200	44	7	61	80	12	Tier 2 Location
EX36B138	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
EX36B180	80	40	3,200	4	12,800	474	71	654	240	46	Tier 1 Location
EX36B208	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
	Block MU-1 Subtotals =		51,200	-	264,400	9,793	1,469	13,514	-	820	
BLOCK MU-2 (SHIPYARD SOUTH MULTI-USE SOUTHERN PORTION)											
EX14MW10A	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX14SS05	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location
EX36B015	40	40	1,600	4.5	7,200	267	40	368	160	28	Tier 1 Location
EX36B072	60	40	2,400	4	9,600	356	53	491	200	37	Tier 1 Location
EX36B116	40	40	1,600	4	6,400	237	36	327	160	28	Tier 1 Location
EX36B162	40	40	1,600	10	16,000	593	89	818	160	28	Tier 1 Location
EX36B163	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
EX38SS01	20	20	400	2	800	30	4	41	80	12	Tier 2 Location
	Block MU-2 Subtotals =		11,200	-	52,000	1,926	289	2,658	-	204	
BLOCK MU-3 (SHIPYARD SOUTH MULTI-USE NORTHERN PORTION)											
EX04B011	105	60	6,300	4	25,200	933	140	1,288	330	72	Tier 1 Location
EX04B012	40	40	1,600	8.5	13,600	504	76	695	160	28	Tier 1 Location
EX04B015	40	40	1,600	3.5	5,600	207	31	286	160	28	Tier 1 Location
EX04B030	40	40	1,600	5	8,000	296	44	409	160	28	Tier 1 Location
EX04B034	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
EX01SS350	20	20	400	2.5	1,000	37	6	51	80	12	Tier 2 Location
EX12SS02	20	20	400	2	800	30	4	41	80	12	Tier 2 Location
EX12TA13	40	40	1,600	6	9,600	356	53	491	160	28	Tier 1 Location
EX56B021	20	20	400	4	1,600	59	9	82	80	12	Tier 2 Location
EX72SS23	40	40	1,600	2	3,200	119	18	164	160	28	Tier 1 Location
	Block MU-3 Subtotals =		15,900	-	70,200	2,600	390	3,588	-	264	
BLOCK EOS-5 (RAILROAD RIGHT-OF-WAY)											
EX52B009	40	40	1,600	6	9,600	356	53	491	160	28	Tier 1 Location
EX52SS02	20	20	400	3	1,200	44	7	61	80	12	TPH Location
EX52SS06	40	40	1,600	3	4,800	178	27	245	160	28	Tier 1 Location
	Railroad Right-of-Way Subtotals =		3,600	-	15,600	578	87	797	-	69	
			168,257	**-**	**917,775**	**33,992**	**5,099**	**46,909**	**-**	**2,886**	

Notes:

(1) Confirmation soil samples will be collected from both the sidewalls and bottom of each excavation with the following frequency:
Two sidewall samples (one shallow and one deep) will be collected on each sidewall for every 15 feet of excavation perimeter.
Bottom samples will be collected every 225 square feet, or at least one per excavation.

(2) Alternative S-4 includes excavation of Tier 1 and Tier 2 locations (with COCs at concentrations greater than 5 times the remedial goals) and TPH locations (exceeding the TPH source criterion)

(3) Excavations are adjacent buildings and are not uniform in shape to order to protect building footprint.

Table E-24. Alternative S-4 - Tier 1 and Tier 2 Excavations Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
Excavate areas with 1-1/2 CY excavator	46,909	CY	$ 2.86	$ 134,293	Means 2009 Heavy Construction. Pg 219. 31 23 16.42 0250; multiplied by 1.25 for reduced production rate due to screening
Coffer Dam	1	ls	$ 174,000.00	$ 174,000	See Parcel E-2 FS
Confirmation sample collection (direct push)	2,886	each	$ 81.83	$ 236,200	Means 2005 Environmental Remediation - Unit Price. Pg 9-24. 33 02 0648; see "ALT S-4 VOLUMES" Worksheet
Confirmation sample analysis	2,886	each	$ 539.00	$ 1,555,811	See "LAB COST" Worksheet; see "ALT S-4 VOLUMES" Worksheet
Over excavate contaminated soils	4,691	CY	$ 2.86	$ 13,429	Means 2009 Heavy Construction. Pg 219. 31 23 16.42 0250; multiplied by 1.25 for reduced production rate due to screening
Conveyer system rental with misters and radialogical detectors	4	months	$ 8,170.80	$ 32,683	Means 2009 Heavy Construction. Pg 466. 01 54 33.10 0800 (x6)
Operation of conveyer system	47	days	$ 594.24	$ 27,929	Means 2009 Heavy Construction. Pg 466. 01 54 33.10 0800 (x6)
Radiological monitoring equipment rental for pre-excavation screening	4	months	$ 7,200.00	$ 28,800	Ludlum Model 44-2 1"x 1" NaI GAMMA Scintillator (unit rental cost provided by Suntrac Services, 1-800-579-4513, March 2009) (x16)
Haul soil to secondary screening area with 8 CY trucks	51,599	CY	$ 4.16	$ 214,637	Means 2009 Heavy Construction. Pg 230. 31 23 23.20 0114
Radiological monitoring equipment for post-excavation conveyor screening	4	months	$ 27,000.00	$ 108,000	Assumed to be 10 times the cost of the portable scintillator (x6)
Soil analysis for disposal (1 per 500 CY) (4 pt. composite samples)	103	each	$ 539.00	$ 55,624	See "LAB COST" Worksheet for Detail
Transport and disposal of excavated material					
Class II Benificial Reuse Soil to Altamont	27,090	ton	$ 38.82	$ 1,051,621	Assumed Fraction of Total Waste: 35%
Class II Soil to Altamont	19,350	ton	$ 72.42	$ 1,401,310	Assumed Fraction of Total Waste: 25%
Class I Non-RCRA Soil to Kettleman Hills	11,610	ton	$ 81.15	$ 942,140	Assumed Fraction of Total Waste: 15%
Class I RCRA Direct LF Soil to Kettleman Hills	7,740	ton	$ 130.04	$ 1,006,497	Assumed Fraction of Total Waste: 10%
Class I RCRA Stabilization Soil to Kettleman Hills	7,740	ton	$ 172.24	$ 1,333,121	Assumed Fraction of Total Waste: 10%
Disposal of radiologically impacted waste	3,870	ton	$ 120.00	$ 464,394	Assumed Fraction of Total Waste: 5%
Soil analysis for import soil (1 per 1000 CY) (4 pt. composite samples)	47	each	$ 539.00	$ 25,284	See "LAB COST" Worksheet for Detail
Backfill excavations with unclassified fill (delivered, spread, compacted in 6-in. lifts)	46,909	ton	$ 13.61	$ 638,440	Means 2005 Environmental Remediation - Unit Price. Pg 4-23. 17 03 0423
TOTAL				$ 9,444,214	

Notes:

Values from the "Means 2005 Environmental Remediation - Unit Price" and "Means 2005 Environmental Remediation - Assemblies" were multiplied by an inflation factor (see "BACKUP" Worksheet)

Tier 1 and 2 Excavation Volumes and Areas:			
Area requiring excavation and backfill	168,257	SF	
Volume requiring excavation	46,909	CY	
Volume of overexcavation due to chasing contamination	4,691	CY	Assume 10% of estimated volume
Total volume requiring excavation and backfill	51,599	CY	
Excavated material tonage	77,399	TN	Assumed unit weight of 1.5 TN/CY
ALL EXCAVATIONS			
Total number of 50'x50' grid surfaces estimated	127	surface grids	
Total number of estimated equivalent grids	683	equivalent grids	

Table E-25. Alternative S-4 - Production Rate Assumptions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate	Total Amount	Days to Complete	Assumptions
SITE PREP				
Grade soil staging area (3 acres)	2,000 sy/day	14,520 sy	8 days	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Install soil staging area liner, includes rad screening and stockpiling areas (3 acre, 80 mil HDPE)	8,800 sf/day	130,680 sf	15 days	Means 2005 Environmental Remediation - Unit Cost. Pg 9-85. 33 08 0573 02081 2153 (8x)
Grade laydown area (200 ft x 100 ft)	2,000 sy/day	2,222 sy	2 days	Means 2009 Heavy Construction. Page 211. 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	5,000 sy/day	2,222 sy	1 days	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100
TIER 1 AND TIER 2 EXCAVATIONS				
Excavate 1'x50'x50' grid	16 grids/day	683 equivalent grids	43 days	See Backup Worksheet "RAD SCREENING"; see Backup Worksheet "ALL EXCAVATIONS"
Backfill and compact	1,735 CY/day	51,599 CY	30 days	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620; assume that spreading and compaction of one excavation can happen concurrently with excavation of another area
STEAM LINE INVESTIGATION AND REMOVAL				
Sampling and abatement	3,000 LF/day	53,640 LF	18 days	See Backup Worksheet "STEAM LINE"
Close steam lines in place	1,050 CF/day	16809 CF	17 days	Means 2009 Heavy Construction. Pg 81. 04 05 16.30 2000; see Backup Worksheet "STEAM LINE"
Remove steam lines	350 LF/day	5364 LF	16 days	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900; see Backup Worksheet "STEAM LINE"
FUEL LINE REMOVAL				
Excavate trench	200 CY/day	754 CY	4 days	Means 2009 Heavy Construction. Page 211. 31 23 16.13 0050; see Backup Worksheet "FUEL LINE"
Remove 8" fuel line	175 LF/day	2827 LF	17 days	Means 2009 Heavy Construction. Pg 24. 02 41 13.33 2900; see Backup Worksheet "FUEL LINE"
Backfill and compact	185 CY/day	754 CY	5 days	Means 2009 Heavy Construction. Pg 248. 31 23 23.23 7020; see Backup Worksheet "FUEL LINE"
ASPHALT COVERS				
6" Aggregate base course	10,000 sy/day	120,711 sy	13 days	Means 2009 Heavy Construction. Page 275. 32 11 23.23 0100 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
2" Asphalt cover	12,680 sy/day	120,711 sy	10 days	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0120 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
1" Asphalt repair cover	21,150 sy/day	159,378 sy	8 days	Means 2009 Heavy Construction. Page 276. 32 12 16.13 0340 (2x); see Backup Worksheet "AREAS" (converted sf to sy)
HDPE LINER				
Install HDPE Liner in IR-02	8,102 sf/day	326,700 sf	41 days	Means 2005 Environmental Remediation - Unit Price. Pg 9-85. 33 08 0572 (6x); see Backup Worksheet "AREAS"
SOIL COVERS				
Spread dumped material	6,000 CY/day	188,533 CY	32 days	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020 (6x); see Backup Worksheet "AREAS" (converted sf to CY - 3' soil cover); assume that soil spreading and compaction can occur simultaneously
Compact soil cover	5,205 CY/day	188,533 CY	37 days	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620 (3x); see Backup Worksheet "AREAS" (converted sf to CY - 3' soil cover)

Table E-25. Alternative S-4 - Production Rate Assumptions *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate	Total Amount	Days to Complete	Assumptions
LANDSCAPING				
Hydroseeding	105,024 sf/day	2,545,200 sf	25 days	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401 02810 2002 (4x)
Spread hydrofertilizer	600,000 sf/day	2,545,200 sf	5 days	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180; see Backup Worksheet "AREAS"
SURVEY				
Aerial survey (2' contours)			1 day	
		TOTAL	**273 days**	

Notes:
Eight crews working to install 80-mil HDPE liner for staging area
Two crews simulataneously backfilling shoreline with rip rap
Two crews working simulataneously preparing both new asphalt covers and asphalt repair covers
Six crews working simulataneously spreading soil covers
Three crews working simulataneously to compact soil covers
Four hydroseeding crews working simultaneously
Two crews working to pull steam lines
Three crews working to grout steam lines
Six crews to install HDPE liner

Table E-26. Alternative S-4 - Soil Vapor Extraction with Air Sparging Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
CAPITAL COSTS - SVE/AS SYSTEM INSTALLATION					
Pilot Study			**Pilot Study Subtotal =**	**$ 39,430**	
Study Design	1	LS	$ 3,000.00	$ 3,000	
SVE/AS Equipment Mobilization/Demobilization	2	LS	$ 1,500.00	$ 3,000	
SVE/AS Equipment Rental	1	LS	$ 9,000.00	$ 9,000	Estimate provided by Maco Industries, Ltd, February 2009
Direct-Push Drilling Equipment and Support Vehicle	180	mi	$ 6.00	$ 1,080	Estimate supplied by TestAmerica Drilling, January 2009; $6 per mile
Drilling (Hollow-Stem Auger)	1	day	$ 3,500.00	$ 3,500	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	2	day	$ 450.00	$ 900	Estimate supplied by TestAmerica Drilling, January 2009
Well Drilling and Installation Cost	50	ft	$ 7.00	$ 350	Estimate supplied by TestAmerica Drilling, January 2009
Concrete Cutting	1	ea	$ 400.00	$ 400	Estimate supplied by TestAmerica Drilling, January 2009
Drums	8	ea	$ 50.00	$ 400	Estimate supplied by TestAmerica Drilling, January 2009
Well Development	4	hr	$ 180.00	$ 720	Estimate supplied by TestAmerica Drilling, January 2009
Field Measurements and Air Sampling	5	day	$ 1,616.00	$ 8,080	Assumed 5 field sampling days
Laboratory Analysis	25	ea	$ 200.00	$ 5,000	
Report	1	LS	$ 4,000.00	$ 4,000	
Mobilization and Demobilization			**Mobilization and Demobilization Subtotal =**	**$ 3,690**	
SVE Equipment Mobilization	1	LS	$ 1,500.00	$ 1,500	Estimate provided by Maco Industries, Ltd, February 2009
Air Sparging Equipment Mobilization	1	LS	$ 1,500.00	$ 1,500	Estimate provided by Maco Industries, Ltd, February 2009
Direct-Push Drilling Equipment and Support Vehicle Mobilization	100	mi	$ 6.00	$ 600	Estimate supplied by Precision Sampling Ltd., January 2009; $5 per mile
Portable Toilet	2	ea	$ 45.00	$ 90	National Construction Rentals, January 2009
Temporary Facilities			**Temporary Facilities Costs Subtotal =**	**$ 365**	
Portable Toilet and Hand Wash Station	1	mo	$ 140.00	$ 140	National Construction Rentals, January 2009
Eye Wash Station	1	ea	$ 225.00	$ 225	Estimate provided by Grainger, January 2009
Equipment Rental			**Equipment Rental Subtotal =**	**$ 2,000**	
4x4 Pickup Truck	4	week	$ 500.00	$ 2,000	Estimate supplied by Hertz Equipment Rental, January 2009
Health & Safety Equipment			**Health and Safety Equipment Subtotal =**	**$ 4,000**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	80	day	$ 50.00	$ 4,000	Assumed $50 per field worker per day
SVE/AS Equipment Installation			**Equipment Installation Subtotal =**	**$ 163,446**	
SVE and Treatment Equipment (Trailerized)	1	LS	$ 22,000.00	$ 22,000	Estimate provided by Maco Industries, Ltd, February 2009
Air Sparging Equipment (Trailerized)	1	LS	$ 25,000.00	$ 25,000	Estimate provided by Maco Industries, Ltd, February 2009
Hollow-Stem Auger Drilling to Install Extraction and Sparge Points	20	day	$ 3,500.00	$ 70,000	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	60	day	$ 450.00	$ 27,000	Estimate supplied by TestAmerica Drilling, January 2009
Concrete Cutting	1	ea	$ 1,600.00	$ 1,600	Estimate supplied by TestAmerica Drilling, January 2009
Well Development	80	hr	$ 180.00	$ 14,400	Estimate supplied by TestAmerica Drilling, January 2009
SVE/AS Equipment Installation	10	day	$ 344.60	$ 3,446	Foreman, 2 laborers, and supervising field engineer
Decontamination			**Decontamination Subtotal =**	**$ 1,000**	
Decontamination / Screening Equipment	10	day	$ 100.00	$ 1,000	
Waste Analysis			**Waste Analysis Subtotal =**	**$ 4,030**	
VOCs by 3550B/8270C	5	ea	100	$ 500	Estimate provided by TestAmerica, Janurary 2009
Semi-VOCs by 3550B/8270C	5	ea	190	$ 950	Estimate provided by TestAmerica, Janurary 2009
Organochlorine Pesticides by 3550B/8081A	5	ea	80	$ 400	Estimate provided by TestAmerica, Janurary 2009
PCBs by 3550B/8082	5	ea	65	$ 325	Estimate provided by TestAmerica, Janurary 2009
Purgeable TPH by 5035A/8015B	5	ea	96	$ 480	Estimate provided by TestAmerica, Janurary 2009
Extractable TPH by 3550B/8015B	5	ea	45	$ 225	Estimate provided by TestAmerica, Janurary 2009
TTLC, CA Title 22 Metals by 3010A/6010B and Mercury by 3010A/7470A	5	ea	130	$ 650	Estimate provided by TestAmerica, Janurary 2009
TCLP, CA Title 22 Metals by 1311	5	ea	50	$ 250	Estimate provided by TestAmerica, Janurary 2009
STLC, CA Title 22 Metals by CCR T26	5	ea	50	$ 250	Estimate provided by TestAmerica, Janurary 2009

Table E-26. Alternative S-4 - Soil Vapor Extraction with Air Sparging Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description		Quantity	Unit	Unit Price	Cost	Remarks
CAPITAL COSTS - SVE/AS SYSTEM INSTALLATION *(continued)*						
Waste Hauling and Disposal	**Assumed Waste Fractions**		**Waste Hauling and Disposal Subtotal =**		**$ 3,292**	
Class II beneficial reuse soil at Altamont Landfill	35%	11	ton	$ 38.82	$ 408	
Class II soil for disposal at Altamont Landfill	35%	11	ton	$ 72.42	$ 760	
Class I non-RCRA soil at Kettleman Hills	50%	15	ton	$ 81.15	$ 1,217	
Class I RCRA direct landfill soil	10%	3	ton	$ 130.04	$ 390	
Class I RCRA stabilization soil	10%	3	ton	$ 172.24	$ 517	
Disposal of radiologically impacted waste	5%	2	ton	$ 120.00	$ 180	
			Construction Subtotal =		**$ 181,823**	
Design			**Design Subtotal =**		**$ 49,430**	Includes pilot study (see cost detail above)
Work Plans					$ 10,000	Includes: Well installation Work Plan and Safety and Health Plan QA/QC Plan
TOTAL CAPITAL COST (Slurry			**TOTAL PROJECT CAPITAL COST =**		**$ 231,253**	
Total Construction Cost					$ 181,823	
Total Design Cost					$ 49,430	

General Assumptions:

Pilot study reqired to determine radius of influence for selection of appropriate sparge and extraction and sparging well spacing

Sparge well spacing assumed to be approximately 50 feet

Assumed 16 sparge and 32 extraction wells required

Table E-27. Groundwater Alternatives Cost Estimate Summary

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternative	Total Capital and Labor Cost	Total O&M Cost	Total Periodic Cost	Period of Analysis[2]	Total Cost[3]	Total Present Value[4]
GW-1	$ -	$ -	$ -	32 years	$ -	$ -
GW-2	$ 279,318	$ 2,603,930	$ 275,280	32 years	$ 3,790,235	$ 2,640,310
GW-3A	$ 1,163,445	$ 3,571,334	$ 275,280	32 years	$ 6,012,071	$ 4,511,196
GW-3B	$ 2,064,814	$ 3,676,959	$ 275,280	32 years	$ 7,220,464	$ 5,661,667
GW-4	$ 2,041,513	$ 3,961,268	$ 275,280	32 years	$ 7,533,673	$ 5,933,748

Notes:

[1] Appended tables summarize backup calculations for all cost estimates provided

[2] Period of analysis assumes the base year is 2010

[3] Total cost includes a 20 percent contingency factor

[4] Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

GW-1: No Action (Retained [as required by the NCP] to provide a baseline for comparison to other alternatives)

GW-2: Institutional Controls and Long-Term Groundwater Monitoring

GW-3A: In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

GW-3B: In-Situ Bioremediation, Zero Valent Iron Reduction, Monitored Natural Attenuation, and Institutional Controls

GW-4: Groundwater Containment, Air Sparging, In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Table E-28. Alternative GW-2 - Cash Flow Analysis
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 26,146	$ -	$ -	$ 26,146	$ 31,376	1.000	$ 31,376	Design, permitting, IC development and implementation, mobilization, site preparation, and monitoring well installation
1	$ 80,821	$ -	$ -	$ 80,821	$ 96,985	0.974	$ 94,435	
2	$ -	$ 239,019	$ -	$ 239,019	$ 286,823	0.948	$ 271,940	Groundwater monitoring (quarterly) and annual inspection
3	$ -	$ 239,019	$ 13,352	$ 252,371	$ 302,845	0.923	$ 279,582	Groundwater monitoring (quarterly), well repair/maintenance, and annual inspection
4	$ -	$ 127,638	$ -	$ 127,638	$ 153,165	0.899	$ 137,682	Groundwater monitoring (semiannually) and annual inspection
5	$ -	$ 127,638	$ 13,352	$ 140,990	$ 169,188	0.875	$ 148,087	Groundwater monitoring (semiannually), well repair/maintenance, and annual inspection
6	$ -	$ 71,947	$ 15,000	$ 86,947	$ 104,336	0.852	$ 88,923	Groundwater monitoring (annually), 5-year review, and annual inspection
7	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.830	$ 84,944	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
8	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.808	$ 69,764	Groundwater monitoring (annually) and annual inspection
9	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.787	$ 80,536	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
10	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.766	$ 66,144	Groundwater monitoring (annually) and annual inspection
11	$ -	$ 71,947	$ 28,352	$ 100,299	$ 120,359	0.746	$ 89,785	Groundwater monitoring (annually), well repair/maintenance, 5-year review, and annual inspection
12	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.726	$ 62,712	Groundwater monitoring (annually) and annual inspection
13	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.707	$ 72,395	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
14	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.689	$ 59,457	Groundwater monitoring (annually) and annual inspection
15	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.671	$ 68,638	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
16	$ -	$ 71,947	$ 15,000	$ 86,947	$ 104,336	0.653	$ 68,125	Groundwater Monitoring (Annually), 5-year review
17	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.636	$ 65,077	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
18	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.619	$ 53,447	Groundwater monitoring (annually) and annual inspection
19	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.603	$ 61,700	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
20	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.587	$ 50,674	Groundwater monitoring (annually) and annual inspection
21	$ -	$ 71,947	$ 28,352	$ 100,299	$ 120,359	0.572	$ 68,786	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
22	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.556	$ 48,044	Groundwater monitoring (annually) and annual inspection
23	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.542	$ 55,463	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
24	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.528	$ 45,551	Groundwater monitoring (annually) and annual inspection
25	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.514	$ 52,585	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
26	$ -	$ 71,947	$ 15,000	$ 86,947	$ 104,336	0.500	$ 52,192	Groundwater Monitoring (Annually), 5-year review
27	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.487	$ 49,857	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
28	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.474	$ 40,947	Groundwater monitoring (annually) and annual inspection
29	$ -	$ 71,947	$ 13,352	$ 85,299	$ 102,359	0.462	$ 47,270	Groundwater monitoring (annually), well repair/maintenance, and annual inspection
30	$ -	$ 71,947	$ -	$ 71,947	$ 86,336	0.450	$ 38,822	Groundwater monitoring (annually) and annual inspection
31	$ 172,351	$ 71,947	$ 13,352	$ 257,650	$ 309,180	0.438	$ 135,372	Groundwater monitoring (annually), annual inspection, and well abandonment
TOTALS	**$ 279,318**	**$ 2,603,930**	**$ 275,280**	**$ 3,158,529**	**$ 3,790,235**		**$ 2,640,310**	

Notes:
(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-29. Alternative GW-3A - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 210,160	$ -	$ -	$210,160	$ 252,192	1.000	$ 252,192	Design, permitting, IC implementation, mobilization, site preparation, monitoring well Installation, development of institutional
1	$ 780,934	$ -	$ -	$ 780,934	$ 937,120	0.974	$ 912,483	controls, and ISB implementation
2	$ -	$ 340,851	$ -	$ 340,851	$ 409,021	0.948	$ 387,798	Groundwater monitoring (quarterly), ISB performance monitoring (auarterly), and annual inspection
3	$ -	$ 340,851	$ 13,352	$ 354,203	$ 425,044	0.923	$ 392,394	Groundwater monitoring (quarterly), ISB performance monitoring (quarterly), well repair/maintenance, and annual inspection
4	$ -	$ 178,554	$ -	$ 178,554	$ 214,264	0.899	$ 192,605	Groundwater monitoring (semiannually), ISB performance monitoring (semiannually), and annual inspection
5	$ -	$ 178,554	$ 13,352	$ 191,906	$ 230,287	0.875	$ 201,566	Groundwater monitoring (semiannually), ISB performance monitoring (semiannually), well repair/maintenance, and annual Inspection
6	$ -	$ 97,405	$ 15,000	$ 112,405	$ 134,886	0.852	$ 114,959	Groundwater monitoring (annually), MNA (annually), 5-year review, and annual inspection
7	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.830	$ 110,296	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
8	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.808	$ 94,449	Groundwater monitoring (annually), MNA (annually), and annual inspection
9	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.787	$ 104,573	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
10	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.766	$ 89,548	Groundwater monitoring (annually), MNA (annually), and annual inspection
11	$ -	$ 97,405	$ 28,352	$ 125,757	$ 150,908	0.746	$ 112,574	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, 5-year review, and annual inspection
12	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.726	$ 84,902	Groundwater monitoring (annually), MNA (annually), and annual inspection
13	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.707	$ 94,002	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
14	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.689	$ 80,496	Groundwater monitoring (annually), MNA (annually), and annual inspection
15	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.671	$ 89,124	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
16	$ -	$ 97,405	$ 15,000	$ 112,405	$ 134,886	0.653	$ 88,072	Groundwater Monitoring (Annually), MNA (Annually), 5-year review
17	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.636	$ 84,499	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
18	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.619	$ 72,359	Groundwater monitoring (annually), MNA (annually), and annual inspection
19	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.603	$ 80,115	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
20	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.587	$ 68,605	Groundwater monitoring (annually), MNA (annually), and annual inspection
21	$ -	$ 97,405	$ 28,352	$ 125,757	$ 150,908	0.572	$ 86,245	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, 5-year review, and annual inspection
22	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.556	$ 65,045	Groundwater monitoring (annually), MNA (annually), and annual inspection
23	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.542	$ 72,016	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
24	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.528	$ 61,670	Groundwater monitoring (annually), MNA (annually), and annual inspection
25	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.514	$ 68,280	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
26	$ -	$ 97,405	$ 15,000	$ 112,405	$ 134,886	0.500	$ 67,474	Groundwater Monitoring (Annually), MNA (Annually), 5-year review
27	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.487	$ 64,737	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
28	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.474	$ 55,436	Groundwater monitoring (annually), MNA (annually), and annual inspection
29	$ -	$ 97,405	$ 13,352	$ 110,757	$ 132,908	0.462	$ 61,377	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
30	$ -	$ 97,405	$ -	$ 97,405	$ 116,886	0.450	$ 52,559	Groundwater monitoring (annually), MNA (annually), and annual inspection
31	$ 172,351	$ 97,405	$ 13,352	$ 283,108	$ 339,730	0.438	$ 148,748	Groundwater monitoring (annually), MNA (annually), and annual inspection
TOTALS	**$ 1,163,445**	**$3,571,334**	**$ 275,280**	**$ 5,010,059**	**$ 6,012,071**		**$ 4,511,196**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-30. Alternative GW-3B - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 413,708	$ -	$ -	$413,708	$ 496,450	1.000	$ 496,450	Design, permitting, IC development and implementation, mobilization, site preparation, monitoring well installation, ISB
1	$ 1,478,755	$ -	$ -	$ 1,478,755	$ 1,774,506	0.974	$ 1,727,854	design and implementation, and ZVI design and implementation
2	$ -	$ 351,970	$ -	$ 351,970	$ 422,364	0.948	$ 400,447	Groundwater monitoring (quarterly), ISB and ZVI performance monitoring (quarterly), and annual inspection
3	$ -	$ 351,970	$ 13,352	$ 365,322	$ 438,386	0.923	$ 404,711	Groundwater monitoring (quarterly), ISB and ZVI performance monitoring (quarterly), well repair/maintenance, and annual inspection
4	$ -	$ 184,113	$ -	$ 184,113	$ 220,935	0.899	$ 198,602	Groundwater monitoring (semiannually), ISB and ZVI performance monitoring (semiannually), and annual inspection
5	$ -	$ 184,113	$ 13,352	$ 197,465	$ 236,958	0.875	$ 207,405	Groundwater monitoring (semiannually), ISB and ZVI performance monitoring (semiannually), well repair/maintenance, and annual inspection
6	$ -	$ 100,184	$ 15,000	$ 115,184	$ 138,221	0.852	$ 117,802	Groundwater monitoring (annually), MNA (annually), 5-year review, and annual inspection
7	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.830	$ 113,064	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
8	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.808	$ 97,144	Groundwater monitoring (annually), MNA (annually), and annual inspection
9	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.787	$ 107,197	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
10	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.766	$ 92,104	Groundwater monitoring (annually), MNA (annually), and annual inspection
11	$ -	$ 100,184	$ 28,352	$ 128,536	$ 154,244	0.746	$ 115,062	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, 5-year review, and annual inspection
12	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.726	$ 87,324	Groundwater monitoring (annually), MNA (annually), and annual inspection
13	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.707	$ 96,361	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
14	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.689	$ 82,793	Groundwater monitoring (annually), MNA (annually), and annual inspection
15	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.671	$ 91,361	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
16	$ -	$ 100,184	$ 15,000	$ 115,184	$ 138,221	0.653	$ 90,250	Groundwater Monitoring (Annually), MNA (Annually), and 5-year review
17	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.636	$ 86,620	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
18	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.619	$ 74,424	Groundwater monitoring (annually), MNA (annually), and annual inspection
19	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.603	$ 82,125	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
20	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.587	$ 70,562	Groundwater monitoring (annually), MNA (annually), and annual inspection
21	$ -	$ 100,184	$ 28,352	$ 128,536	$ 154,244	0.572	$ 88,151	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, 5-year review, and annual inspection
22	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.556	$ 66,901	Groundwater monitoring (annually), MNA (annually), and annual inspection
23	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.542	$ 73,824	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
24	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.528	$ 63,429	Groundwater monitoring (annually), MNA (annually), and annual inspection
25	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.514	$ 69,993	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
26	$ -	$ 100,184	$ 15,000	$ 115,184	$ 138,221	0.500	$ 69,142	Groundwater Monitoring (Annually), MNA (Annually), and 5-year review
27	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.487	$ 66,361	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
28	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.474	$ 57,018	Groundwater monitoring (annually), MNA (annually), and annual inspection
29	$ -	$ 100,184	$ 13,352	$ 113,536	$ 136,244	0.462	$ 62,918	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
30	$ -	$ 100,184	$ -	$ 100,184	$ 120,221	0.450	$ 54,059	Groundwater monitoring (annually), MNA (annually), and annual inspection
31	$ 172,351	$ 100,184	$ 13,352	$ 285,888	$ 343,065	0.438	$ 150,208	Groundwater monitoring (annually), MNA (annually), and annual inspection
TOTALS	**$ 2,064,814**	**$3,676,959**	**$ 275,280**	**$ 6,017,053**	**$ 7,220,464**		**$ 5,661,667**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-31. Alternative GW-4 - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 339,444	$ -	$ -	$339,444	$ 407,333	1.000	$ 407,333	Design, permitting, IC development and implementation, mobilization, site preparation, monitoring well installation, ISB design and implementation, SVE/AS design
1	$ 1,529,717	$ -	$ -	$ 1,529,717	$ 1,835,661	0.974	$ 1,787,401	and implementation, and slurry wall construction
2	$ -	$ 434,429	$ -	$ 434,429	$ 521,315	0.948	$ 494,264	Groundwater monitoring (quarterly), ISB and SVE/AS performance monitoring (quarterly), SVE/AS OM&M, and annual inspection
3	$ -	$ 434,429	$ 13,352	$ 447,781	$ 537,337	0.923	$ 496,062	Groundwater monitoring (quarterly), ISB and SVE/AS performance monitoring (quarterly), well repair/maintenance, SVE/AS OM&M, and annual inspection
4	$ -	$ 263,732	$ -	$ 263,732	$ 316,478	0.899	$ 284,486	Groundwater monitoring (semiannually), ISB and SVE/AS performance monitoring (semiannually), SVE/AS OM&M, and annual inspection
5	$ -	$ 186,954	$ 13,352	$ 200,306	$ 240,367	0.875	$ 210,389	Groundwater monitoring (semiannually), ISB and SVE/AS performance monitoring (semiannually), well repair/maintenance, and annual inspection
6	$ -	$ 101,605	$ 15,000	$ 116,605	$ 139,926	0.852	$ 119,255	Groundwater monitoring (annually), MNA (annually), 5-year review, and annual inspection
7	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.830	$ 114,478	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
8	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.808	$ 98,522	Groundwater monitoring (annually), MNA (annually), and annual inspection
9	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.787	$ 108,538	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
10	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.766	$ 93,409	Groundwater monitoring (annually), MNA (annually), and annual inspection
11	$ -	$ 101,605	$ 28,352	$ 129,957	$ 155,948	0.746	$ 116,334	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, 5-year review, and annual inspection
12	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.726	$ 88,563	Groundwater monitoring (annually), MNA (annually), and annual inspection
13	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.707	$ 97,566	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
14	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.689	$ 83,967	Groundwater monitoring (annually), MNA (annually), and annual inspection
15	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.671	$ 92,504	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
16	$ -	$ 101,605	$ 15,000	$ 116,605	$ 139,926	0.653	$ 91,363	Groundwater monitoring (annually), MNA (annually), and 5-year review
17	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.636	$ 87,704	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
18	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.619	$ 75,479	Groundwater monitoring (annually), MNA (annually), and annual inspection
19	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.603	$ 83,153	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
20	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.587	$ 71,563	Groundwater monitoring (annually), MNA (annually), and annual inspection
21	$ -	$ 101,605	$ 28,352	$ 129,957	$ 155,948	0.572	$ 89,125	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, 5-year review, and annual inspection
22	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.556	$ 67,849	Groundwater monitoring (annually), MNA (annually), and annual inspection
23	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.542	$ 74,747	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
24	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.528	$ 64,329	Groundwater monitoring (annually), MNA (annually), and annual inspection
25	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.514	$ 70,869	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
26	$ -	$ 101,605	$ 15,000	$ 116,605	$ 139,926	0.500	$ 69,995	Groundwater monitoring (annually), MNA (annually), and 5-year review
27	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.487	$ 67,191	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
28	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.474	$ 57,826	Groundwater monitoring (annually), MNA (annually), and annual inspection
29	$ -	$ 101,605	$ 13,352	$ 114,957	$ 137,948	0.462	$ 63,705	Groundwater monitoring (annually), MNA (annually), well repair/maintenance, and annual inspection
30	$ -	$ 101,605	$ -	$ 101,605	$ 121,926	0.450	$ 54,825	Groundwater monitoring (annually), MNA (annually), and annual inspection
31	$ 172,351	$ 101,605	$ 13,352	$ 287,308	$ 344,770	0.438	$ 150,954	Groundwater monitoring (annually), MNA (annually), and annual inspection
TOTALS	**$ 2,041,513**	**$3,961,268**	**$ 275,280**	**$ 6,278,061**	**$ 7,533,673**		**$ 5,933,748**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-32. Groundwater Alternatives - Monitoring Well Installation Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Comments
DISTRIBUTIVE COSTS			**DISTRIBUTIVE COSTS SUBTOTAL =**	**$ 30,525**	Includes labor and temporary facilities
Labor			**Labor Subtotal =**	**$ 30,160**	
Total project labor cost (Project Manager, Project Geologist, Health and Safety Officer, Radiological Screener)				$ 30,160	See backup worksheet "LABOR" for unit rates
Temporary Facilities			**Temporary Facilities Costs Subtotal =**	**$ 365**	
Portable Toilet and Hand Wash Station	1	mo	$ 140.00	$ 140	National Construction Rentals, January 2009;
Eye Wash Station	1	ea	$ 225.00	$ 225	Estimate provided by Grainger, January 2009
CAPITAL COSTS - MONITORING WELL INSTALLATION					
Mobilization and Demobilization			**Mobilization and Demobilization Subtotal =**	**$ 1,125**	
Hollow-Stem Auger Drill Rig and Support Vehicle	180	mi	$ 6.00	$ 1,080	Estimate supplied by TestAmerica Drilling, January 2009; $6 per mile
Portable Toilet	1	ea	$ 45.00	$ 45	National Construction Rentals, January 2009
Equipment Rental			**Equipment Rental Subtotal =**	**$ 900**	
4x4 Pickup Truck	2	week	$ 450.00	$ 900	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
Health & Safety Equipment			**Health and Safety Equipment Subtotal =**	**$ 1,250**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	25	day	$ 50.00	$ 1,250	Assumed $50 per field worker per day
Pre-Drilling Work			**Pre-Drilling Work Subtotal =**	**$ 1,064**	
Subsurface Utility Surveying	8	hr	$ 133.00	$ 1,064	Estimate provided by Subtronic Surveying, January 2009
Well Permit Application Preparation	9	ea	$ 150.00	$ 1,350	
Well Installation and Development			**Excavation Subtotal =**	**$ 31,690**	
Drilling (Hollow-Stem Auger)	5	day	$ 3,500.00	$ 17,500	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	5	day	$ 450.00	$ 2,250	Estimate supplied by TestAmerica Drilling, January 2009
Well Drilling and Installation Cost	280	ft	$ 7.00	$ 1,960	Estimate supplied by TestAmerica Drilling, January 2009
Well Box	9	ea	$ 200.00	$ 1,800	Estimate supplied by TestAmerica Drilling, January 2009
Concrete Cutter	2	ea	$ 400.00	$ 800	Estimate supplied by TestAmerica Drilling, January 2009
Drums	18	ea	$ 50.00	$ 900	Estimate supplied by TestAmerica Drilling, January 2009
Well Development	36	hr	$ 180.00	$ 6,480	Estimate supplied by TestAmerica Drilling, January 2009
Post-Drilling Work			**Post-Drilling Work Subtotal =**	**$ 950**	
Well Location and Elevation Survey	1	day	$ 950.00	$ 950	Estimate provided by PLS Surveying, January 2009
Decontamination			**Decontamination Subtotal =**	**$ 900**	
Decontamination /Screening Equipment	9	day	$ 100.00	$ 900	
Waste Analysis (Drill Cuttings)			**Waste Analysis Subtotal =**	**$ 9,936**	
Purgeable TPH and VOCs	9	ea	96	$ 864	Estimate provided by TestAmerica, Janurary 2009
SVOCs	9	ea	176	$ 1,584	Estimate provided by TestAmerica, Janurary 2009
PCBs by 8082	9	ea	72	$ 648	Estimate provided by TestAmerica, Janurary 2009
Organochlorine Pesticides by 8081A	9	ea	104	$ 936	Estimate provided by TestAmerica, Janurary 2009
Extractable TPH by 8015B	9	ea	48	$ 432	Estimate provided by TestAmerica, Janurary 2009
Metals by 6010B	9	ea	56	$ 504	Estimate provided by TestAmerica, Janurary 2009
Waste Analysis (Development Water)					
Purgeable TPH and VOCs	9	ea	96	$ 864	Estimate provided by TestAmerica, Janurary 2009
SVOCs	9	ea	176	$ 1,584	Estimate provided by TestAmerica, Janurary 2009
PCVs by 8082	9	ea	72	$ 648	Estimate provided by TestAmerica, Janurary 2009
Organochlorine Pesticides by 8081A	9	ea	104	$ 936	Estimate provided by TestAmerica, Janurary 2009
Extractable TPH by 8015B	9	ea	48	$ 432	Estimate provided by TestAmerica, Janurary 2009
Metals by 6010B	9	ea	56	$ 504	Estimate provided by TestAmerica, Janurary 2009
Waste Hauling and Disposal (Drill Cuttings)			**Waste Hauling and Disposal Subtotal =**	**$ 41**	
Class I non-RCRA soil at Kettleman Hills	0.5	ton	$ 81.15	$ 41	
Waste Hauling (Development Water)			**Waste Hauling Subtotal =**	**$ 640**	
Hauling to CWM Kettleman Hills Landfill, Kettleman City, CA	16	drum	$ 40.00	$ 640	
Waste Disposal (Development Water)			**Waste Disposal Subtotal =**	**$ 1,800**	
Non-RCRA Hazardous Waste	16	drum	$ 100.00	$ 1,600	
Profiling Fee	1	ls	$ 200.00	$ 200	
			Construction Subtotal =	**$ 80,821**	
Design			**Design Subtotal =**	**$ 9,698**	
Work Plans				$ 9,698	Includes Well installation Work Plan and Safety and Health Plan, QA/QC Plan, QAPP, and Cost Estimates consistent with EPA guidance (pp. 5-13, EPA, 2000); assumed to be 12 percent of construction costs
TOTAL CAPITAL COST (Well Installation)			**TOTAL PROJECT CAPITAL COST =**	**$ 90,519**	
Total Construction Cost				$ 80,821	
Total Design Cost				$ 9,698	

General Assumptions:
Assumed 8 new wells to be installed
Work will be performed in Level D PPE
Drill cuttings assumed to be classifyable as Non-RCRA hazardous waste

Table E-33. Groundwater Alternatives - Long-Term Groundwater Monitoring Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Monitoring Summary	52 wells to sample (quarterly for 2 years, semiannually for 2 years, and annually for 26 years)		
	Quarterly	Semi-Annual	Annual
Labor subtotal per year	$ 140,480	$ 70,240	$ 35,120
Lab and Data Validation subtotal per year	$ 15,289	$ 7,645	$ 3,822
Sampling Equipment	$ 42,994	$ 21,497	$ 10,749
Interim Report subtotal per year	$ 24,000	$ 12,000	$ 6,000
Annual Report subtotal per year	$ 10,000	$ 10,000	$ 10,000
Total monitoring costs per year	**$ 232,763**	**$ 121,382**	**$ 65,691**

Laboratory and Data Validation Analysis

Plume	No. of A-aquifer Wells To Sample	A-aquifer Analyses	Cost Per Event for A-aquifer Wells	Number of B-aquifer Wells to Sample	B-aquifer Analyses	Cost Per Event for B-aquifer Wells	Years	Frequency	Total Cost per Event[1]	Total Annual Cost
Building 406 TCE Plume	13	8260B	$ 1,248	3	8260, 6010	$ 456	2,3	Quarterly	$ 2,360	**$ 9,438**
	13	8260B	$ 1,248	3	8260, 6010	$ 456	4,5	Semiannual	$ 2,360	**$ 4,719**
	13	8260B	$ 1,248	3	8260, 6010	$ 456	6-31	Annual	$ 2,360	**$ 2,360**
IR-12 PCE Plume	7	8260B	$ 96	0	NA	$ -	2,3	Quarterly	$ 285	**$ 1,142**
	7	8260B	$ 96	0	NA	$ -	4,5	Semiannual	$ 285	**$ 571**
	7	8260B	$ 96	0	NA	$ -	6-31	Annual	$ 285	**$ 285**
IR-12 Benzene Plume	5	8260B	$ 96	0	NA	$ -	2,3	Quarterly	$ 235	**$ 942**
	5	8260B	$ 96	0	NA	$ -	4,5	Semiannual	$ 235	**$ 471**
	5	8260B	$ 96	0	NA	$ -	6-31	Annual	$ 235	**$ 235**
IR-04 TCE Plume	5	8260B	$ 96	0	NA	$ -	2,3	Quarterly	$ 235	**$ 942**
	5	8260B	$ 96	0	NA	$ -	4,5	Semiannual	$ 235	**$ 471**
	5	8260B	$ 96	0	NA	$ -	6-31	Annual	$ 235	**$ 235**
IR-56 TCE Plume	3	8260B	$ 96	0	NA	$ -	2,3	Quarterly	$ 185	**$ 742**
	3	8260B	$ 96	0	NA	$ -	4,5	Semiannual	$ 185	**$ 371**
	3	8260B	$ 96	0	NA	$ -	6-31	Annual	$ 185	**$ 185**
IR-02 Central Nickel Plume	2	6010	$ 30	0	NA	$ -	2,3	Quarterly	$ 85	**$ 338**
	2	6010	$ 30	0	NA	$ -	4,5	Semiannual	$ 85	**$ 169**
	2	6010	$ 30	0	NA	$ -	6-31	Annual	$ 85	**$ 85**
IR-02 Northwest Metals Plume	5	6010	$ 56	1	6010	$ 56	2,3	Quarterly	$ 279	**$ 1,115**
	5	6010	$ 56	1	6010	$ 56	4,5	Semiannual	$ 279	**$ 558**
	5	6010	$ 56	1	6010	$ 56	6-31	Annual	$ 279	**$ 279**
IR-02 Northwest PCB and Pesticide Plume	3	8082, 8081A	$ 72	0	NA	$ -	2,3	Quarterly	$ 158	**$ 631**
	3	8082, 8081A	$ 72	0	NA	$ -	4,5	Semiannual	$ 158	**$ 316**
	3	8082, 8081A	$ 72	0	NA	$ -	6-31	Annual	$ 158	**$ 158**

Notes:

[1] Includes cost of quality control samples (10% duplicates and 5% matrix spike/matrix spike duplicate) and data validation (90% cursory and 10% complete)

NA: not applicable

Table E-33. Groundwater Alternatives - Long-Term Groundwater Monitoring Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Laboratory Analysis Cost[1]		Cost per Sample
PCBs by EPA Method 8082	$	72
Organochlorine Pesticides by EPA Method 8081A	$	104
VOCs by EPA Method 8260B (includes purgeable TPH)	$	96
SVOCs by U.S. Environmental Protection Agency (EPA) Method 8270C	$	176
Metals by EPA Method 6010/7000	$	56
Individual Metals by EPA Method 6010/7000	$	30
Extractable TPH by EPA Method 8015B	$	48

Notes:

[1] Analytical costs provided by TestAmerica Laboratories, San Francisco, CA. on 01-21-2008

Sampling Equipment Cost Analysis[1]		Rate[1]	Unit	Amount		Cost per Event	Remarks
Water Level Meter (week)	$	60	per week	4	$	240	
Telfon Tubing (3/16" x 3/8")	$	2	per foot	1,500	$	3,000	
Silicon Tubing (3/16" x 3/8")	$	1	per foot	1,500	$	750	
Bladder Pump System (week)	$	450	per week	2	$	900	
Extra Bladders, o-rings, Grab Plate	$	20	per unit	4	$	80	
Multi-Parameter Water Quality Meter	$	300	per week	2	$	600	
55-Gallon Drums	$	42	per drum	10	$	420	
Filters	$	16	per filter	65	$	1,008	
PPE D = Gloves	$	6	per box of 100	4	$	24	
Gallon Zip Lock Bags	$	5	per box of 20	4	$	20	
Quart Zip Lock Bags	$	5	per box of 40	4	$	20	
Garbage Bags	$	15	per box of 40	1	$	15	
Decon - Water Spray Bottles	$	5	per bottle	2	$	10	
Decon - Soap Spray Bottles	$	5	per bottle	2	$	10	
Decon - Buckets and Lids	$	5	per bucket	8	$	40	
Bottled Water	$	5	per case	2	$	10	
DI Water	$	2	per gallon	5	$	10	
Phospahte-Free Detergent	$	5	per container	1	$	5	
Paper Towels	$	5	per roll	4	$	20	
Tool Kit	$	50	per week	4	$	200	
Drum Labels	$	10	per package of 25	1	$	10	
Dye-Free Twine	$	10	per roll	5	$	50	
Truck (day)	$	150	per day	0	$	-	
Truck (week)	$	450	per week	2	$	900	
Fuel	$	3	per gallon	100	$	300	
Waste Groundwater Characterization	$	552	lump sum	1	$	552	Composite sample analyzed for metals, organic compunds, PCBs, pesticides, and petroleum hydrocarbons
Waste Transport and Treatment	$	200	per drum	6	$	1,200	
Equipment Storage Box - 20'	$	115	per month	1	$	115	
Equipment Storage Box - 20' - mob/demob	$	240	delivery	1	$	240	
				Total	**$**	**10,749**	

Notes:

[1] Unit rates provided by various local vendors in San Francisco, California

Table E-34. Groundwater Alternatives - Institutional Controls Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Portion of LUC Document	Cost per Event		Remarks
Labor	$	14,448	
Report	$	2,000	
TOTAL	**$**	**16,448**	

Annual Inspections	Cost per Event		Remarks
Inspection Labor	$	2,304	Assumes 2 days required to perform complete inspection
Inspection Equipment and ODCs	$	500	Includes vehicle, camera, fuel, and other miscellaneous equipment
Report	$	3,452	
TOTAL	**$**	**6,256**	

Well Rehabilitation/Repair	Cost per Event		Remarks
Labor subtotal	$	2,952	
Drilling subtotal	$	8,000	
Surveyor	$	900	
Report subtotal	$	1,500	
TOTAL	**$**	**13,352**	Assume 1 well every 2 years

Groundwater Monitoring Plan 5-Year Review	Cost per Event		Remarks
Report subtotal	$	15,000	
TOTAL	**$**	**15,000**	

Table E-35. Groundwater Alternatives - Monitoring Well Decommissioning Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Comments
DISTRIBUTIVE COSTS			**DISTRIBUTIVE COSTS SUBTOTAL =**	**51,541.00**	Includes labor and temporary facilities
Labor			**Labor Subtotal =**	**51,176.00**	
Total project labor cost (Project Manager, Project Geologist, Health and Safety Officer, Radiological Screener)				51,176.00	See backup worksheet "LABOR" for unit rates
Temporary Facilities			**Temporary Facilities Costs Subtotal =**	**365.00**	
Portable Toilet and Hand Wash Station	1.00	mo	140.00	140.00	National Construction Rentals, January 2009;
Eye Wash Station	1.00	ea	225.00	225.00	Estimate provided by Grainger, January 2009
CAPITAL COSTS - MONITORING WELL INSTALLATION					
Mobilization and Demobilization			**Mobilization and Demobilization Subtotal =**	**1,125.00**	
Hollow-Stem Auger Drill Rig and Support Vehicle	180.00	mi	6.00	1,080.00	Estimate supplied by TestAmerica Drilling, January 2009; $6 per mile
Portable Toilet	1.00	ea	45.00	45.00	National Construction Rentals, January 2009
Equipment Rental			**Equipment Rental Subtotal =**	**1,000.00**	
4x4 Pickup Truck	2.00	week	500.00	1,000.00	Estimate supplied by Hertz Equipent Rental, January 2009
Health and Safety Equipment			**Health and Safety Equipment Subtotal =**	**250.00**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	5.00	day	50.00	250.00	Assumed $50 per field worker per day
Pre-Drilling Work			**Pre-Drilling Work Subtotal =**	**2,128.00**	
Subsurface Utility Surveying	16.00	hr	133.00	2,128.00	Estimate provided by Subtronic Surveying, January 2009
Well Abandonment Permit Application Preparation	138.00	ea	150.00	20,700.00	
Well Decomissioning			**Excavation Subtotal =**	**88,800.00**	
Well Head Breakout	130.00	ea	100.00	13,000.00	Estimate supplied by TestAmerica Drilling, January 2009
Over-Drilling (Hollow-Stem Auger)	24.00	day	3,250.00	78,000.00	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	24.00	day	450.00	10,800.00	Estimate supplied by TestAmerica Drilling, January 2009
Backfill (Portland/Bentonite)	6,200.00	LF	4.00	24,800.00	Estimate supplied by TestAmerica Drilling, January 2010
Decontamination			**Decontamination Subtotal =**	**900.00**	
Decontamination /Screening Equipment	9.00	day	100.00	900.00	
Waste Analysis			**Waste Analysis Subtotal =**	**8,060.00**	
VOCs by 3550B/8270C	10.00	ea	100.00	1,000.00	Estimate provided by TestAmerica, Janurary 2009
SVOCs by 3550B/8270C	10.00	ea	190.00	1,900.00	Estimate provided by TestAmerica, Janurary 2009
Organochlorine Pesticides by 3550B/8081A	10.00	ea	80.00	800.00	Estimate provided by TestAmerica, Janurary 2009
PCBs by 3550B/8082	10.00	ea	65.00	650.00	Estimate provided by TestAmerica, Janurary 2009
Purgeable TPH by 5035A/8015B	10.00	ea	96.00	960.00	Estimate provided by TestAmerica, Janurary 2009
Extractable TPH by 3550B/8015B	10.00	ea	45.00	450.00	Estimate provided by TestAmerica, Janurary 2009
TTLC, CA Title 22 Metals by 3010A/6010B and Mercury by 3010A/7470A	10.00	ea	130.00	1,300.00	Estimate provided by TestAmerica, Janurary 2009
TCLP, CA Title 22 Metals by 1311	10.00	ea	50.00	500.00	Estimate provided by TestAmerica, Janurary 2009
STLC, CA Title 22 Metals by CCR T26	10.00	ea	50.00	500.00	Estimate provided by TestAmerica, Janurary 2009
Waste Hauling and Disposal (Drill Cuttings)			**Waste Hauling and Disposal Subtotal =**	**81.15**	
Class I non-RCRA soil at Kettleman Hills	1.00	ton	81.15	81.15	
			Construction Subtotal =	**153,885.15**	
Design			**Design Subtotal =**	**18,466.22**	
Work Plans				18,466.22	Includes: Well installation Work Plan and Safety and Health Plan, QA/QC Plan, QAPP, and Cost Estmates; consistent with EPA guidance (pp. 5-13, EPA, 2000); assumed to be 12 percent of construction costs
TOTAL CAPITAL COST (Well Decomissioning)			**TOTAL PROJECT CAPITAL COST =**	**172,351.37**	
Total Construction Cost				153,885.15	
Total Design Cost				18,466.22	

General Assumptions:
Work will be performed in Level D PPE
Assumed all existing and proposed wells at Parcel E will be abandoned

Table E-36. Groundwater Alternatives - In-Situ Bioremediation Injection Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cost to Implement ISB Using HRC or 3DMe at Parcel E (for Chlorinated Solvents)	Building 406 TCE Plume		IR12MW19A VOC Plume		Building 810 TCE Plume		Railroad Yard TCE Plume	
Material Cost Summary[1]	**Quantity**	**Cost**	**Quantity**	**Cost**	**Quantity**	**Cost**	**Quantity**	**Cost**
HRC Application Rate (lbs/ft)	9	--	12.2	--	5.0	--	5.0	--
Amount of HRC per Point (lb)	188	--	245	--	100	--	100	--
Total amount of HRC (lb)	21,244	--	28,665	--	9,800	--	2,500	--
HRC Unit Cost ($/lb)	--	$ 6.25	--	$ 6.25	--	$ 6.25	--	$ 6.25
Total HRC Material Cost		**$ 132,775**		**$ 179,156**		**$ 61,250**		**$ 15,625**
3DMe Application Rate (lbs/ft) - 10:1 Base Emulsion	195	--	176	--	171	--	83	--
Amount of 3DMe per point (lb) - 10:1 Base Emulsion	3,898	--	3,527	--	3,410	--	1,663	--
Total amount of 3DMe Concentrate (gal)	7,262	--	1,730	--	1,338	--	453	--
Mass of 10:1 Base Emulsion	666,600	--	158,730	--	122,760	--	41,580	--
3DMe Unit Cost for 10:1 Base Emulsion ($/lb)	--	$ 0.36	--	$ 0.36	--	$ 0.36	--	$ 0.36
Total 3DMe Material Cost		**$ 239,976**		**$ 57,143**		**$ 44,194**		**$ 14,969**
Implementation Cost Summary								
Number of Delivery Points	113	--	117	--	98		25	
Average Length of Injection Point (ft)	28	--	28	--	28		28	
Total Length of Direct Push (ft)	3,164	--	3,276	--	2,744		700	
Estimated Production Rate for Direct Push (points/day)	11	--	11	--	11		11	
Required Number of Days to Install Points (days)	10.3	--	10.6	--	8.9		2.3	
Cost to Install Injection Points[2]	--	$ 20,645	--	$ 21,373	--	$ 17,918	--	$ 4,645
Geoprobe and Crew Mobilization ($5 per mile, 100 miles each way)	--	*$ 100*	--	*$ 100*	--	*$ 100*	--	*$ 100*
Geoprobe Track Rig (2-man, 8 hr/day, incl. steam cleaning and sample lining, production rate = 11 points per day)	--	*$ 19,518*	--	*$ 20,209*	--	*$ 16,927*	--	*$ 4,318*
Injection Equipment (3.5 gpm, 1,000 psi)	--	*$ 1,027*	--	*$ 1,064*	--	*$ 891*	--	*$ 227*
Point Installation Oversight	--	$ 10,108	--	$ 10,466	--	$ 8,767	--	$ 2,236
Transportation Cost for HRC Delivery	--	$ 1,550	--	$ 1,550	--	$ 1,550	--	$ 1,550
Total Implementation Cost (HRC or 3DMe)		**$ 32,304**		**$ 33,389**		**$ 28,235**		**$ 8,432**
Total Cost (HRC)		**$ 165,079**		**$ 212,545**		**$ 89,485**		**$ 24,057**
Total Cost (3DMe)		**$ 272,280**		**$ 90,532**		**$ 72,428**		**$ 23,401**

Table E-36. Groundwater Alternatives - In-Situ Bioremediation Injection Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cost to Implement ISB Using ORC at Parcel E (for Benzene)	IR12 Benzene Plume	
Material Cost Summary[1]	**Quantity**	**Cost**
ORC Advanced Application Rate (lbs/ft)	5	--
Amount of ORC Advanced per Point (lb)	90	--
Total amount of ORC Advanced (lb)	16,110	--
ORC Advanced Unit Cost ($/lb)	--	$ 8.15
Total ORC Advanced Material Cost		**$ 131,297**
Implementation Cost Summary		
Number of Delivery Points	179	--
Average Length of Injection Point (ft)	28	--
Total Length of Direct Push (ft)	3,080	--
Estimated Production Rate for Direct Push (points/day)	11	--
Required Number of Days to Install Points (days)	10.0	--
Cost to Install Injection Points[2]	--	$ 32,645
Geoprobe and Crew Mobilization ($5 per mile, 100 miles each way)	--	*$ 100*
Geoprobe Track Rig (2-man, 8 hr/day, incl. steam cleaning and sample lining, production rate = 11 points per day)	--	*$ 30,918*
Injection Equipment (3.5 gpm, 1,000 psi)	--	*$ 1,627*
Point Installation Oversight	--	$ 9,840
Transportation Cost for HRC Delivery	--	$ 2,520
Total Implementation Cost (ORC Advanced)		**$ 77,651**
Total Cost (ORC Advanced)		**$ 208,947**

Notes:

[1] ISB modeling to produce estimates performed by Regenesis, Ltd.

[2] Direct push and product injection estimates provided by Precision Sampling, Ltd.

Assumptions:

Only a single injection application required to address plumes

Design and Pre-Implementation Cost	**$ 184,014**
Design assumed to be 12% of total cost; applied to year 0	$ 84,014
Pilot Study (estimate provided by Regenesis, Ltd.); applied to year 0	$ 100,000

Table E-37. Groundwater Alternatives - In-Situ Bioremediation Monitoring and Monitored Natural Attenuation Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Monitoring Summary	30 wells to sample (quarterly for 2 years, semiannually for 2 years, and annually for 6 years)		
	Quarterly	Semiannual	Annual
Labor subtotal per year[1]	$ -	$ -	$ -
Lab and Data Validation subtotal per year	$ 77,832	$ 38,916	$ 19,458
Sampling Equipment	-	$ -	$ -
Report subtotal per year	$ 24,000	$ 12,000	$ 6,000
Total monitoring costs per year	**$ 101,832**	**$ 50,916**	**$ 25,458**

[1] Cost of labor and equipment required to sample wells is already borne by the long-term groundwater monitoring program

Lab and Data Validation Analysis

Plume	Number of A-aquifer Wells To Sample	Years	Frequency	Total Cost per Event[1]	Total Annual Cost
Building 406 TCE Plume	9	2,3	Quarterly	$ 5,837	**$ 23,350**
	9	4,5	Semiannual	$ 5,837	**$ 11,675**
	9	6-11	Annual	$ 5,837	**$ 5,837**
IR12MW19A VOC Plume	6	2,3	Quarterly	$ 3,892	**$ 15,566**
	6	4,5	Semiannual	$ 3,892	**$ 7,783**
	6	6-11	Annual	$ 3,892	**$ 3,892**
IR-12 Benzene Plume	7	2,3	Quarterly	$ 4,540	**$ 18,161**
	7	4,5	Semiannual	$ 4,540	**$ 9,080**
	7	6-11	Annual	$ 4,540	**$ 4,540**
Building 810 TCE Plume	5	2,3	Quarterly	$ 3,243	**$ 12,972**
	5	4,5	Semiannual	$ 3,243	**$ 6,486**
	5	6-11	Annual	$ 3,243	**$ 3,243**
Railroad Yard TCE Plume	3	2,3	Quarterly	$ 1,946	**$ 7,783**
	3	4,5	Semiannual	$ 1,946	**$ 3,892**
	3	6-11	Annual	$ 1,946	**$ 1,946**

Notes:
[1] Includes cost of quality control samples (10% duplicates and 5% matrix spike/matrix spike duplicate) and data validation (90% cursory and 10% complete)
NA: not applicable

Laboratory Analysis Cost[1]	Cost per sample
Total Organic Carbon	$ 35
Turbidity	$ 18
Methane/Ethane/Ethene	$ 125
Major Anions (Chloride, Nitrate, Nitrite, O-phosphate, Sulfate)	$ 100
Acidity	$ 18
Alkalinity	$ 23
Dissolved Hydrogen	$ 220
Total Analytical Suite Cost	**$ 539**

Notes:
[1] Analytical costs provided by TestAmerica Laboratories, San Francisco, CA. , January 2009

Table E-38. Groundwater Alternatives - Zero-Valent Iron Reduction Injection Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cost to Implement ZVI at Parcel E (for Buiding 406 TCE Plume)	Building 406 TCE Plume	
Material and Implementation Cost Summary[1]	**Quantity**	**Cost**
High-Reactivity ZVI Powder Application Rate (lbs/borehole)	1,500	--
Number of Boreholes	92	--
Total amount of ZVI (lb)	138,000	--
Planning, Coordination, and Field Management Cost	--	$ 28,000
Mobilization/Demobilization Cost	--	$ 4,000
Field Implementation Cost[2]	--	$ 817,900
Field Summay Report Cost	--	$ 13,000
Total ZVI Material and Implementation Cost		**$ 862,900**

Notes:
[1] Conceptual design and cost estimates for ZVI implementation performed by ARS Technologies, Inc.
[2] Implementation cost includes drilling, injection, borehole abandonment, bulk nitrogen gas, and ZVI material

Assumptions:
Only a single injection application required to address plumes

	Buildng 406 Plume
Design and Pre-Implementation Cost	**$ 203,548**
Design assumed to be 12% of total cost; applied to year 0	$ 103,548
Pilot Study (estimate provided by ARS Technologies, Ltd.); applied to year 0	$ 100,000

Table E-39. Groundwater Alternatives - Zero-Valent Iron Reduction Injection Monitoring and Monitored Natural Attenuation Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Monitoring Summary	Nine Wells to Sample for Building 406 TCE Plume (quarterly for 2 years, semiannually for 2 years, and annually for 6 years)		
	Quarterly	Semiannual	Annual
Labor subtotal per year[1]	$ -	$ -	$ -
Lab and Data Validation subtotal per year	$ 25,668	$ 12,834	$ 6,417
Sampling Equipment	-	$ -	$ -
Report subtotal per year	$ 16,000	$ 8,000	$ 4,000
Total monitoring costs per year	**$ 41,668**	**$ 20,834**	**$ 10,417**

[1] Cost of labor and equipment required to sample wells is already borne by the long-term groundwater monitoring program

Lab and Data Validation Analysis

Plume	Number of A-aquifer Wells To Sample	Years	Frequency	Total Cost per Event[1]	Total Annual Cost
Building 406 TCE Plume	9	2,3,	Quarterly	$ 6,417	**$ 25,668**
	9	4,5	Semiannual	$ 6,417	**$ 12,834**
	9	6-11	Annual	$ 6,417	**$ 6,417**

Notes:
[1] Includes cost of quality control samples (10% duplicates and 5% matrix spike/matrix spike duplicate) and data validation (90% cursory and 10% full)

Laboratory Analysis Cost[1]	Cost per Sample
Metals by EPA Method 6010/7000 (Unfiltered)	$ 56
Total Organic Carbon	$ 35
Turbidity	$ 18
Methane/Ethane/Ethene	$ 125
Major Anions (Chloride, Nitrate, Nitrite, O-phosphate, Sulfate)	$ 100
Acidity	$ 18
Alkalinity	$ 23
Dissolved Hydrogen	$ 220
Total Analytical Suite Cost	**$ 595**

Notes:
[1] Analytical costs provided by TestAmerica Laboratories, San Francisco, CA. on 01-21-2008

Table E-40. Groundwater Alternatives - Slurry Wall Installation Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Estimate of Quantities:

	Length (ft)	Width (ft)	Average Depth (ft)	Surface Area (ft^2)	Volume (ft^3)
Slury Wall Dimensions and Volume	1,070	2.5	33	35,310	88,275

Cost Estimate:

Description		Quantity	Unit	Unit Price	Cost	Comments
CAPITAL COSTS - SLURRY WALL INSTALLATION						
Mobilization and Demobilization				**Mobilization and Demobilization Subtotal =**	**$ 40,090**	
	Excavation and Slurry Equipment	2	LS	$ 20,000.00	$ 40,000	
	Portable Toilet	2	ea	$ 45.00	$ 90	National Construction Rentals, January 2009
Temporary Facilities				**Temporary Facilities Costs Subtotal =**	**$ 365**	
	Portable Toilet and Hand Wash Station	1	mo	$ 140.00	$ 140	National Construction Rentals, January 2009
	Eye Wash Station	1	ea	$ 225.00	$ 225	Estimate provided by Grainger, January 2009
Equipment Rental				**Equipment Rental Subtotal =**	**$ 2,000**	
	4x4 Pickup Truck	4	week	$ 500.00	$ 2,000	Estimate supplied by Hertz, January 2009
Health & Safety Equipment				**Health and Safety Equipment Subtotal =**	**$ 13,000**	
	Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	260	day	$ 50.00	$ 13,000	Assumed $50 per field worker per day
Slurry Wall Installation				**Post-Drilling Work Subtotal =**	**$ 207,122**	
	Excavate Slurry Trench in Wet Soils	3,269	cy	$ 26.28	$ 85,910	Average unit rate assumed, Means 2009 Heavy Construction. Pg 260; 31 56 23.20 0050 and 0100
	Import Soil	3,575	ton	$ 22.00	$ 78,653	Assumed 90% soil, 10% Bentonite Slurry Mix
	Bentonite	210	ton	$ 203.00	$ 42,560	Assumed 90% soil, 10% Bentonite Slurry Mix; Estimate provided by CETCO Lining Technologies, February 2009
Decontamination				**Decontamination Subtotal =**	**$ 2,000**	
	Decontamination /Screening Equipment	20	day	$ 100.00	$ 2,000	
Waste Analysis				**Waste Analysis Subtotal =**	**$ 8,060**	
	VOCs by 3550B/8270C	10	ea	100	$ 1,000	Estimate provided by TestAmerica, Janurary 2009
	Semi-VOCs by 3550B/8270C	10	ea	190	$ 1,900	Estimate provided by TestAmerica, Janurary 2009
	Organochlorine Pesticides by 3550B/8081A	10	ea	80	$ 800	Estimate provided by TestAmerica, Janurary 2009
	PCBs by 3550B/8082	10	ea	65	$ 650	Estimate provided by TestAmerica, Janurary 2009
	Purgeable TPH by 5035A/8015B	10	ea	96	$ 960	Estimate provided by TestAmerica, Janurary 2009
	Extractable TPH by 3550B/8015B	10	ea	45	$ 450	Estimate provided by TestAmerica, Janurary 2009
	TTLC, CA Title 22 Metals by 3010A/6010B and Mercury by 3010A/7470A	10	ea	130	$ 1,300	Estimate provided by TestAmerica, Janurary 2009
	TCLP, CA Title 22 Metals by 1311	10	ea	50	$ 500	Estimate provided by TestAmerica, Janurary 2009
	STLC, CA Title 22 Metals by CCR T26	10	ea	50	$ 500	Estimate provided by TestAmerica, Janurary 2009
Waste Hauling and Disposal		**Assumed Waste Fractions**		**Waste Hauling and Disposal Subtotal =**	**$ 294,323**	
	Class II beneficial reuse soil at Altamont Landfill	35%	1390 ton	$ 38.82	$ 53,973	
	Class II soil for disposal at Altamont Landfill	25%	993 ton	$ 72.42	$ 71,920	
	Class I non-RCRA soil at Kettleman Hills	15%	596 ton	$ 81.15	$ 48,354	
	Class I RCRA direct landfill soil	10%	397 ton	$ 130.04	$ 51,657	
	Class I RCRA stabilization soil	10%	397 ton	$ 172.24	$ 68,420	
	Disposal of radiologically impacted waste	5%	199 ton	$ 120.00	$ 23,834	
				Construction Subtotal =	**$ 566,961**	
Design				**Design Subtotal =**	**$ 68,035**	
	Work Plans				$ 68,035	Includes: Work Plan and Safety and Health Plan QA/QC Plan; assumed to be 12 percent of construction costs
	TOTAL CAPITAL COST (Slurry Wall Installation)			**TOTAL PROJECT CAPITAL COST =**	**$ 634,996**	
	Total Construction Cost				$ 566,961	
	Total Design Cost				$ 68,035	

General Assumptions:
On-site mixing pad/staging area will be used.
Slurry wall will be comprised of a 90% soil / 10% bentonite mixture
Import soil will be used to construct slurry wall

Table E-41. Groundwater Alternatives - Soil Vapor Extraction with Air Sparging Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
CAPITAL COSTS - SVE/AS SYSTEM INSTALLATION					
Pilot Study			**Pilot Study Subtotal =**	**$ 39,430**	
Study Design	1	LS	$ 3,000.00	$ 3,000	
SVE/AS Equipment Mobilization/Demobilization	2	LS	$ 1,500.00	$ 3,000	
SVE/AS Equipment Rental	1	LS	$ 9,000.00	$ 9,000	Estimate provided by Maco Industries, Ltd, February 2009
Direct-Push Drilling Equipment and Support Vehicle	180	mi	$ 6.00	$ 1,080	Estimate supplied by TestAmerica Drilling, January 2009; $6 per mile
Drilling (Hollow-Stem Auger)	1	day	$ 3,500.00	$ 3,500	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	2	day	$ 450.00	$ 900	Estimate supplied by TestAmerica Drilling, January 2009
Well Drilling and Installation Cost	50	ft	$ 7.00	$ 350	Estimate supplied by TestAmerica Drilling, January 2009
Concrete Cutting	1	ea	$ 400.00	$ 400	Estimate supplied by TestAmerica Drilling, January 2009
Drums	8	ea	$ 50.00	$ 400	Estimate supplied by TestAmerica Drilling, January 2009
Well Development	4	hr	$ 180.00	$ 720	Estimate supplied by TestAmerica Drilling, January 2009
Field Measurements and Air Sampling	5	day	$ 1,616.00	$ 8,080	Assumed 5 field sampling days
Laborator Analysis	25	ea	$ 200.00	$ 5,000	
Report	1	LS	$ 4,000.00	$ 4,000	
Mobilization and Demobilization			**Mobilization and Demobilization Subtotal =**	**$ 3,690**	
SVE Equipment Mobilization	1	LS	$ 1,500.00	$ 1,500	Estimate provided by Maco Industries, Ltd, February 2009
Air Sparging Equipment Mobilization	1	LS	$ 1,500.00	$ 1,500	Estimate provided by Maco Industries, Ltd, February 2009
Direct-Push Drilling Equipment and Support Vehicle Mobilization	100	mi	$ 6.00	$ 600	Estimate supplied by Precision Sampling Ltd., January 2009; $5 per mile
Portable Toilet	2	ea	$ 45.00	$ 90	National Construction Rentals, January 2009
Temporary Facilities			**Temporary Facilities Costs Subtotal =**	**$ 365**	
Portable Toilet and Hand Wash Station	1	mo	$ 140.00	$ 140	National Construction Rentals, January 2009
Eye Wash Station	1	ea	$ 225.00	$ 225	Estimate provided by Grainger, January 2009
Equipment Rental			**Equipment Rental Subtotal =**	**$ 2,000**	
4x4 Pickup Truck	4	week	$ 500.00	$ 2,000	Estimate supplied by Hertz Equipment Rental, January 2009
Health & Safety Equipment			**Health and Safety Equipment Subtotal =**	**$ 4,000**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	80	day	$ 50.00	$ 4,000	Assumed $50 per field worker per day
SVE/AS Equipment Installation			**Equipment Installation Subtotal =**	**$ 163,446**	
SVE and Treatment Equipment (Trailerized)	1	LS	$ 22,000.00	$ 22,000	Estimate provided by Maco Industries, Ltd, February 2009
Air Sparging Equipment (Trailerized)	1	LS	$ 25,000.00	$ 25,000	Estimate provided by Maco Industries, Ltd, February 2009
Hollow-Stem Auger Drilling to Install Extraction and Sparge Points	20	day	$ 3,500.00	$ 70,000	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	60	day	$ 450.00	$ 27,000	Estimate supplied by TestAmerica Drilling, January 2009
Concrete Cutting	1	ea	$ 1,600.00	$ 1,600	Estimate supplied by TestAmerica Drilling, January 2009
Well Development	80	hr	$ 180.00	$ 14,400	Estimate supplied by TestAmerica Drilling, January 2009
SVE/AS Equipment Installation	10	day	$ 344.60	$ 3,446	Foreman, 2 laborers, and supervising field engineer
Decontamination			**Decontamination Subtotal =**	**$ 1,000**	
Decontamination / Screening Equipment	10	day	$ 100.00	$ 1,000	
Waste Analysis			**Waste Analysis Subtotal =**	**$ 4,030**	
VOCs by 3550B/8270C	5	ea	100	$ 500	Estimate provided by TestAmerica, Janurary 2009
Semi-VOCs by 3550B/8270C	5	ea	190	$ 950	Estimate provided by TestAmerica, Janurary 2009
Organochlorine Pesticides by 3550B/8081A	5	ea	80	$ 400	Estimate provided by TestAmerica, Janurary 2009
PCBs by 3550B/8082	5	ea	65	$ 325	Estimate provided by TestAmerica, Janurary 2009
Purgeable TPH by 5035A/8015B	5	ea	96	$ 480	Estimate provided by TestAmerica, Janurary 2009
Extractable TPH by 3550B/8015B	5	ea	45	$ 225	Estimate provided by TestAmerica, Janurary 2009
TTLC, CA Title 22 Metals by 3010A/6010B and Mercury by 3010A/7470A	5	ea	130	$ 650	Estimate provided by TestAmerica, Janurary 2009
TCLP, CA Title 22 Metals by 1311	5	ea	50	$ 250	Estimate provided by TestAmerica, Janurary 2009
STLC, CA Title 22 Metals by CCR T26	5	ea	50	$ 250	Estimate provided by TestAmerica, Janurary 2009

Table E-41. Groundwater Alternatives - Soil Vapor Extraction with Air Sparging Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description		Quantity	Unit	Unit Price	Cost	Remarks
Waste Hauling and Disposal	**Assumed Waste Fractions**			**Waste Hauling and Disposal Subtotal =**	**$ 3,292**	
Class II beneficial reuse soil at Altamont Landfill	35%	11	ton	$ 38.82	$ 408	
Class II soil for disposal at Altamont Landfill	35%	11	ton	$ 72.42	$ 760	
Class I non-RCRA soil at Kettleman Hills	50%	15	ton	$ 81.15	$ 1,217	
Class I RCRA direct landfill soil	10%	3	ton	$ 130.04	$ 390	
Class I RCRA stabilization soil	10%	3	ton	$ 172.24	$ 517	
Disposal of radiologically impacted waste	5%	2	ton	$ 120.00	$ 180	
				Construction Subtotal =	**$ 181,823**	
Design				**Design Subtotal =**	**$ 61,249**	Includes pilot study (see cost detail above)
Work Plans					$ 21,819	Includes: Work Plan and Safety and Health Plan QA/QC Plan; assumed to be 12 percent of construction costs
TOTAL CAPITAL COST (Slurry Wall Installation)				**TOTAL PROJECT CAPITAL COST =**	**$ 243,072**	
Total Construction Cost					$ 181,823	
Total Design Cost					$ 61,249	

General Assumptions:

Pilot study required to determine radius of influence for selection of appropriate sparge and extraction and sparging well spacing

Sparge well spacing assumed to be approximately 50 feet

Assumed 16 sparge and 32 extraction wells required

Table E-42. Groundwater Alternatives - Soil Vapor Extraction with Air Sparging and Monitored Natural Attenuation Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Monitoring Summary	Nine wells to sample (quarterly for 2 years, semiannually for 2 years, and annually for 26 years)		
	Quarterly	Semiannual	Annual
Labor subtotal per year[1]	$ -	$ -	$ -
Lab and Data Validation subtotal per year	$ 23,350	$ 11,675	$ 5,837
Sampling Equipment	-	$ -	$ -
Report subtotal per year	$ 24,000	$ 12,000	$ 6,000
Total monitoring costs per year	**$ 47,350**	**$ 23,675**	**$ 11,837**

Notes:
[1] Cost of labor and equipment required to sample wells is already borne by the long-term groundwater monitoring program

Lab and Data Validation Analysis

Plume	Number of A-aquifer Wells To Sample	Years	Frequency	Total Cost per Event[1]	Total Annual Cost
Building 406 TCE Plume	9	2,3	Quarterly	$ 5,837	**$ 23,350**
	9	4,5	Semiannual	$ 5,837	**$ 11,675**
	9	6-11	Annual	$ 5,837	**$ 5,837**

Notes:
[1] Includes cost of quality control samples (10% duplicates and 5% matrix spike/matrix spike duplicate) and data validation (90% cursory and 10% complete)

Laboratory Analysis Cost[1]	Cost per Sample
Total Organic Carbon	$ 35
Turbidity	$ 18
Methane/Ethane/Ethene	$ 125
Major Anions (Chloride, Nitrate, Nitrite, O-phosphate, Sulfate)	$ 100
Acidity	$ 18
Alkalinity	$ 23
Dissolved Hydrogen	$ 220
Total Analytical Suite Cost	**$ 539**

Notes:
[1] Analytical costs provided by TestAmerica Laboratories, San Francisco, CA. , January 2009

Table E-43. Groundwater Alternatives - Soil Vapor Extraction with Air Sparging Operations, Maintenance, and Monitoring Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
OM&M COSTS - SVE/AS SYSTEM					
Annual Operating and Maintenance Costs			**Pilot Study Subtotal =**	**$ 56,336**	
Electrical Charge	12	mo	$ 2,500.00	$ 30,000	Estimate provided by Maco Industries, Ltd, February 2009
Operational Labor	26	day	$ 632.00	$ 16,432	Includes unantcipated repairs and scheduled maintenance
System Inspections	6	day	$ 984.00	$ 5,904	Estimate provided by Maco Industries, Ltd, February 2009
GAC Changeout	4,000	lb	$ 1.00	$ 4,000	Includes changeout with virgin GAC, transport and disposal; assumes four changeouts per year
Annual Monitoring Costs			**Temporary Facilities Costs Subtotal =**	**$ 16,292**	
Field Measurements and Air Sampling	6	day	$ 632.00	$ 3,792	Assumed 6 field sampling days
Laborator Analysis (VOCs by TO-15 GC/MS Full Scan)	25	ea	$ 260.00	$ 6,500	Estimate provided by Air Toxics Ltd., February 2009
Reports	6	ea	$ 1,000.00	$ 6,000	
Equipment Rental			**Equipment Rental Subtotal =**	**$ 3,200**	
4x4 Pickup Truck	32	day	$ 100.00	$ 3,200	Estimate supplied by Hertz Equipment Rental, January 2009
Health & Safety Equipment			**Health and Safety Equipment Subtotal =**	**$ 950**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	38	day	$ 25.00	$ 950	Assumed $25 per field worker per day
			Total Annual O, M & M Cost =	**$ 76,778**	

General Assumptions:

Assumed 4 GAC changeouts per year required

Assumed operational period would span 3 years

Table E-44. Groundwater Alternatives - General Labor Classifications and Rates

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Labor Classification	Position	Labor Rate ($ per hour)
Professional/Technical	Senior Project Manager	$ 165.00
	Project Manager	$ 123.00
	Senior Engineer, Geologist or Scientist	$ 165.00
	Project Engineer, Geologist or Scientist	$ 123.00
	Quality Control Officer	$ 95.00
	Health and Safety Officer	$ 95.00
	Assistant (Junior) Project Engineer, Geologist or Scientist	$ 79.00
	System Operator or Sampling Lead	$ 79.00
	Drafter/Designer	$ 67.00
Field/Construction Operations	Superintendent	$ 142.60
	Foreman	$ 123.60
	Heavy Equipment Operator	$ 63.95
	Laborer	$ 49.00
	Radiological Screening/Field Technician (pre-excavation screeners)	$ 91.00
	Radiological Screening/Field Technician (post-excavation screeners)	$ 91.00
Clerical/Administrative	Procurement Specialist	$ 123.00
	Project Accountant/Billing	$ 55.00
	Administrative Assistant/General Clerical	$ 51.00

Notes:

(1) Equipment operator rates are included in equipment operation estimates

(2) Labor rates are based on a 2009 rate schedule

Table E-45. NAPL Alternatives Cost Estimate Summary[1]

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Remedial Alternative	Total Capital and Labor Cost	Total O&M Cost	Total Periodic Cost	Period of Analysis[2]	Total Cost[3]	Total Present Value[4]
N-1	$ -	$ -	$ -	31 years	$ -	$ -
N-2	$ 1,098,011	$ 82,950	$ 343,440	31 years	$ 1,829,281	$ 1,659,191
N-3	$ 11,233,627	$ 248,160	$ 343,440	34 years	$ 14,190,272	$ 13,115,688
N-4A	$ 12,476,924	$ 559,334	$ 343,440	35 years	$ 16,055,638	$ 14,734,000
N-4B	$ 14,110,466	$ 248,160	$ 343,440	35 years	$ 17,642,480	$ 16,240,425
N-5	$ 18,696,383	$ 559,334	$ 343,440	35 years	$ 23,518,989	$ 22,001,139
N-6	$ 17,888,983	$ 82,950	$ 343,440	31 years	$ 21,978,447	$ 21,799,704

Notes:

(1) Appended tables summarize backup calculations for all cost estimates provided

(2) Period of analysis assumes the base year is 2010

(3) Total cost includes a 20 percent contingency factor

(4) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

N-1: No Action (Retained [as required by the NCP] to provide a baseline for comparison to other alternatives)

N-2: Source Containment, Long-Term Groundwater Monitoring, and Institutional Controls

N-3: Source Removal or Treatment, Containment, Monitored Natural Attenuation, and Institutional Controls

N-4A: Source Removal or Treatment, Containment, Groundwater Treatment by In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

N-4B: Source Removal or Treatment, Groundwater Treatment by Steaming, Containment, Monitored Natural Attenuation, and Institutional Controls

N-5: Source Removal by Excavation and NAPL Extraction/Treatment, Groundwater Treatment by In-Situ Bioremediation, Containment, Monitored Natural Attenuation, and Institutional Controls

N-6: Source Removal by Excavation, Monitored Natural Attenuation, and Institutional Controls

Table E-46. Alternative N-2 - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$1,098,011	$ -	$ -	$1,098,011	$ 1,317,613	1.000	$ 1,317,613	Design, work plan, SHSP, permitting, and slurry wall and cover installation
1	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.974	$ 3,231	Institutional controls
2	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.948	$ 3,146	Institutional controls
3	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.923	$ 3,063	Institutional controls
4	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.899	$ 2,983	Institutional controls
5	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.899	$ 64,727	Institutional controls and 5-year review
6	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.875	$ 2,904	Institutional controls
7	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.852	$ 2,828	Institutional controls
8	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.830	$ 2,753	Institutional controls
9	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.808	$ 2,681	Institutional controls
10	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.787	$ 56,655	Institutional controls and 5-year review
11	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.766	$ 2,542	Institutional controls
12	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.746	$ 2,475	Institutional controls
13	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.726	$ 2,410	Institutional controls
14	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.707	$ 2,347	Institutional controls
15	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.689	$ 49,589	Institutional controls and 5-year review
16	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.671	$ 2,225	Institutional controls
17	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.653	$ 2,166	Institutional controls
18	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.636	$ 2,109	Institutional controls
19	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.619	$ 2,054	Institutional controls
20	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.603	$ 43,404	Institutional controls and 5-year review
21	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.587	$ 1,947	Institutional controls
22	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.572	$ 1,896	Institutional controls
23	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.556	$ 1,846	Institutional controls
24	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.542	$ 1,798	Institutional controls
25	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.528	$ 37,991	Institutional controls and 5-year review
26	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.514	$ 1,705	Institutional controls
27	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.500	$ 1,660	Institutional controls
28	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.487	$ 1,616	Institutional controls
29	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.474	$ 1,574	Institutional controls
30	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.462	$ 33,253	Institutional controls and 5-year review
TOTALS	**$1,098,011**	**$ 82,950**	**$ 343,440**	**$1,524,401**	**$ 1,829,281**		**$ 1,659,191**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-47. Alternative N-3 - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 208,314	$ -	$ -	$208,314	$ 249,977	1.000	$ 249,977	Field and lab testing, modeling, and site evaluation
1	$ 1,109,303	$ -	$ -	$ 1,109,303	$ 1,331,164	0.974	$ 1,296,167	Design, work plan, SSHP, permitting, and slurry wall installation
2	$ 4,774,000	$ -	$ -	$ 4,774,000	$ 5,728,800	0.948	$ 5,431,538	Electrode installation and startup
3	$ 5,142,010	$ -	$ -	$ 5,142,010	$ 6,170,412	0.923	$ 5,696,431	ERH operations and maintenance, cover installation, and demob
4	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.899	$ 2,983	Institutional controls
5	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.899	$ 14,863	Institutional controls and biennial well repair
6	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.875	$ 2,904	Institutional controls
7	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.852	$ 14,092	Institutional controls and biennial well repair
8	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.830	$ 59,755	Institutional controls and 5-year review
9	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.808	$ 13,361	Institutional controls and biennial well repair
10	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.787	$ 2,611	Institutional controls
11	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.766	$ 12,668	Institutional controls and biennial well repair
12	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.746	$ 2,475	Institutional controls
13	$ -	$ 13,779	$ 57,240	$ 71,019	$ 85,223	0.726	$ 61,903	Institutional controls, 5-year review, and biennial well repair
14	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.707	$ 2,347	Institutional controls
15	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.689	$ 11,387	Institutional controls and biennial well repair
16	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.671	$ 2,225	Institutional controls
17	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.653	$ 10,796	Institutional controls and biennial well repair
18	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.636	$ 45,780	Institutional controls and 5-year review
19	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.619	$ 10,236	Institutional controls and biennial well repair
20	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.603	$ 2,000	Institutional controls
21	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.587	$ 9,705	Institutional controls and biennial well repair
22	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.572	$ 1,896	Institutional controls
23	$ -	$ 13,779	$ 57,240	$ 71,019	$ 85,223	0.556	$ 47,425	Institutional controls, 5-year review, and biennial well repair
24	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.542	$ 1,798	Institutional controls
25	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.528	$ 8,724	Institutional controls and biennial well repair
26	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.514	$ 1,705	Institutional controls
27	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.500	$ 8,271	Institutional controls and biennial well repair
28	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.487	$ 35,072	Institutional controls and 5-year review
29	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.474	$ 7,842	Institutional controls and biennial well repair
30	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.462	$ 1,532	Institutional controls
31	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.450	$ 7,435	Institutional controls and biennial well repair
32	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.438	$ 1,453	Institutional controls
33	$ -	$ 13,779	$ 57,240	$ 71,019	$ 85,223	0.426	$ 36,333	Institutional controls, 5-year review, and biennial well repair
TOTALS	**$ 11,233,627**	**$ 248,160**	**$ 343,440**	**$11,825,227**	**$ 14,190,272**		**$ 13,115,688**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-48. Alternative N-4A - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 372,442	$ -	$ -	$372,442	$ 446,930	1.000	$ 446,930	Field and lab testing, modeling, and site evaluation
1	$ 1,654,073	$ -	$ -	$ 1,654,073	$ 1,984,887	0.974	$ 1,932,704	Design, work plan, SSHP, permitting, and slurry wall and cover installation
2	$ 4,774,000	$ -	$ -	$ 4,774,000	$ 5,728,800	0.948	$ 5,431,538	Electrode installation and startup
3	$ 4,597,240	$ -	$ -	$ 4,597,240	$ 5,516,688	0.923	$ 5,092,923	ERH operations and maintenance and demob
4	$ 1,079,169	$ -	$ -	$ 1,079,169	$ 1,295,002	0.899	$ 1,164,096	ISB application and cover installation
5	$ -	$ 35,520	$ -	$ 35,520	$ 42,624	0.875	$ 37,308	Institutional controls and ISB MNA (quarterly)
6	$ -	$ 46,534	$ -	$ 46,534	$ 55,841	0.852	$ 47,592	Institutional controls, ISB MNA (quarterly), and biennial well repair
7	$ -	$ 19,143	$ -	$ 19,143	$ 22,971	0.830	$ 19,063	Institutional controls and ISB MNA (semiannually)
8	$ -	$ 30,157	$ -	$ 30,157	$ 36,188	0.808	$ 29,242	Institutional controls, ISB MNA (semiannually), and biennial well repair
9	$ -	$ 10,954	$ 57,240	$ 68,194	$ 81,833	0.787	$ 64,386	Institutional controls, ISB MNA (annually), and 5-year review
10	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.766	$ 20,196	Institutional controls, ISB MNA (annually), and biennial well repair
11	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.746	$ 9,806	Institutional controls and ISB MNA (annually)
12	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.726	$ 19,148	Institutional controls, ISB MNA (annually), and biennial well repair
13	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.707	$ 9,297	Institutional controls and ISB MNA (annually)
14	$ -	$ 21,968	$ 57,240	$ 79,208	$ 95,049	0.689	$ 65,458	Institutional controls, ISB MNA (annually), biennial well repair, and 5-year review
15	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.671	$ 8,814	Institutional controls and ISB MNA (annually)
16	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.653	$ 17,212	Institutional controls, ISB MNA (annually), and biennial well repair
17	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.636	$ 8,357	Institutional controls and ISB MNA (annually)
18	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.619	$ 16,319	Institutional controls, ISB MNA (annually), and biennial well repair
19	$ -	$ 10,954	$ 57,240	$ 68,194	$ 81,833	0.603	$ 49,327	Institutional controls, ISB MNA (annually), and 5-year review
20	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.587	$ 15,472	Institutional controls, ISB MNA (annually), and biennial well repair
21	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.572	$ 7,512	Institutional controls and ISB MNA (annually)
22	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.556	$ 14,670	Institutional controls, ISB MNA (annually), and biennial well repair
23	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.542	$ 7,122	Institutional controls and ISB MNA (annually)
24	$ -	$ 21,968	$ 57,240	$ 79,208	$ 95,049	0.528	$ 50,149	Institutional controls, ISB MNA (annually), biennial well repair, and 5-year review
25	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.514	$ 6,753	Institutional controls and ISB MNA (annually)
26	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.500	$ 13,187	Institutional controls, ISB MNA (annually), and biennial well repair
27	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.487	$ 6,402	Institutional controls and ISB MNA (annually)
28	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.474	$ 12,502	Institutional controls, ISB MNA (annually), and biennial well repair
29	$ -	$ 10,954	$ 57,240	$ 68,194	$ 81,833	0.462	$ 37,791	Institutional controls, ISB MNA (annually), and 5-year review
30	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.450	$ 11,854	Institutional controls, ISB MNA (annually), and biennial well repair
31	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.438	$ 5,755	Institutional controls and ISB MNA (annually)
32	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.426	$ 11,239	Institutional controls, ISB MNA (annually), and biennial well repair
33	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.415	$ 5,457	Institutional controls and ISB MNA (annually)
34	$ -	$ 21,968	$ 57,240	$ 79,208	$ 95,049	0.404	$ 38,420	Institutional controls, ISB MNA (annually), biennial well repair, and 5-year review
TOTALS	**$ 12,476,924**	**$ 559,334**	**$ 343,440**	**$13,379,698**	**$ 16,055,638**		**$ 14,734,000**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-49. Alternative N-4B - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 208,314	$ -	$ -	$208,314	$ 249,977	1.000	$ 249,977	Field and lab testing, modeling, and site evaluation
1	$ 1,654,073	$ -	$ -	$ 1,654,073	$ 1,984,887	0.974	$ 1,932,704	Design, work plan, SSHP, permitting, and slurry wall and cover installation
2	$ 4,774,000	$ -	$ -	$ 4,774,000	$ 5,728,800	0.948	$ 5,431,538	Electrode installation and startup
3	$ 4,597,240	$ -	$ -	$ 4,597,240	$ 5,516,688	0.923	$ 5,092,923	ERH operations and maintenance
4	$ 2,876,839	$ -	$ -	$ 2,876,839	$ 3,452,207	0.899	$ 3,103,238	ERH steaming, cover installation, and demob
5	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.899	$ 2,983	Institutional controls
6	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.875	$ 14,473	Institutional controls and biennial well repair
7	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.852	$ 2,828	Institutional controls
8	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.830	$ 13,722	Institutional controls and biennial well repair
9	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.808	$ 58,184	Institutional controls and 5-year review
10	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.787	$ 13,010	Institutional controls and biennial well repair
11	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.766	$ 2,542	Institutional controls
12	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.746	$ 12,335	Institutional controls and biennial well repair
13	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.726	$ 2,410	Institutional controls
14	$ -	$ 13,779	$ 57,240	$ 71,019	$ 85,223	0.707	$ 60,275	Institutional controls, 5-year review, and biennial well repair
15	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.689	$ 2,285	Institutional controls
16	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.671	$ 11,088	Institutional controls and biennial well repair
17	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.653	$ 2,166	Institutional controls
18	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.636	$ 10,512	Institutional controls and biennial well repair
19	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.619	$ 44,576	Institutional controls and 5-year review
20	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.603	$ 9,967	Institutional controls and biennial well repair
21	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.587	$ 1,947	Institutional controls
22	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.572	$ 9,450	Institutional controls and biennial well repair
23	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.556	$ 1,846	Institutional controls
24	$ -	$ 13,779	$ 57,240	$ 71,019	$ 85,223	0.542	$ 46,178	Institutional controls, 5-year review, and biennial well repair
25	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.528	$ 1,751	Institutional controls
26	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.514	$ 8,495	Institutional controls and biennial well repair
27	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.500	$ 1,660	Institutional controls
28	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.487	$ 8,054	Institutional controls and biennial well repair
29	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.474	$ 34,150	Institutional controls and 5-year review
30	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.462	$ 7,636	Institutional controls and biennial well repair
31	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.450	$ 1,492	Institutional controls
32	$ -	$ 13,779	$ -	$ 13,779	$ 16,535	0.438	$ 7,240	Institutional controls and biennial well repair
33	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.426	$ 1,415	Institutional controls
34	$ -	$ 13,779	$ 57,240	$ 71,019	$ 85,223	0.415	$ 35,378	Institutional controls, 5-year review, and biennial well repair
TOTALS	**$ 14,110,466**	**$248,160**	**$ 343,440**	**$14,702,066**	**$ 17,642,480**		**$ 16,240,425**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008)

Table E-50. Alternative N-5 - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 372,442	$ -	$ -	$372,442	$ 446,930	1.000	$ 446,930	Field and lab testing, modeling, and site evaluation
1	$ 7,873,533	$ -	$ -	$ 7,873,533	$ 9,448,239	0.974	$ 9,199,843	Design, work plan, HASP, permitting, excavation, slurry wall installation, and backfill
2	$ 4,774,000	$ -	$ -	$ 4,774,000	$ 5,728,800	0.948	$ 5,431,538	Electrode installation and start-up
3	$ 4,597,240	$ -	$ -	$ 4,597,240	$ 5,516,688	0.923	$ 5,092,923	ERH operations and maintenance and demob
4	$ 1,079,169	$ -	$ -	$ 1,079,169	$ 1,295,002	0.899	$ 1,164,096	ISB Application and Cover Installation
5	$ -	$ 35,520	$ -	$ 35,520	$ 42,624	0.875	$ 37,308	Institutional controls and ISB MNA (Quarterly)
6	$ -	$ 46,534	$ -	$ 46,534	$ 55,841	0.852	$ 47,592	Institutional controls, ISB MNA (Quarterly), and biennial well repair
7	$ -	$ 19,143	$ -	$ 19,143	$ 22,971	0.830	$ 19,063	Institutional controls and ISB MNA (Semi-Annually)
8	$ -	$ 30,157	$ -	$ 30,157	$ 36,188	0.808	$ 29,242	Institutional controls, ISB MNA (Semi-Annually), and biennial well repair
9	$ -	$ 10,954	$ 57,240	$ 68,194	$ 81,833	0.787	$ 64,386	Institutional controls, ISB MNA (Annually), and 5-year review
10	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.766	$ 20,196	Institutional controls, ISB MNA (Annually), and biennial well repair
11	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.746	$ 9,806	Institutional controls and ISB MNA (Annually)
12	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.726	$ 19,148	Institutional controls, ISB MNA (Annually), and biennial well repair
13	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.707	$ 9,297	Institutional controls and ISB MNA (Annually)
14	$ -	$ 21,968	$ 57,240	$ 79,208	$ 95,049	0.689	$ 65,458	Institutional controls, ISB MNA (Annually), biennial well repair, and 5-year
15	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.671	$ 8,814	Institutional controls and ISB MNA (Annually)
16	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.653	$ 17,212	Institutional controls, ISB MNA (Annually), and biennial well repair
17	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.636	$ 8,357	Institutional controls and ISB MNA (Annually)
18	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.619	$ 16,319	Institutional controls, ISB MNA (Annually), and biennial well repair
19	$ -	$ 10,954	$ 57,240	$ 68,194	$ 81,833	0.603	$ 49,327	Institutional controls, ISB MNA (Annually), and 5-year review
20	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.587	$ 15,472	Institutional controls, ISB MNA (Annually), and biennial well repair
21	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.572	$ 7,512	Institutional controls and ISB MNA (Annually)
22	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.556	$ 14,670	Institutional controls, ISB MNA (Annually), and biennial well repair
23	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.542	$ 7,122	Institutional controls and ISB MNA (Annually)
24	$ -	$ 21,968	$ 57,240	$ 79,208	$ 95,049	0.528	$ 50,149	Institutional controls, ISB MNA (Annually), biennial well repair, and 5-year
25	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.514	$ 6,753	Institutional controls and ISB MNA (Annually)
26	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.500	$ 13,187	Institutional controls, ISB MNA (Annually), and biennial well repair
27	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.487	$ 6,402	Institutional controls and ISB MNA (Annually)
28	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.474	$ 12,502	Institutional controls, ISB MNA (Annually), and biennial well repair
29	$ -	$ 10,954	$ 57,240	$ 68,194	$ 81,833	0.462	$ 37,791	Institutional controls, ISB MNA (Annually), and 5-year review
30	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.450	$ 11,854	Institutional controls, ISB MNA (Annually), and biennial well repair
31	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.438	$ 5,755	Institutional controls and ISB MNA (Annually)
32	$ -	$ 21,968	$ -	$ 21,968	$ 26,361	0.426	$ 11,239	Institutional controls, ISB MNA (Annually), and biennial well repair
33	$ -	$ 10,954	$ -	$ 10,954	$ 13,145	0.415	$ 5,457	Institutional controls and ISB MNA (Annually)
34	$ -	$ 21,968	$ 57,240	$ 79,208	$ 95,049	0.404	$ 38,420	Institutional controls, ISB MNA (Annually), biennial well repair, and 5-year
TOTALS	**$18,696,383**	**$ 559,334**	**$ 343,440**	**$19,599,158**	**$ 23,518,989**		**$ 22,001,139**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-51. Alternative N-6 - Cash Flow Analysis

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Year	Capital Costs	Annual O&M Costs	Periodic Costs	Total Annual Costs	Total Annual Costs + 20% Contingency	Discount Factor (2.7%)[1]	Total Present Value	Remarks
0	$ 17,888,983	$ -	$ -	$17,888,983	$ 21,466,779	1.000	$ 21,466,779	Design, work plan, SSHP, permitting, excavation, and backfill
1	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.974	$ 3,231	Institutional controls
2	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.948	$ 3,146	Institutional controls
3	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.923	$ 3,063	Institutional controls
4	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.899	$ 2,983	Institutional controls
5	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.875	$ 63,026	Institutional controls and 5-year review
6	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.852	$ 2,828	Institutional controls
7	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.830	$ 2,753	Institutional controls
8	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.808	$ 2,681	Institutional controls
9	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.787	$ 2,611	Institutional controls
10	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.766	$ 55,165	Institutional controls and 5-year review
11	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.746	$ 2,475	Institutional controls
12	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.726	$ 2,410	Institutional controls
13	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.707	$ 2,347	Institutional controls
14	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.689	$ 2,285	Institutional controls
15	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.671	$ 48,285	Institutional controls and 5-year review
16	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.653	$ 2,166	Institutional controls
17	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.636	$ 2,109	Institutional controls
18	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.619	$ 2,054	Institutional controls
19	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.603	$ 2,000	Institutional controls
20	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.587	$ 42,263	Institutional controls and 5-year review
21	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.572	$ 1,896	Institutional controls
22	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.556	$ 1,846	Institutional controls
23	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.542	$ 1,798	Institutional controls
24	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.528	$ 1,751	Institutional controls
25	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.514	$ 36,992	Institutional controls and 5-year review
26	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.500	$ 1,660	Institutional controls
27	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.487	$ 1,616	Institutional controls
28	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.474	$ 1,574	Institutional controls
29	$ -	$ 2,765	$ -	$ 2,765	$ 3,318	0.462	$ 1,532	Institutional controls
30	$ -	$ 2,765	$ 57,240	$ 60,005	$ 72,006	0.450	$ 32,378	Institutional controls and 5-year review
TOTALS	**$ 17,888,983**	**$ 82,950**	**$ 343,440**	**$18,315,373**	**$ 21,978,447**		**$ 21,799,704**	

Notes:

(1) Based on a 2.7% discount factor for projects with a 30 year (or greater) duration, as specified for Federal facility sites in Appendix C of Office of Management and Budget Circular A-94 (effective December 2008) at http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html)

Table E-52. NAPL Alternatives - Monitoring Well Decommissioning Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Well Decomissioning	Unit	Quantity	Unit Price	Cost	Comment
Mobilization and Demobilization					
Hollow-Stem Auger Drill Rig and Support Vehicle	mi	180	$ 6.00	$ 1,080.00	Estimate supplied by TestAmerica Drilling, January 2009
Well Decomissioning					
Well Head Breakout	ea	11	$ 100.00	$ 1,100.00	Estimate supplied by TestAmerica Drilling, January 2009
Over-Drilling (Hollow-Stem Auger)	day	2	$ 3,250.00	$ 6,500.00	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	day	2	$ 450.00	$ 900.00	Estimate supplied by TestAmerica Drilling, January 2009
Labor	day	2	$ 1,771.34	$ 3,542.67	Means 2009 Heavy Construction. Pg 479; Two Laborers and One Equipment Operator (light)
Report	ea	1	$ 3,000.00	$ 3,000.00	
Total Well Abandonment				**$ 16,122.67**	11 wells total, assuming total footage = 242 feet

Table E-53. NAPL Alternatives - Slurry Wall Installation Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Estimate of Quantities:

	Length (ft)	Width (ft)	Average Depth (ft)	Surface Area (ft^2)	Volume (ft^3)
Slury Wall Dimensions and Volume	885	2.5	35	30,975	77,438

Cost Estimate:

Description		Quantity	Unit	Unit Price		Cost	Comments
CAPITAL COSTS - SLURRY WALL INSTALLATION							
Mobilization and Demobilization				**Mobilization and Demobilization Subtotal =**	**$**	**56,520**	
	Excavation and Slurry Equipment	2	ls	$ 28,260.00	$	56,520	
Temporary Facilities				**Temporary Facilities Costs Subtotal =**	**$**	**437**	
	Portable Toilet	1	mo	$ 211.70	$	212	Means 2009 Heavy Construction. Page 472. 01 54 33 6410
	Eye Wash Station	1	ea	$ 225.00	$	225	Estimate provided by Grainger, January 2009
Equipment Rental				**Equipment Rental Subtotal =**	**$**	**1,350**	
	4x4 Pickup Truck	3	week	$ 450.00	$	1,350	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
Health & Safety Equipment				**Health and Safety Equipment Subtotal =**	**$**	**10,000**	
	Includes PPE, First Aid Equipment, Fire Safety Equipment, and Spill Control Equipment	200	ea	$ 50.00	$	10,000	Assumed $50 per field worker per day
Slurry Wall (Operations)				**Operations Subtotal =**	**$**	**10,484**	
	Slurry wall excavation, clay/sand with boulders, 26'-75'	32	hr	$ 148.01	$	4,736	Means 2005 Environmental Remediation - Unit Price. Pg 2-2; 1 Equipment Operator (crane), 1 Equipment Operator (oiler), and 1 Laborer
	Backfill slurry wall trench	59	hr	$ 97.96	$	5,747	Means 2005 Environmental Remediation - Unit Price. Pg 2-2; 1 Equipment Operator (medium) and 1 Laborer
Slurry Wall Installation				**Post-Drilling Work Subtotal =**	**$**	**143,699**	
	Excavate Slurry Trench in Wet Soils	2,868	cy	$ 13.03	$	37,368	Means 2005 Environmental Remediation - Unit Price; Pg 9-76; 33 06 0306
	Import Soil	3,136	ton	$ 22.00	$	68,997	Assumed 90% soil, 10% Bentonite Slurry Mix
	Bentonite	184	ton	$ 203.00	$	37,335	Assumed 90% soil, 10% Bentonite Slurry Mix; Estimate provided by CETCO Lining Technologies, February 2009
Decontamination				**Decontamination Subtotal =**	**$**	**1,500**	
	Decontamination/Screening Equipment	15	day	$ 100.00	$	1,500	
Waste Analysis				**Waste Analysis Subtotal =**	**$**	**7,254**	
	VOCs by 3550B/8270C	9	ea	100	$	900	Estimate provided by TestAmerica, Janurary 2009
	Semi-VOCs by 3550B/8270C	9	ea	190	$	1,710	Estimate provided by TestAmerica, Janurary 2009
	Organochlorine Pesticides by 3550B/8081A	9	ea	80	$	720	Estimate provided by TestAmerica, Janurary 2009
	PCBs by 3550B/8082	9	ea	65	$	585	Estimate provided by TestAmerica, Janurary 2009
	Purgeable TPH by 5035A/8015B	9	ea	96	$	864	Estimate provided by TestAmerica, Janurary 2009
	Extractable TPH by 3550B/8015B	9	ea	45	$	405	Estimate provided by TestAmerica, Janurary 2009
	TTLC, CA Title 22 Metals by 3010A/6010B and Mercury by 3010A/7470A	9	ea	130	$	1,170	Estimate provided by TestAmerica, Janurary 2009
	TCLP, CA Title 22 Metals by 1311	9	ea	50	$	450	Estimate provided by TestAmerica, Janurary 2009
	STLC, CA Title 22 Metals by CCR T26	9	ea	50	$	450	Estimate provided by TestAmerica, Janurary 2009

Table E-53. NAPL Alternatives - Slurry Wall Installation Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Estimate of Quantities:

	Length (ft)	Width (ft)	Average Depth (ft)	Surface Area (ft^2)	Volume (ft^3)
Slury Wall Dimensions and Volume	885	2.5	35	30,975	77,438

Cost Estimate:

Description			Quantity	Unit	Unit Price		Cost	Comments
Waste Hauling and Disposal		**Assumed Waste Fractions**			**Waste Hauling and Disposal Subtotal =**	**$**	**258,189**	
	Class II beneficial reuse soil at Altamont Landfill	35%	1,220	ton	$ 38.82	$	47,346	
	Class II soil for disposal at Altamont Landfill	25%	871	ton	$ 72.42	$	63,090	
	Class I non-RCRA soil at Kettleman Hills	15%	523	ton	$ 81.15	$	42,417	
	Class I RCRA direct landfill soil	10%	348	ton	$ 130.04	$	45,315	
	Class I RCRA stabilization soil	10%	348	ton	$ 172.24	$	60,020	
	Disposal of radiologically impacted waste	5%	174	ton	$ 120.00	$	20,908	
					Construction Subtotal =	**$**	**478,949**	
Design					**Design Subtotal =**	**$**	**57,474**	
	Work Plans					$	57,474	Includes: Work Plan, Safety and Health Plan, QA/QC Plan; 12% of construction costs
	TOTAL CAPITAL COST (Slurry Wall Installation)				**TOTAL PROJECT CAPITAL COST =**	**$**	**536,423**	
	Total Construction Cost					$	478,949	
	Total Design Cost					$	57,474	

General Assumptions:

On-site mixing pad/staging area will be used.

Slurry wall will be comprised of a 90% soil / 10% bentonite mixture

Import soil will be used to construct slurry wall

Table E-54. NAPL Alternatives - Electrical Resistive Heating Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Unit	Quantity	Unit Price	Cost	Remarks
Pre-Implementation Design and Testing					
Field and Lab SETI Testing, Modeling, and Site Evaluation	ls	1	$ 191,496	$ 191,496	Assumes duration of 11 wks Assumes yr 0
Site Evaluation Test					
Lab Electrical Test					
Laboratory Bench Tests					
Numerical Modeling					
Design, Work Plan, and Permits	ls	1	$ 572,880	$ 572,880	Assumes duration of 25 wks; assumes 12 percent of implementation costs Assumes yr 1
Design and Kick-Off Meetings					Assumes treatment volume = 97,000 yd^3
Work Plan, HASP, EPP, etc.					Model estimates approximately 1.1 million gals of NAPL in the subsurface
Pre-construction survey, utility location survey					
Remedy Implementation					
Subsurface Electrode and Well Installation	ls	1	$ 1,389,991	$ 1,389,991	Assumes duration of 20 wks Assumes yr 2 429 dual phase extraction wells will be installed. For the purpose of this cost estimate, 100% of the electrodes will be utilized during the first in a quarter of the extraction duration, 75% of the time in the second quarter, 50% in the third quarter, and 25% in the fourth quarter.
Equipment Construction and Mobilization	ls	1	$ 390,946	$ 390,946	Assumes duration of 2 wks Assumes yr 2
ERH Field Construction and Setup	ls	1	$ 2,051,406	$ 2,051,406	Assumes SPH construction and setup duration of 17 wks Assumes yr 2 Electrodes should be installed at least 30 ft from the sheet pile wall
SVE Construction and Setup	ls	1	$ 492,787	$ 492,787	Assumes SVE construction and setup duration of 17 wks Assumes yr 2
Installation of Electrical Service	ls	1	$ 90,000.00	$ 90,000.00	Assumes yr 2
Installation of Temporary Sewer Discharge Line (Above Ground)	ls	1	$ 16,000.00	$ 16,000.00	Assumes yr 2
Startup Operations	ls	1	$ 342,870	$ 342,870	Assumes duration of 8 wks Assumes yr 2
ERH Control and Termperature Monitoring; Offset for CO_2 Emissions					26 (16 sensors each) temperature monitoring points Assumes steaming in select areas as a polishing alternative
Post-Implementation Activities					
ERH Operations and Maintenance for NAPL Recovery	ls	1	$ 3,131,911	$ 3,131,911	Assumes SPH, DVE, and SVE operation duration of 59 wks Assumes yr 3
ERH Operations and Maintenance for Steaming	ls	1	$ 1,565,956	$ 1,565,956	ONLY INCLUDED IN ALTERNATIVE N-4B Assumes yr 4
Estimated Electrical Use for NAPL removal	ls	1	626,628	$ 626,628.13	Assumes $0.07/kWh for one year Assumes Year 3
Estimated Electrical Use for steaming	ls	1	626,628	$ 626,628.13	ONLY INCLUDED IN ALTERNATIVE N-4B Assumes $0.07/kWh for 6 months Assumes Year 4
Soil, Vapor, and Water Analyses	ls	1	$ 16,950.00	$ 16,950.00	Assumes yr 3
Water and NAPL Disposal	ls	1	$ 256,690.00	$ 256,690.00	Assumes condensate water disposal = $0.01/gal NAPL can be recovered and recycled for cost savings 1,000 gal poly tank to hold recovered NAPL and groundwater
Production Water Treatment	ls	1	$ 109,875.00	$ 109,875.00	Assumes 90 gpm of production water extracted and treated by GAC prior to discharge to POTW Assumes GAC changeouts once per 1.5 months Assumes yr 3

Table E-54. NAPL Alternatives - Electrical Resistive Heating Cost Detail *(continued)*
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Unit	Quantity	Unit Price	Cost	Remarks
Post-Implementation Activities *(continued)*					
Estimate of POTW Discharge Fees	yr	1	$ 30,000.00	$ 30,000.00	Assumes yr 3
Condenser Rental and Operation for Steaming	ls	1	$ 92,160.00	$ 92,160.00	ONLY INCLUDED IN ALTERNATIVE N-4B Assumes steaming duration of 6 months after ERH NAPL treatment completed Assumes yr 4
Condensate Disposal	ls	1	$ 6,900.00	$ 6,900.00	ONLY INCLUDED IN ALTERNATIVE N-4B Assumes condensate water disposal = $0.01/gal Assumes 690,000 gal of condensate generated over 6 months
Thermal Oxidizer for Vapor Treatment, 150 scfm	ls	1	$ 40,426.00	$ 40,426.00	ONLY INCLUDED IN ALTERNATIVE N-4B Assumes yr 4
Electrode and Well Abandonment	ls	1	$ 22,803.00	$ 22,803.00	Assumes well abandonment by filling with grout Assumes yr 3 or 4
Post-Remediation Site Restoration (Construction Clearing, Grading, and Restoration Services)	ls	1	$ 10,720.00	$ 10,720.00	Assumes yr 3 or 4
Demobilization and Final Report	ls	1	$ 391,663	$ 391,663	Assumes duration of 6 wks Assumes yr 3 or 4
Subtotal for Pre-Implementation Testing				**$ 191,496**	
Subtotal for Pre-Implementation Design				**$ 572,880**	
Subtotal for Remedy Implementation				**$ 4,774,000**	
Subtotal for Post-Implementation Activities				**$ 4,597,240**	
Total Remedy Cost[2]				**$ 10,135,616**	
Subtotal for Pre-Implementation Testing				**$ 191,496**	
Subtotal for Pre-Implementation Design				**$ 572,880**	
Subtotal for Remedy Implementation				**$ 4,774,000**	
Subtotal for Post-Implementation Activities				**$ 4,597,240**	
Subtotal for Steaming				**$ 2,332,070**	
Total Remedy Cost[3]				**$ 12,467,686**	

Notes:

1. Cost estimates for ERH implementation provided by Current Environmental Services, LLC. And Thermal Remediation Services, Inc. - January, 2009. Assumes that work will be phased to optimize NAPL extraction, control capital costs, and control energy costs.
2. Does not include cost to perform steaming as a polishing step (one year duration)
3. Does include cost to perform steaming as a polishing step (additional 6 month duration)

Table E-55. NAPL Alternatives - In-Situ Bioremembiation Injection Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Cost to Implement ISB Using ORC at Parcel E (for Benzene)	IR03 Benzene Plume	
Material Cost Summary[1]	**Quantity**	**Cost**
ORC Advanced Application Rate (lbs/ft)	5	--
Amount of ORC Advanced per Point (lb)	90	--
Total amount of ORC Advanced (lb)	49,500	--
ORC Advanced Unit Cost ($/lb)	--	$ 8.15
Total ORC Advanced Material Cost		**$ 403,425**
Implementation Cost Summary		
Number of Delivery Points	550	--
Average Length of Injection Point (ft)	28	--
Total Length of Direct Push (ft)	15,400	--
Estimated Production Rate for Direct Push (points/day)	11	--
Required Number of Days to Install Points (days)	50.0	--
Cost to Install Injection Points[2]	--	$ 115,500
Geoprobe and Crew Mobilization ($5 per mile, 100 miles each way)	--	*$ 15,500*
Geoprobe Track Rig (2-man, 8 hr/day, incl. steam cleaning and sample lining, production rate = 11 points per day)	--	*$ 95,000*
Injection Equipment (3.5 gpm, 1,000 psi)	--	*$ 5,000*
Point Installation Oversight	--	$ 10,824
Transportation Cost for ORC Delivery	--	$ 4,650
Total Implementation Cost (ORC Advanced)		**$ 130,974**
Total Cost (ORC Advanced)		**$ 534,399**

Notes:
[1] ISB modeling to produce estimates performed by Regenesis, Ltd.
[2] Direct push and product injection estimates provided by Precision Sampling, Ltd.

Assumptions:
Only a single injection application required to address plumes

Design and Pre-Implementation Cost	**$ 164,128**
Design assumed to be 12% of total cost; applied to year 0	$ 64,128
Pilot Study (estimate provided by Regenesis, Ltd.); applied to year 0	$ 100,000

Table E-56. Alternative N-5 - Capital Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	52	days
3.0 months or 52 working days	3	months
Operations and Maintenance / Monitoring Period	7,965	days
	360	months
Means Environmental Remediation Factor Inflation		Means 2009
Assemblies and Unit Price		13%

Description	Quantity	Unit	Unit Price		Cost	Comments
DISTRIBUTIVE COSTS	**DISTRIBUTIVE COSTS SUBTOTAL =**			**$**	**2,352,358**	Includes labor and temporary facilities
Labor	**Labor Subtotal =**			**$**	**2,326,685**	
Total project labor cost				$	2,326,685	See backup worksheet "LABOR"
Temporary Facilities	**Temporary Facilities Costs Subtotal =**			**$**	**25,673**	
Furnished Field Office Trailer (50' x 10' w/ air conditioning)	3	mo	$ 439.49	$	1,318	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0400 + 0700
Office Equipment Rental	3	mo	$ 2,500.00	$	7,500	
Office Supplies	3	mo	$ 115.75	$	347	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0120
City Water Supply	3	mo	$ 84.18	$	253	Means 2009 Heavy Construction. Page 14. 01 51 13.80 0700
Telephone Bill	3	mo	$ 108.94	$	327	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0140
Field Office Electrical Bill	3	mo	$ 204.27	$	613	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0160
Portable Toilets (3)	3	mo	$ 635.09	$	1,905	Means 2009 Heavy Construction. Page 472. 01 54 33 6410
Rental Trucks (3) (for supervisory staff)	3	mo	$ 4,470.00	$	13,410	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
CAPITAL COSTS						
Mobilization and Demobilization	**Mobilization and Demobilization Subtotal =**			**$**	**11,187**	
Excavator, diesel hydraulic, crawler mounted (1.5 CY capacity)	1	ea	$ 562.05	$	562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Skid Steer Loader, wheeled, diesel (1 CY, 78 hp) (2)	2	ea	$ 562.05	$	1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Grader, self-propelled, 30,000 lb.	1	ea	$ 562.05	$	562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dump truck, 8 CY (12 ton payload) (6)	6	ea	$ 562.05	$	3,372	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Forklift, straight mast, 12' lift, 5,000 lb, 2 wheel drive, gas	1	ea	$ 562.05	$	562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Office Trailer (assumed 100 mile haul)	1	ea	$ 1,225.62	$	1,226	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0800 (unit cost multiplied by 2 to account for mob & demob)
Modular tank, 21,000 gallons (2)	5	hr	$ 190.00	$	855	BakerCorp (http://www.bakercorp.com/), March 2009
Conveyer system with misters and radiological detectors (6)	6	ea	$ 393.68	$	2,362	Means 2009 Heavy Construction. Page 18. 01 54 36.50 1150 (unit cost multiplied by 2 to account for mob & demob)
Water truck for dust suppression, 2,000 gallon capacity	1	ea	$ 562.05	$	562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Equipment Rental	**Equipment Rental Subtotal =**			**$**	**263,412**	
Excavator, diesel hydraulic, crawler mounted (1.5 CY capacity)	3	mo	$ 10,703.48	$	32,110	Means 2009 Heavy Construction. Pg 466. 01 54 33 20 0200
Skid Steer Loader, wheeled, diesel (1 CY, 78 hp) (2)	3	mo	$ 733.63	$	2,201	Means 2009 Heavy Construction. Pg 469. 01 54 33 20 4890
Dump truck, 8 CY (12 ton payload) (6)	3	mo	$ 16,532.10	$	49,596	Means 2009 Heavy Construction. Pg 469. 01 54 33 20 5250
Forklift, straight mast, 12' lift, 5,000 lb, 2 wheel drive, gas	3	mo	$ 2,508.08	$	7,524	Means 2009 Heavy Construction. Pg 470. 01 54 33 40 2020
Feed pump (submersible 2", 120 gpm)	3	mo	$ 284.01	$	852	Means 2009 Heavy Construction. Pg 471. 01 54 33 40 4700
Water truck for dust suppression, 2,000 gallon capacity	3	mo	$ 4,761.81	$	14,285	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
Pressure washer, gas (2,000 - 2,999 psi)	3	mo	$ 1,624.95	$	4,875	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
Conveyer system with misters and radiological detectors (6)	3	mo	$ 9,325.80	$	27,977	Means 2009 Heavy Construction. Pg 466; 01 54 33 10 0800
Radiological monitoring equipment (5) for pre-excavation screening	3	mo	$ 3,179.25	$	9,538	Ludlum Model 44-2 1"x 1" NaI GAMMA Scintillator and Ludlum Model 3 Survey Meter (unit rental cost provided by Suntrac Services, 1-800-579-4513, 03/05/2009)
Radiological monitoring equipment (6) for post-excavation conveyor screening	3	mo	$ 38,151.00	$	114,453	Assumed to be 10 times the cost of the portable scintillator and meter
Health & Safety Equipment	**Health and Safety Equipment Subtotal =**			**$**	**91,000**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	1,820	ea	$ 50.00	$	91,000	Assumed $50 per field worker per day
Site Preparation	**Site Preparation Subtotal =**			**$**	**272,290**	
Modular tank, 21,000 gallons (2)	3	mo	$ 1,036.00	$	3,108	BakerCorp (http://www.bakercorp.com/), March 2009
Sump pump, 25 gpm	1	ea	$ 3,648.44	$	3,648	Means 2005 Environmental Remediation - Assemblies; Pg 3-91; 33 29 0401
Soil staging area grading, 1/2 acre	2,420	sy	$ 1.77	$	4,284	Means 2009 Heavy Construction. Pg 211; 31 22 16.10 1100
Soil staging area liner, includes rad screening and stockpiling areas (1/2 acre, 80 mil HDPE)	21,780	sf	$ 4.18	$	91,102	Means 2005 Environmental Remediation - Assemblies; Pg 3-90; 33 08 0573
Laydown area grading (100 x 100 ft)	1,111	sy	$ 0.92	$	1,018	Means 2009 Heavy Construction. Pg 211; 31 22 16.10 0100
Granular cover over laydown area (6 inch thick crushed stone)	1,111	sy	$ 13.00	$	14,442	Means 2009 Heavy Construction. Pg 275; 32 11 23.23 0100
Site security (24-hours uniformed watchman at entrance)	2,160	hr	$ 70.65	$	152,604	Means 2009 Heavy Construction. Pg 20; 01 56 32.50 0100
Land Surveying (2 person crew)	1	day	$ 1,483.65	$	1,484	Means 2009 Heavy Construction. Pg 20; 01 71 23.13 1100
Subsurface utility surveying	2	hr	$ 600.00	$	600	Quote from Subtronic Surveying (800) 998-3463, 03/04/2009.

Table E-56. Alternative N-5 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	52	days
3.0 months or 52 working days	3	months
Operations and Maintenance / Monitoring Period	7,965	days
	360	months

Means Environmental Remediation Factor Inflation	Means 2009
Assemblies and Unit Price	13%

Description		Quantity	Unit	Unit Price	Cost	Comments
CAPITAL COSTS *(continued)*						
Pre-Construction Demolition		**Pre-Construction Demolition Subtotal =**			**$ 16,123**	
Monitoring well abandonment		1	ls	$ 16,122.67	$ 16,123	See Backup Worksheet "WELL ABANDON"
Excavation and Backfill (Operations)		**Excavation Subtotal =**			**$ 191,518**	
Excavator, diesel hydraulic, crawler mounted (1.5 CY capacity)		13	day	$ 1,276.79	$ 16,598	Means 2009 Heavy Construction. Pg 482; 1 Equipment Operator (crane) and 1 laborer
Skid Steer Loader, wheeled, diesel (1 CY, 78 hp) (2)		24	day	$ 1,958.98	$ 47,016	Means 2009 Heavy Construction. Pg 481; 1 Equipment Operator (medium) and 0.5 laborer
Grader, self-propelled, 30,000 lb.		10	day	$ 2,111.62	$ 21,116	Means 2009 Heavy Construction. Pg 482; Crew B-11L
Dump truck, 8 CY (12 ton payload) (6)		24	day	$ 3,333.55	$ 80,005	Means 2009 Heavy Construction. Pg 477; 1 Truck Driver (heavy)
Water truck for dust suppression, 2,000 gallon capacity		52	day	$ 486.78	$ 25,313	Means 2009 Heavy Construction. Pg 477; 1 Truck Driver (heavy)
Dewatering with contractor's pump (4 inch dia., 300 gpm)		13	day	$ 113.08	$ 1,470	Means 2005 Environmental Remediation - Unit Price; Pg 4-31; 17 03 1004
Air Monitoring		**Monitoring Subtotal =**			**$ 28,963**	
Ambient air monitors (3 total -placement frequency biased towards prevailing winds and residential areas)		3	mo	$ 3,042.69	$ 9,128	Means 2005 Environmental Remediation - Unit Price; Pg 9-10; 33 02 0315
Analysis - principal organic hazardous constituents (1 per monitor per week)		24	ea	$ 354.31	$ 8,503	Means 2005 Environmental Remediation - Unit Price; Pg 9-38; 33 02 1802
Analysis - hydrocarbons (1 per monitor per week)		24	ea	$ 125.90	$ 3,022	Means 2005 Environmental Remediation - Unit Price; Pg 9-39; 33 02 1811
Portable ambient air analyzer		3	mo	$ 2,238.30	$ 6,715	Means 2005 Environmental Remediation - Unit Price; Pg 9-10; 33 02 0328
Portable combustible gas/oxygen indicator		3	mo	$ 531.60	$ 1,595	Means 2005 Environmental Remediation - Unit Price; Pg 9-11; 33 02 0330
Storm Water Control		**Storm Water Control Subtotal =**			**$ 4,000**	
Construction SWPPP implementation		1	ea	$ 4,000.00	$ 4,000	
Contaminated Water Treatment		**Contaminated Water Treatment Subtotal =**			**$ 61,643**	
Structural slab on grade (8 in. thick; 60 x 15 ft.)		900	sf	$ 10.48	$ 9,430	Means 2005 Environmental Remediation - Assemblies; Pg 3-60; 18 02 0322
Box weir		3	mo	$ 1,064.00	$ 3,192	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Electric centrifugal pump, 20 GPM		3	mo	$ 1,250.00	$ 3,750	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Electrical panel and cable		3	mo	$ 100.00	$ 300	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Particulate filter, PF 50 (2)		3	mo	$ 1,500.00	$ 4,500	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Clay vessel, 35 CY		3	mo	$ 225.00	$ 675	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Carbon vessels, 2,000 lbs (3)		3	mo	$ 2,277.00	$ 6,831	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Miscellaneous pipe, hose, adapters, etc.		3	mo	$ 1,000.00	$ 3,000	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Organphillic clay, initial fill		1	ls	$ 4,945.00	$ 4,945	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
12x30 Virgin coconut shell carbon acid washed, initial fill		6,000	lb	$ 1.25	$ 7,500	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Disposal of clay and carbon		1	ls	$ 3,070.00	$ 3,070	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Mobilization of clay and carbon filtration system		1	ls	$ 500.00	$ 500	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Demobilization of clay and carbon filtration system		1	ls	$ 725.00	$ 725	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Filter bags, 25 micron PDDA		1	ea	$ 3.20	$ 3	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Particulate filter cartridges, 5.0 micron		8	ea	$ 9.05	$ 72	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Delivery and pick-up hauling		1	ls	$ 1,260.00	$ 1,260	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Fuel Surcharge		1	ls	$ 378.00	$ 378	Quote from Rain for Rent (www.rainforrent.com), for Stockton site, 10/3/2008
Wastewater analysis (1 sample per day + 10% QC samples)		14	ea	$ 805.00	$ 11,512	Quote from Surinder Sidhu at STL, (925) 484-1919; See "DISCHARGE SAMPLE COST" Worksheet for Detail
Waste Hauling and Disposal	**Assumed Waste Fractions**	**Waste Hauling and Disposal Subtotal =**			**$ 2,264,816**	
Class II beneficial reuse soil at Altamont Landfill	35%	9897	ton	$ 38.82	$ 384,206	
Class II soil for disposal at Altamont Landfill	25%	7069	ton	$ 72.42	$ 511,964	
Class I non-RCRA soil at Kettleman Hills	15%	4242	ton	$ 81.15	$ 344,208	
Class I RCRA direct landfill soil	10%	2828	ton	$ 130.04	$ 367,721	
Class I RCRA stabilization soil	10%	2828	ton	$ 172.24	$ 487,052	
Disposal of radiologically impacted waste	5%	1414	ton	$ 120.00	$ 169,665	
Backfilling		**Backfilling Subtotal =**			**$ 384,905**	
Backfill landfill with unclassified fill (delivered, spread, compacted in 6-in. lifts)		28,278	cy	$ 13.61	$ 384,905	Means 2005 Environmental Remediation - Unit Price; Pg 4-23; 17 03 0423

Table E-56. Alternative N-5 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	52	days
3.0 months or 52 working days	3	months
Operations and Maintenance / Monitoring Period	7,965	days
	360	months

Means Environmental Remediation Factor Inflation	Means 2009
Assemblies and Unit Price	13%

Description	Quantity	Unit	Unit Price		Cost	Comments
CAPITAL COSTS *(continued)*						
Soil Covers			**Soil Covers Subtotal =**	**$**	**49,360**	
Soil analysis (1 per 1000 CY)	4	ea	$ 539.00	$	2,104	See "LAB COST" Worksheet for Detail
Fill material, delivered from off-site	3,903	CY	$ 8.39	$	32,761	Means 2005 Environmental Remediation - Unit Price; Pg 4-23. 17 03 0424
Spread dumped material	3,903	CY	$ 2.33	$	9,084	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020
Compact soil cover, 12" lifts, 3 passes	3,903	CY	$ 1.39	$	5,412	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620
Landscaping			**Landscaping Subtotal =**	**$**	**1,314**	
Seeding and vegetative cover	1	ac	$ 806.34	$	975	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401
Hydrofertilizer	52,691	sf	$ 0.004	$	231	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180
Watering	1	ac	$ 89.07	$	108	Means 2005 Environmental Remediation - Unit Price. Pg 4-9; 18 05 0413
Site Restoration			**Site Restoration Subtotal =**	**$**	**46,601**	
Soil staging area liner removal (assumed 1/2 of construction cost)	21,780	sf	$ 2.09	$	45,551	Assumed half of installation cost
Land Surveying (topographical)	2	ac	$ 525.00	$	1,050	Means 2009 Heavy Construction. Pg 22; 02 21 13.09 0020
			Construction Subtotal =	**$**	**6,039,491**	
Design			**Design Subtotal =**	**$**	**724,739**	
Pre-design characterization study assumed to be 6% of construction cost (including report)				$	362,369	
Design assumed to be 6% of construction cost (including permitting)				$	362,369	Includes: Remedial Design, Design Basis Report, Safety and Health Plan, Contingency Plan, QA/QC Plan, QAPP, and Cost Estmates; consistent with EPA guidance (pp. 5-13, EPA, 2000)
TOTAL PROJECT CAPITAL COST			**TOTAL PROJECT CAPITAL COST =**	**$**	**6,764,229**	
Total Construction Cost				$	6,039,491	
Total Design Cost				$	724,739	
			TOTAL COST PER CY OF SOIL EXCAVATED =	**$**	**335**	

General Assumptions:

Work will be performed in Level D PPE

Excavation dewatering will be implemented as needed using a skid-mounted pump through dewatering points

Water from decontamination and dewatering activities will require treatment and discharge to a sanitary sewer line, or to the San Francisco Bay under NPDES permit

Dewatering and treatment volume estimates provided in worksheet "DEWATER"

Stripped landfill cap can be used as fill material

Finish grade will slope evenly from north to south; backfill volume estimated by proposed grading plan, and includes a 20% contingency and a 20% fluff factor to account for compaction and consolidation

Assumed soil density of 1.4 ton/cy

Table E-57. Alternative N-5 - Production Rate Assumptions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate		Total Amount		Days to Complete		Assumptions
SITE PREPARATION							
Grade soil staging area (1/2 acre)	2,000	sy/day	2,420	sy	2	days	Means 2009 Heavy Construction. Page 211; 31 22 16.10 0100
Install soil staging area liner, includes rad screening and	1,100	sf/day	21,780	sf	20	days	Means 2005 Environmental Remediation - Unit Cost. Pg 9-85; 33 08 0573
Grade laydown area (100 ft x 100 ft)	2,000	sy/day	1,111	sy	1	days	Means 2009 Heavy Construction. Page 211; 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	5,000	sy/day	1,111	sy	1	days	Means 2009 Heavy Construction. Page 275; 32 11 23.23 0100
EXCAVATION AND BACKFILL							
Excavate Slurry Trench	752	CY/day	2,868	CY	4	days	Means 2009 Heavy Construction. Page 219. 31 23 16.42 0250 (75% production reduction due to 1' depth limit - 125 CY/hr x 0.75 = 94 CY/hr)
Excavate 1'x50'x50' grid	16	grids/day	198	equivalent grids	13	days	See Backup Worksheet "RAD SCREENING"
Backfill with common earth	1,950	CY/day	20,198	CY	11	days	Means 2009 Heavy Construction. Pg 227; 31 23 23.14 2020, See Backup Worksheet "RAD SCREENING"
				TOTAL	**52**	**working days**	

Table E-58. Alternative N-5 - Radiological Screening Assumptions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Unit Production Rate	Units	Comments	Production per Day	Assumptions	Total Production per Day
Preliminary rad screen (Pre-Excavation) 50'x50' grids	1,250	ft^2/hr per crew [1]	2 hours per grid per crew	4 grids screened per day per crew	1 crew of 4 could scan 1 grid cell per 2 hour, 4 crews working simultaneously at all times, 8 hour day	16 grids
Excavate 1-foot depth across 50'x50' grid	94	CY/hr per excavator [2]	1 hours per grid per excavator	752 CY/day per excavator	50'x50'x1' = 2500 ft^3 = 93 CY/grid, 93 CY/grid x 16 grids = 1482 CY	1482 CY/day ≈ 16 grids
Transport excavated 50'x50'x1' volume to secondary rad screening area / soil staging area in 8 CY loads	32	CY/hr per truck [3]	15 min cycle, 4 loads per hour	256 CY/day per truck	256 CY/day/truck x 6 trucks = 1536 CY/day	1536 CY/day ≈ 16 grids
Secondary rad screen by conveyor belt	250	CY/day per conveyor [1]	-	250 CY/day per conveyor	6 conveyors working full time with crews of 3 250 CY/day/conveyor x 6 conveyor = 1500 CY/day	1500 CY/day ≈ 16 grids

Notes:

[1] Average production rate determined from screening operations at other Hunters Point Shipyard parcels

[2] Means 2009 Heavy Construction. Page 219. 31 23 16.42 0250 (75% production reduction due to 1' depth limit - 125 CY/hr x 0.75 = 94 CY/hr)

[3] Means 2009 Heavy Construction. Page 230. 31 23 23.20 0114

Total number of 50'x50' grid surfaces estimated	22	surface grids
Total number of estimated equivalent grids	198	equivalent grids
Total excavation volume	20,198	CY

Table E-59. Alternative N-5 - Dewatering (and Treatment) Volume

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

	Excavation Area (ft^2)	Saturated Depth (feet)	Effective Porosity					Volume (G)
Initial Dewatering	52,691	2	0.25					197,064
	Slurry Wall Length (feet)	**Saturated Depth (feet)**	**Total Joint Length (feet)**	**Leakage (ml/s/m)**	**Leakage (G/day/ft)**	**Leakage Rate (G/day)**	**Total Days**	**Total Volume (G)**
Ongoing dewatering	885	2	885	0.5	3.48	3079.8	13	40,037
	Rate (G/day)						**Total Days**	**Total Volume (G)**
Daily waste dewatering	25						13	325
	Rate (G/day)						**Total Days**	**Total Volume (G)**
Daily decontamination	100						13	1,300
						Total Volume Requiring Treatment (G) =		**238,727**

Table E-60. Alternative N-6 - Capital Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	117	days
6.0 months or 117 working days	6	months
Operations and Maintenance / Monitoring Period	7965	days
	360	months
Means Environmental Remediation Factor Inflation		Means 2009
Assemblies and Unit Price		13%

Description	Quantity	Unit	Unit Price	Cost	Comments
DISTRIBUTIVE COSTS	**DISTRIBUTIVE COSTS SUBTOTAL =**			**$ 4,183,088**	Includes labor and temporary facilities
Labor			**Labor Subtotal =**	**$ 4,129,201**	
Total project labor cost				$ 4,129,201	See backup worksheet "LABOR"
Temporary Facilities	**Temporary Facilities Costs Subtotal =**			**$ 53,887**	
Furnished Field Office Trailer (50' x 10' w/ air conditioning)	6	mo	$ 439.49	$ 2,637	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0400 + 0700
Office Equipment Rental	6	mo	$ 2,500.00	$ 15,000	
Office Supplies	6	mo	$ 115.75	$ 695	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0120
City Water Supply	6	mo	$ 84.18	$ 505	Means 2009 Heavy Construction. Page 14. 01 51 13.80 0700
Telephone Bill	6	mo	$ 108.94	$ 654	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0140
Field Office Electrical Bill	6	mo	$ 204.27	$ 1,226	Means 2009 Heavy Construction. Page 15. 01 52 13.40 0160
Portable Toilets (5)	6	mo	$ 1,058.49	$ 6,351	Means 2009 Heavy Construction. Page 472. 01 54 33 6410
Rental Trucks (3) (for supervisory staff)	6	mo	$ 4,470.00	$ 26,820	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
CAPITAL COSTS					
Mobilization and Demobilization	**Mobilization and Demobilization Subtotal =**			**$ 19,890**	
Crawler Crane, 40 ton	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Excavator, diesel hydraulic, crawler mounted (2 CY capacity) (2)	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Backhoe-loader, 80 hp, 1.25 CY capacity (4)	4	ea	$ 562.05	$ 2,248	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Grader, self-propelled, 30,000 lb.	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Vibrating hammer and generator	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Dump truck, 8 CY (12 ton payload) (11)	11	ea	$ 562.05	$ 6,183	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Office Trailer (assumed 100 mile haul)	1	ea	$ 1,225.62	$ 1,226	Means 2009 Heavy Construction. Page 15. 01 52 13.20 0800 (unit cost multiplied by 2 to account for mob & demob)
Modular tank, 21,000 gallons (5)	5	hr	$ 475.00	$ 2,138	BakerCorp (http://www.bakercorp.com/), March 2009
Conveyer system with misters and radiological detectors (12)	12	ea	$ 393.68	$ 4,724	Means 2009 Heavy Construction. Page 18. 01 54 36.50 1150 (unit cost multiplied by 2 to account for mob & demob)
Water truck for dust suppression, 6,000 gallon capacity	1	ea	$ 562.05	$ 562	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (unit cost multiplied by 2 to account for mob & demob)
Equipment Rental	**Equipment Rental Subtotal =**			**$ 836,585**	
Excavator, diesel hydraulic, crawler mounted (2 CY capacity) (2)	6	mo	$ 4,041.18	$ 24,247	Means 2009 Heavy Construction. Pg 466. 01 54 33 20 0320
Backhoe-loader, 80 hp, 1.25 CY capacity (4)	6	mo	$ 16,390.80	$ 98,345	Means 2009 Heavy Construction. Pg 467. 01 54 33 20 0460
Dump truck, 8 CY (12 ton payload) (11)	6	mo	$ 30,308.85	$ 181,853	Means 2009 Heavy Construction. Pg 469. 01 54 33 20 5250
Feed pump (submersible 2", 120 gpm) (2)	6	mo	$ 568.03	$ 3,408	Means 2009 Heavy Construction. Pg 471. 01 54 33 40 4700
Water truck for dust suppression, 6,000 gallon capacity	6	mo	$ 9,820.35	$ 58,922	Means 2009 Heavy Construction. Pg 472. 01 54 33 40 6950
Pressure washer, gas (2,000 - 2,999 psi)	6	mo	$ 1,150.00	$ 6,900	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
Conveyer system with misters and radiological detectors (12)	6	mo	$ 18,651.60	$ 111,910	Means 2009 Heavy Construction. Pg 466; 01 54 33 10 0800
Radiological monitoring equipment (10) for pre-excavation screening	6	mo	$ 4,500.00	$ 27,000	Ludlum Model 44-2 1"x 1" NaI GAMMA Scintillator and Ludlum Model 3 Survey Meter (unit rental cost provided by Suntrac Services, 1-800-579-4513, 03/05/2009)
Radiological monitoring equipment (12) for post-excavation conveyor screening	6	mo	$ 54,000.00	$ 324,000	Assumed to be 10 times the cost of the portable scintillator and meter
Health & Safety Equipment	**Health and Safety Equipment Subtotal =**			**$ 321,750**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	6,435	ea	$ 50.00	$ 321,750	Assumed $50 per field worker per day
Site Preparation	**Site Preparation Subtotal =**			**$ 532,632**	
Sheet piling steel, left in place, 40 ft. deep excavation, 38 psf	588	ton	$ 2,104.60	$ 1,237,505	Means 2009 Heavy Construction. Pg 257; 31 41 16.10 0900
Wales, connections, and struts, 2/3 salvage	59	ton	$ 371.40	$ 21,838	Means 2009 Heavy Construction. Pg 257; 31 41 16.10 2500
Modular tank, 21,000 gallons (5)	6	mo	$ 1,036.00	$ 6,216	BakerCorp (http://www.bakercorp.com/), March 2009
Sump pump, 25 gpm	1	ea	$ 3,648.44	$ 3,648	Means 2005 Environmental Remediation - Assemblies; Pg 3-91; 33 29 0401
Soil staging area grading, 1 acre	4,840	sy	$ 1.77	$ 8,568	Means 2009 Heavy Construction. Pg 211; 31 22 16.10 1100
Soil staging area liner, includes rad screening and stockpiling areas (1 acre, 80 mil HDPE)	43,560	sf	$ 4.18	$ 182,204	Means 2005 Environmental Remediation - Assemblies; Pg 3-90; 33 08 0573
Laydown area grading (200 x 100 ft)	2,222	sy	$ 0.92	$ 2,036	Means 2009 Heavy Construction. Pg 211; 31 22 16.10 0100
Granular cover over laydown area (6 inch thick crushed stone)	2,222	sy	$ 13.00	$ 28,884	Means 2009 Heavy Construction. Pg 275; 32 11 23.23 0100
Site security (24-hours uniformed watchman at entrance)	4,320	hr	$ 70.65	$ 305,208	Means 2009 Heavy Construction. Pg 20; 01 56 32.50 0100
Land Surveying (2 person crew)	1	day	$ 1,483.65	$ 1,484	Means 2009 Heavy Construction. Pg 20; 01 71 23.13 1100
Subsurface utility surveying	2	hr	$ 600.00	$ 600	Quote from Subtronic Surveying (800) 998-3463, 03/04/2009.

Table E-60. Alternative N-6 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	117	days
6.0 months or 117 working days	6	months
Operations and Maintenance / Monitoring Period	7965	days
	360	months
Means Environmental Remediation Factor Inflation		Means 2009
Assemblies and Unit Price		13%

Description		Quantity	Unit	Unit Price	Cost	Comments
CAPITAL COSTS *(continued)*						
Pre-Construction Demolition		**Pre-Construction Demolition Subtotal =**			**$ 16,123**	
Monitoring well abandonment		1	ls	$ 16,122.67	$ 16,123	See Backup Worksheet "WELL ABANDON"
Excavation (Operations)		**Excavation Subtotal =**			**$ 613,077**	
Sheetpile installation		28	day	$ 9,451.88	$ 264,653	Means 2009 Heavy Construction. Pg 489; Crew B-40
Excavator, diesel hydraulic, crawler mounted (2 CY capacity) (2)		25	day	$ 2,553.57	$ 63,839	Means 2009 Heavy Construction. Pg 482; 1 Equipment Operator (crane) and 1 laborer
Backhoe-loader, 80 hp, 1.25 CY capacity (4)		43	day	$ 1,958.98	$ 84,236	Means 2009 Heavy Construction. Pg 481; 1 Equipment Operator (medium) and 0.5 laborer
Grader, self-propelled, 30,000 lb.		10	day	$ 2,111.62	$ 21,116	Means 2009 Heavy Construction. Pg 482; Crew B-11L
Dump truck, 8 CY (12 ton payload) (11)		43	day	$ 2,777.96	$ 119,452	Means 2009 Heavy Construction. Pg 477; 1 Truck Driver (heavy)
Water truck for dust suppression, 6,000 gallon capacity		117	day	$ 486.78	$ 56,953	Means 2009 Heavy Construction. Pg 477; 1 Truck Driver (heavy)
Dewatering with contractor's pump (4 inch dia., 300 gpm)		25	day	$ 113.08	$ 2,827	Means 2005 Environmental Remediation - Unit Price; Pg 4-31; 17 03 1004
Air Monitoring		**Monitoring Subtotal =**			**$ 86,739**	
Ambient air monitors (3 total -placement frequency biased towards prevailing winds and residential areas)		6	mo	$ 3,042.69	$ 18,256	Means 2005 Environmental Remediation - Unit Price; Pg 9-10; 33 02 0315
Analysis - principal organic hazardous constituents (1 per monitor per week)		108	ea	$ 354.31	$ 38,266	Means 2005 Environmental Remediation - Unit Price; Pg 9-38; 33 02 1802
Analysis - hydrocarbons (1 per monitor per week)		108	ea	$ 125.90	$ 13,598	Means 2005 Environmental Remediation - Unit Price; Pg 9-39; 33 02 1811
Portable ambient air analyzer		6	mo	$ 2,238.30	$ 13,430	Means 2005 Environmental Remediation - Unit Price; Pg 9-10; 33 02 0328
Portable combustible gas/oxygen indicator		6	mo	$ 531.60	$ 3,190	Means 2005 Environmental Remediation - Unit Price; Pg 9-11; 33 02 0330
Soil Confirmation Sampling		**Confirmation Sampling Subtotal =**			**$ 226,556**	
Sample collection (1 sample per grid cell + 4 sidewalls + 10% QC samples)		352	ea	$ 81.84	$ 28,822	Means 2005 Environmental Remediation - Unit Price; Pg 9-24; 33 02 0648
Confirmation sample soil analysis		352	ea	$ 539.00	$ 189,826	See Backup Worksheet "SOIL LAB COST"
Radioactivity screening		352	ea	$ 22.45	$ 7,908	Means 2005 Environmental Remediation - Unit Price; Pg 9-9; 33 02 0223
Storm Water Control		**Storm Water Control Subtotal =**			**$ 4,000**	
Construction SWPPP implementation		1	ea	$ 4,000.00	$ 4,000	
Contaminated Water Treatment		**Contaminated Water Treatment Subtotal =**			**$ 918,768**	
Structural slab on grade (8 in. thick; 60 x 40 ft.)		2,400	sf	$ 10.48	$ 25,147	Means 2005 Environmental Remediation - Assemblies; Pg 3-60; 18 02 0322
4" submersible pump		6	mo	$ 818.18	$ 4,909	Means 2005 Environmental Remediation - Cost Data; Pg 9-223; 33 23 0511
Bag filters (300 gpm; 3 parallel filter system)		6	mo	$ 536.75	$ 3,221	Quote from Wayne Friesell, TIGG Corporation (wfriesell@tigg.com). Jan 13, 2006 + 15% inflation
Filterbag changeout (assumed 1 changeout per week; 3 bags per changeout; 1, 10 or 25 micron bags)		105	ea	$ 6.78	$ 712	Quote from Wayne Friesell, TIGG Corporation (wfriesell@tigg.com). Jan 13, 2006 + 15%
Carbon adsorption units (HP1020) rental (first month)		1	ls	$ 52,206.00	$ 52,206	Quote from Keith Jones, USFilter (510) 639-7274. Jan 20, 2006 + 15%
Carbon adsorption units rental (subsequent months)		5	mo	$ 3,729.00	$ 18,645	Quote from Keith Jones, USFilter (510) 639-7274. Jan 20, 2006 + 15%
Carbon changeouts (one year of operation with 490 lbs/day estimated usage)		18	ea	$ 29,832.00	$ 536,976	Quote from Keith Jones, USFilter (510) 639-7274. Jan 20, 2006 + 15%
Metals removal system rental (ion exchange)		6	mo	$ 9,322.50	$ 55,935	Quote from Keith Jones, USFilter (510) 639-7274. Jan 20, 2006 + 15%
Resin regeneration (assumed 2 per year)		2	ea	$ 99,440.00	$ 198,880	Quote from Keith Jones, USFilter (510) 639-7274. Jan 20, 2006 + 15%
Wastewater analysis (1 sample per day + 10% QC samples)		28	ea	$805.00	$ 22,138	See Backup Worksheet "DISCHARGE SAMPLING COST"
Waste Hauling and Disposal	**Assumed Waste Fractions**	**Waste Hauling and Disposal Subtotal =**			**$ 7,658,798**	
Class II beneficial reuse soil at Altamont Landfill	35%	33469	ton	$ 38.82	$ 1,299,249	
Class II soil for disposal at Altamont Landfill	25%	23906	ton	$ 72.42	$ 1,731,280	
Class I non-RCRA soil at Kettleman Hills	15%	14344	ton	$ 81.15	$ 1,163,988	
Class I RCRA direct landfill soil	10%	9562	ton	$ 130.04	$ 1,243,500	
Class I RCRA stabilization soil	10%	9562	ton	$ 172.24	$ 1,647,035	
Disposal of radiologically impacted waste	5%	4781	ton	$ 120.00	$ 573,746	
Backfilling		**Backfilling Subtotal =**			**$ 1,301,609**	
Backfill landfill with unclassified fill (delivered, spread, compacted in 6-in. lifts)		95,624	cy	$ 13.61	$ 1,301,609	Means 2005 Environmental Remediation - Unit Price; Pg 4-23; 17 03 0423
Soil Covers		**Soil Covers Subtotal =**			**$ 47,452**	
Soil analysis (1 per 1000 CY)		4	ea	$ 50.00	$ 195	See "LAB COST" Worksheet for Detail
Fill material, delivered from off-site		3,903	CY	$ 8.39	$ 32,761	Means 2005 Environmental Remediation - Unit Price; Pg 4-23. 17 03 0424
Spread dumped material		3,903	CY	$ 2.33	$ 9,084	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020
Compact soil cover, 12" lifts, 3 passes		3,903	CY	$ 1.39	$ 5,412	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620

Table E-60. Alternative N-6 - Capital Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

San Francisco Location Factors		Means 2009
Material		111.2%
Labor & Equipment		141.3%
Assemblies		123.8%
Construction Project Duration:	117	days
6.0 months or 117 working days	6	months
Operations and Maintenance / Monitoring Period	7965	days
	360	months
Means Environmental Remediation Factor Inflation		Means 2009
Assemblies and Unit Price		13%

Description	Quantity	Unit	Unit Price	Cost	Comments
CAPITAL COSTS *(continued)*					
Landscaping			**Landscaping Subtotal =**	**$ 1,314**	
Seeding and vegetative cover	1	ac	$ 806.34	$ 975	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401
Hydrofertilizer	52,691	sf	$ 0.004	$ 231	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180
Watering	1	ac	$ 89.07	$ 108	Means 2005 Environmental Remediation - Unit Price. Pg 4-9; 18 05 0413
Site Restoration			**Site Restoration Subtotal =**	**$ 92,152**	
Soil staging area liner removal (assumed 1/2 of construction cost)	43,560	sf	$ 2.09	$ 91,102	Assumed half of installation cost
Land Surveying (topographical)	2	ac	$ 525.00	$ 1,050	Means 2009 Heavy Construction. Pg 22; 02 21 13.09 0020
			Construction Subtotal =	**$ 16,860,533**	
Design			**Design Subtotal =**	**$ 1,011,632**	
Design assumed to be 6% of construction cost (including permitting)				$ 1,011,632	Includes: Remedial Design, Design Basis Report, Safety and Health Plan, Contingency Plan, QA/QC Plan, QAPP, and Cost Estmates; consistent with EPA guidance (pp. 5-13, EPA, 2000)
TOTAL PROJECT CAPITAL COST			**TOTAL PROJECT CAPITAL COST =**	**$ 17,872,165**	
Total Construction Cost				$ 16,860,533	
Total Design Cost				$ 1,011,632	
			TOTAL COST PER CY OF SOIL EXCAVATED =	**$ 262**	

General Assumptions:

Work will be performed in Level D PPE

Excavation dewatering will be implemented as needed using a skid-mounted pump through dewatering points

Water from decontamination and dewatering activities will require treatment and discharge to a sanitary sewer line, or to the San Francisco Bay under NPDES permit

Dewatering and treatment volume estimates provided in worksheet "DEWATER"

Stripped landfill cap can be used as fill material

Finish grade will slope evenly from north to south; backfill volume estimated by proposed grading plan, and includes a 20% contingency and a 20% fluff factor to account for compaction and consolidation

Assumed soil density of 1.4 ton/cy

Table E-61. Alternative N-6 - Production Rate Assumptions
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Daily Production Rate	Total Amount	Days to Complete	Assumptions
SITE PREP				
Grade soil staging area (1 acre)	2,000 sy/day	4,840 sy	3 days	Means 2009 Heavy Construction. Page 211; 31 22 16.10 0100
Install soil staging area liner, includes rad screening and stockpiling areas (1 acre, 80 mil HDPE)	1,100 sf/day	43,560 sf	40 days	Means 2005 Environmental Remediation - Unit Cost. Pg 9-85; 33 08 0573 02081 2153
Grade laydown area (200 ft x 100 ft)	2,000 sy/day	2,222 sy	2 days	Means 2009 Heavy Construction. Page 211; 31 22 16.10 0100
Cover over laydown area with crushed stone (6" thick)	5,000 sy/day	2,222 sy	1 days	Means 2009 Heavy Construction. Page 275; 32 11 23.23 0100
Sheetpile Wall Installation	21 ton/day	588 ton	28 days	Means 2009 Heavy Construction. Pg 257; 31 41 16.10 0900
EXCAVATION AND BACKFILL				
Excavate 1'x50'x50' grid	32 grids/day	770 equivalent grids	25 days	See Backup Worksheet "RAD SCREENING"
Backfill with common earth	3,900 CY/day	68,303 CY	18 days	Means 2009 Heavy Construction. Pg 227; 31 23 23.14 2020, See Backup Worksheet "RAD SCREENING"
		TOTAL	**117 working days**	

Table E-62. Alternative N-6 - Radiological Screening Assumptions

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Activity	Unit Production Rate	Units	Comments	Production per Day	Assumptions	Total Production per Day
Preliminary rad screen (Pre-Excavation) 50'x50' grids	1,250	ft^2/hr per crew [1]	2 hours per grid per crew	4 grids screened per day per crew	1 crew of 4 could scan 1 grid cell per 2 hour, 8 crews working simultaneously at all times, 8-hour day	32 grids
Excavate 1-foot depth across 50'x50' grid	124	CY/hr per excavator [2]	1 hours per grid per excavator	992 CY/day per excavator	50'x50'x1' = 2500 ft^3 = 93 CY/grid, 93 CY/grid x 16 grids = 1,482 CY 2 excavators = 2,963 CY	2,963 CY/day ≈ 32 grids
Transport excavated 50'x50'x1' volume to secondary rad screening area / soil staging area in 8 CY loads	32	CY/hr per truck [3]	15 min cycle, 4 loads per hour	256 CY/day per truck	256 CY/day/truck x 11 trucks = 2,816 CY/day	2,816 CY/day ≈ 32 grids
Secondary rad screen by conveyor belt	250	CY/day per conveyor [1]	-	250 CY/day per conveyor	12 conveyors working full time with crews of 3 250 CY/day/conveyor x 12 conveyor = 3,000	3,000 CY/day ≈ 32 grids

Notes:

[1] Average production rate determined from screening operations at other Hunter's Point Shipyard parcels

[2] Means 2009 Heavy Construction. Page 219. 31 23 16.42 0260 (75% production reduction due to 1' depth limit - 165 CY/hr x 0.75 = 124 CY/hr)

[3] Means 2009 Heavy Construction. Page 230. 31 23 23.20 0114

Total number of 50'x50' grid surfaces estimated	22	surface grids
Total number of estimated equivalent grids	770	equivalent grids
Total excavation volume	68,303	CY

Table E-63. Alternative N-6 - Dewatering (and Treatment) Volume

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

	Excavation Area (ft^2)	Saturated Depth (feet)	Effective Porosity					Volume (G)
Initial Dewatering	52,691	27	0.25					2,660,369
	Sheetpile Wall Length (feet)	**Saturated Depth (feet)**	**Total joint length (feet)**	**Leakage (ml/s/m)**	**Leakage (G/day/ft)**	**Leakage Rate (G/day)**	**Total Days**	**Total Volume (G)**
Ongoing dewatering	885	27	11947.5	0.5	3.48	41577.3	25	1,039,433
	Rate (G/day)						**Total Days**	**Total Volume (G)**
Daily waste dewatering	25						25	625
	Rate (G/day)						**Total Days**	**Total Volume (G)**
Daily decontamination	100						25	2,500
						Total Volume Requiring Treatment (G) =		**3,702,926**

Table E-64. NAPL Alternatives - Soil Laboratory Analyses Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analysis[1]		Cost per Sample
Encore Samplers for TPH-purgable range (3 per sample)	**$**	**39.00**
Analysis	**$**	**500.00**
Volatile Organic Compounds (VOCs)	$	100.00
Semivolatile Organic Compounds (SVOCs)	$	190.00
Pesticides	$	80.00
Polychlorinated Biphenyls (PCBs)	$	65.00
Total Petroleum Hydrocarbons (TPH), purgeable range	$	90.00
Total Petroleum Hydrocarbons (TPH), extractable range	$	55.00
Total Threshold Limit Concentration (TTLC), CA Title 22 Metals (Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, N, Se, Ag, Tl, V, Zn)	$	110.00
Toxic Characteristic Leaching Procedure (TCLP), CA Title 22 Metals	$	50.00
Soluble Threshold Limit Concentration (STLC), CA Title 22 Metals	$	50.00
Total Cost/Sample:	**$**	**539.00**

Notes:

[1] Analytical costs provided by TestAmerica Laboratories Inc., San Francisco, CA., 2009

Table E-65. NAPL Alternatives - Discharge Water Sampling Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Analysis[1]	Cost per Sample
Metals	$130.00
PCBs/Pesticides	$205.00
PAHs	$150.00
VOCs	$130.00
SVOCs	$190.00
Total Laboratory Analysis Cost per Sample	**$805.00**

Notes:

[1] Analytical costs provided by TestAmerica Laboratories Inc., San Francisco, CA.

Table E-66. NAPL Alternatives - Monitoring Well Installation Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Comments
DISTRIBUTIVE COSTS	**DISTRIBUTIVE COSTS SUBTOTAL =**			**$ 30,597**	Includes labor and temporary facilities
Labor			**Labor Subtotal =**	**$ 30,160**	
Total project labor cost (Project Manager, Project Geologist, Health and Safety Officer, Radiological Screener)				$ 30,160	See backup worksheet "LABOR" for unit rates
Temporary Facilities	**Temporary Facilities Costs Subtotal =**			**$ 437**	
Portable Toilet	1	mo	$ 211.70	$ 212	Means 2009 Heavy Construction. Page 472. 01 54 33 6410
Eye Wash Station	1	ea	$ 225.00	$ 225	Estimate provided by Grainger, January 2009
CAPITAL COSTS - MONITORING WELL INSTALLATION					
Mobilization and Demobilization	**Mobilization and Demobilization Subtotal =**			**$ 1,080**	
Hollow-Stem Auger Drill Rig and Support Vehicle	180	mi	$ 6.00	$ 1,080	Estimate supplied by TestAmerica Drilling, January 2009
Equipment Rental	**Equipment Rental Subtotal =**			**$ 900**	
4x4 Pickup Truck	2	week	$ 450.00	$ 900	Hertz Equipment Rental (http://www.hertzequip.com), January 2009
Health & Safety Equipment	**Health and Safety Equipment Subtotal =**			**$ 3,750**	
Includes PPE, First Aid Equipment, Fire Safety Equipment and Spill Control Equipment	75	ea	$ 50.00	$ 3,750	Assumed $50 per field worker per day
Pre-Drilling Work	**Pre-Drilling Work Subtotal =**			**$ 1,064**	
Subsurface Utility Surveying	8	hr	$ 133.00	$ 1,064	Estimate provided by Subtronic Surveying, January 2009
Well Permit Application Preparation	8	ea	$ 150.00	$ 1,200	
Well Installation and Development		**Excavation Subtotal =**		**$ 30,670**	
Drilling (Hollow-Stem Auger)	5	day	$ 3,500.00	$ 17,500	Estimate supplied by TestAmerica Drilling, January 2009
Per Diem Travel Expenses for a 3 Person Crew	5	day	$ 450.00	$ 2,250	Estimate supplied by TestAmerica Drilling, January 2009
Well Drilling and Installation Cost	280	ft	$ 7.00	$ 1,960	Estimate supplied by TestAmerica Drilling, January 2009
Well Box	8	ea	$ 200.00	$ 1,600	Estimate supplied by TestAmerica Drilling, January 2009
Concrete Cutter	2	ea	$ 400.00	$ 800	Estimate supplied by TestAmerica Drilling, January 2009
Drums	16	ea	$ 50.00	$ 800	Estimate supplied by TestAmerica Drilling, January 2009
Well Development	32	hr	$ 180.00	$ 5,760	Estimate supplied by TestAmerica Drilling, January 2009
Post-Drilling Work	**Post-Drilling Work Subtotal =**			**$ 1,484**	
Land Surveying (2 person crew)	1	day	$ 1,483.65	$ 1,484	Means 2009 Heavy Construction. Pg 20; 01 71 23.13 1100
Decontamination	**Decontamination Subtotal =**			**$ 900**	
Decontamination /Screening Equipment	9	day	$ 100.00	$ 900	
Waste Analysis (Drill Cuttings)	**Waste Analysis Subtotal =**			**$ 8,832**	
Purgeable TPH & VOCs	8	ea	96	$ 768	Estimate provided by TestAmerica, Janurary 2009
SemiVOCs	8	ea	176	$ 1,408	Estimate provided by TestAmerica, Janurary 2009
PCBs by 8082	8	ea	72	$ 576	Estimate provided by TestAmerica, Janurary 2009
Organochlorine Pesticides by 8081A	8	ea	104	$ 832	Estimate provided by TestAmerica, Janurary 2009
Extractable TPH by 8015B	8	ea	48	$ 384	Estimate provided by TestAmerica, Janurary 2009
Metals by 6010B	8	ea	56	$ 448	Estimate provided by TestAmerica, Janurary 2009
Waste Analysis (Development Water)					
Purgeable TPH & VOCs	8	ea	96	$ 768	Estimate provided by TestAmerica, Janurary 2009
SemiVOCs	8	ea	176	$ 1,408	Estimate provided by TestAmerica, Janurary 2009
PCVs by 8082	8	ea	72	$ 576	Estimate provided by TestAmerica, Janurary 2009
Organochlorine Pesticides by 8081A	8	ea	104	$ 832	Estimate provided by TestAmerica, Janurary 2009
Extractable TPH by 8015B	8	ea	48	$ 384	Estimate provided by TestAmerica, Janurary 2009
Metals by 6010B	8	ea	56	$ 448	Estimate provided by TestAmerica, Janurary 2009
Waste Hauling and Disposal (Drill Cuttings)	**Waste Hauling and Disposal Subtotal =**			**$ 41**	
Class I non-RCRA soil at Kettleman Hills	0.5	ton	$ 81.15	$ 41	
Waste Hauling (Development Water)	**Waste Hauling Subtotal =**			**$ 640**	
Hauling to CWM Kettleman Hills Landfill, Kettleman City, CA	16	drum	$ 40.00	$ 640	
Waste Disposal (Development Water)	**Waste Disposal Subtotal =**			**$ 1,800**	
Non-RCRA Hazardous Waste	16	drum	$ 100.00	$ 1,600	
Profiling Fee	1	ls	$ 200.00	$ 200	
	Construction Subtotal =			**$ 81,757**	

Table E-66. NAPL Alternatives - Monitoring Well Installation Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price		Cost	Comments
Design			**Design Subtotal =**	**$**	**9,811**	
Work Plans				$	9,811	Includes: Well Installation Work Plan, Safety and Health Plan, QA/QC Plan, QAPP, and Cost Estmates; consistent with EPA guidance (pp. 5-13, EPA, 2000); assumes 12 percent of construction cost
TOTAL CAPITAL COST (Well Installation)			**TOTAL PROJECT CAPITAL COST =**	**$**	**91,568**	
Total Construction Cost				$	81,757	
Total Design Cost				$	9,811	

General Assumptions:

Assumed 8 new wells to be installed

Work will be performed in Level D PPE

Drill cuttings assumed to be classifyable as Non-RCRA hazardous waste

Table E-67. NAPL Alternatives - General Labor Classifications and Rates

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Labor Classification	Position	Labor Rate (per hour)	Level of Effort (% on Project)	Staff Required (number)	Labor Hours (hours)	Labor Cost (project total)
Professional/Technical						
	Senior Project Manager	$ 165.00	10	1	58	$ 9,636
	Project Manager	$ 123.00	50	1	292	$ 35,916
	Senior Engineer, Geologist or Scientist	$ 165.00	10	1	58	$ 9,636
	Project Engineer, Geologist or Scientist	$ 123.00	100	1	584	$ 71,832
	Quality Control Officer	$ 95.00	100	1	584	$ 55,480
	Health and Safety Officer	$ 95.00	100	2	1,168	$ 110,960
	Assistant (Junior) Project Engineer, Geologist or Scientist (Soil segregation, profiling)	$ 79.00	100	2	1,168	$ 92,272
	Drafter/Designer	$ 67.00	50	1	292	$ 19,564
Field/Construction Operations						
	Superintendent	$ 142.60	100	1	584	$ 83,278
	Foreman	$ 123.60	100	1	584	$ 72,182
	Radiological Screening/Field Technician (pre-excavation screeners)	$ 91.00	100	16	9,344	$ 850,304
	Radiological Screening/Field Technician (post-excavation screeners)	$ 91.00	100	16	9,344	$ 850,304
	Treatment Plant Operator	$ 79.00	75	1	438	$ 34,602
Clerical/Administrative						
	Procurement Specialist	$ 123.00	30	1	175	$ 21,550
	Project Accountant/Billing	$ 55.00	10	1	58	$ 3,212
	Administrative Assistant/General Clerical	$ 51.00	20	1	117	$ 5,957
					Total Project Labor Cost	$ 2,326,685
					Average Annual Labor Cost	$ 581,671

Notes:

(1) Equipment operator rates are included in equipment operation estimates

(2) Labor rates are based on a 2009 rate schedule

Table E-68. NAPL Alternatives - In-Situ Bioremediation Monitoring and Monitored Natural Attenuation Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Monitoring Summary	Eight Wells to Sample (quarterly for 2 years, semiannually for 2 years, and annually for 6 years) Quarterly	Semiannual	Annual
Labor subtotal per year[1]	$ -	$ -	$ -
Lab and Data Validation subtotal per year	$ 20,755	$ 10,378	$ 5,189
Sampling Equipment[1]	$ -	$ -	$ -
Report subtotal per year	$ 12,000	$ 6,000	$ 3,000
Total monitoring costs per year	**$ 32,755**	**$ 16,378**	**$ 8,189**

Notes:
[1] Cost of labor and equipment required to sample wells is already borne by the long-term groundwater monitoring program

Lab and Data Validation Analysis

Plume	Number of A-aquifer Wells To Sample	Years	Frequency	Total Cost per Event[1]	Total Annual Cost
IR-03 TPH Plume	8	3,4	Quarterly	$ 5,189	**$ 20,755**
	8	5,6	Semiannual	$ 5,189	**$ 10,378**
	8	7-31	Annual	$ 5,189	**$ 5,189**

Notes:
[1] Includes cost of quality control samples (10% duplicates and 5% matrix spike/matrix spike duplicate) and data validation (90% cursory and 10% complete)

Laboratory Analysis Cost[1]	Cost per Sample
Total Organic Carbon	$ 35
Turbidity	$ 18
Methane/Ethane/Ethene	$ 125
Major Anions (Chloride, Nitrate, Nitrite, O-phosphate, Sulfate)	$ 100
Acidity	$ 18
Alkalinity	$ 23
Dissolved Hydrogen	$ 220
Total ISB-MNA Analytical Suite	**$ 539**

Notes:
[1] Analytical costs provided by TestAmerica Laboratories, San Francisco, CA. , January 2009

Table E-69. NAPL Alternatives - Long-Term Groundwater Monitoring Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Groundwater Monitoring Summary	Sixteen Wells to Sample (quarterly for 2 years, semiannually for 2 years, and annually for 26 years)		
	Quarterly	Semiannual	Annual
Labor subtotal per year	$ 140,480	$ 70,240	$ 35,120
Lab and Data Validation subtotal per year	$ 1,692	$ 846	$ 423
Sampling Equipment	$ 26,520	$ 13,260	$ 6,630
Interim Report subtotal per year	$ 24,000	$ 12,000	$ 6,000
Annual Report subtotal per year	$ 10,000	$ 10,000	$ 10,000
Total monitoring costs per year	**$ 202,692**	**$ 106,346**	**$ 58,173**

Lab and Data Validation Analysis

Plume	Number of A-aquifer Wells To Sample	A-aquifer Analyses	Cost Per Event for A-aquifer Wells	Number of B-aquifer Wells To Sample	B-aquifer Analyses	Cost Per Event for B-aquifer Wells	Years	Frequency	Total Cost per Event[1]	Total Annual Cost
IR-03 TPH Plume	14	8015B, 6010, 8260B, 8081A	$ 20	2	8015B, 6010, 8260B, 8081A	$0	2,3	Quarterly	$ 423	**$ 1,692**
	14	8015B, 6010, 8260B, 8081A	$ 20	2	8015B, 6010, 8260B, 8081A	$0	4,5	Semiannual	$ 423	**$ 846**
	14	8015B, 6010, 8260B, 8081A	$ 20	2	8015B, 6010, 8260B, 8081A	$0	6-31	Annual	$ 423	**$ 423**

Notes:

[1] Includes cost of quality control samples (10% duplicates and 5% matrix spike/matrix spike duplicate) and data validation (90% cursory and 10% complete)

Laboratory Analysis Cost[1]	Cost per Sample
PCBs by EPA Method 8082	$ 72
Organochlorine Pesticides by EPA Method 8081A	$ 104
VOCs by EPA Method 8260B (includes purgeable TPH)	$ 96
SVOCs by U.S. Environmental Protection Agency (EPA) Method 8270C	$ 176
Metals by EPA Method 6010/7000	$ 56
Individual Metals by EPA Method 6010/7000	$ 30
Extractable TPH by EPA Method 8015B	$ 48

Notes:

[1] Analytical costs provided by TestAmerica Laboratories, San Francisco, CA. on 01-21-2008

Table E-69. NAPL Alternatives - Long-Term Groundwater Monitoring Cost Detail *(continued)*

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Sampling Equipment Cost Analysis[1]	Rate[1]	Unit	Amount	Cost per Event	Remarks
Water Level Meter (week)	$ 60	per week	2	$ 120	
Telfon Tubing (3/16" x 3/8")	$ 2	per foot	500	$ 1,000	
Silicon Tubing (3/16" x 3/8")	$ 1	per foot	500	$ 250	
Bladder Pump System (week)	$ 450	per week	2	$ 900	
Extra Bladders, o-rings, Grab Plate	$ 20	per unit	4	$ 80	
Multi-Parameter Water Quality Meter	$ 300	per week	2	$ 600	
55-Gallon Drums	$ 42	per drum	5	$ 210	
Filters	$ 16	per filter	20	$ 310	
PPE D = Gloves	$ 6	per box of 100	2	$ 12	
Gallon Zip Lock Bags	$ 5	per box of 20	2	$ 10	
Quart Zip Lock Bags	$ 5	per box of 40	2	$ 10	
Garbage Bags	$ 15	per box of 40	1	$ 15	
Decon - Water Spray Bottles	$ 5	per bottle	2	$ 10	
Decon - Soap Spray Bottles	$ 5	per bottle	2	$ 10	
Decon - Buckets and Lids	$ 5	per bucket	4	$ 20	
Bottled Water	$ 5	per case	2	$ 10	
DI Water	$ 2	per gallon	3	$ 6	
Phospahte-Free Detergent	$ 5	per container	1	$ 5	
Paper Towels	$ 5	per roll	3	$ 15	
Tool Kit	$ 50	per week	2	$ 100	
Drum Labels	$ 10	per package of 2	1	$ 10	
Dye-Free Twine	$ 10	per roll	2	$ 20	
Truck (day)	$ 150	per day	0	$ -	
Truck (week)	$ 450	per week	2	$ 900	
Fuel	$ 3	per gallon	100	$ 300	
Waste Groundwater Characterization	$ 552	lump sum	1	$ 552	Composite sample analyzed for metals, organic compunds, PCBs, pesticides, and petroleum hydrocarbons
Waste Transport and Treatment	$ 200	per drum	4	$ 800	
Equipment Storage Box - 20'	$ 115	per month	1	$ 115	
Equipment Storage Box - 20' - mob/demob	$ 240	delivery	1	$ 240	
			Total	**$ 6,630**	

Notes:

[1] Unit rates provided by various local vendors in San Francisco, California

Table E-70. NAPL Alternatives - Institutional Controls Cost Detail

Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Summary		
Initial Institutional Controls Report	$	16,818
Annual Cost for Institutional Controls Monitoring	$	2,765.00
Biennial Periodic Cost for Monitoring Well Repair	$	11,014.00
5-Year Periodic Cost for Institutional Controls Monitoring	$	57,240.00

Description	Task	Quantity	Unit		Unit Cost		Total Cost (project total)
IR-03 Portion of LUC Document							
	Labor					$	14,448
	Report	30	hour	$	79.00	$	2,370
						$	16,818
Annual Drive-by Inspection							
	Inspection	10	hour	$	79.00	$	790
	Report	25	hour	$	79.00	$	1,975
						$	2,765
Well Rehabilitation/Repair	Assume 1 well every 2 years						
	Labor	8	hour	$	123.00	$	984
	Drilling					$	8,000
	Surveyor	3	hour	$	150.00	$	450
	Report	20	hour	$	79.00	$	1,580
						$	11,014
5-Year Report on Site Inspection							
	Inspection	120	hour	$	79.00	$	9,480
	5-year engineering report	400	hour	$	79.00	$	31,600
	Miscellaneous legal action	80	hour	$	79.00	$	6,320
	Miscellaneous legal action	80	hour	$	123.00	$	9,840
						$	57,240

Table E-71. NAPL Alternatives - Geosynthetic Liner Cost Detail
Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California

Description	Quantity	Unit	Unit Price	Cost	Remarks
Design and Pre-Implementation Cost					
Work Plan, Safety and Health Plan, QA/QC Plan	1	ea	$ 58,368.17	$ 58,368	Assumes 12 percent of construction cost
Mobilization					
Dozer, 200 H.P.	2	ea	$ 1,039.92	$ 2,080	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0100 (2x) (unit cost multiplied by 2 to account for mob & demob)
Sheepsfoot Roller, 240 H.P.	2	ea	$ 562.05	$ 1,124	Means 2009 Heavy Construction. Page 18. 01 54 36.50 0020 (2x) (unit cost multiplied by 2 to account for mob & demob)
Geosynthetic Liner					
Delivered and dumped sand for foundation layer	1,952	sf	$ 47.10	$ 91,921	Means 2005 Environmental Remediation - Unit Price. Pg 4-21. 17 03 0406
60 mil HDPE liner	52,691	sf	$ 2.92	$ 154,057	Means 2005 Environmental Remediation - Unit Price. Pg 9-85. 33 08 0572
16 oz/sy geotextile/drainage fabic	52,691	sf	$ 3.54	$ 186,490	Means 2005 Environmental Remediation - Unit Price. Pg 9-84. 33 08 0535
Soil Covers					
Soil analysis (1 per 1000 CY)	4	ea	$ 539.00	$ 2,104	See "LAB COST" Worksheet for Detail
Fill material, delivered from off-site	3,903	CY	$ 8.39	$ 32,761	Means 2005 Environmental Remediation - Unit Price; Pg 4-23. 17 03 0424
Spread dumped material	3,903	CY	$ 2.33	$ 9,084	Means 2009 Heavy Construction. Page 229. 31 23 23.17 0020
Compact soil cover, 12" lifts, 3 passes	3,903	CY	$ 1.39	$ 5,412	Means 2009 Heavy Construction. Page 247. 31 23 23.23 5620
Landscaping					
Seeding and vegetative cover	1	ac	$ 806.34	$ 975	Means 2005 Environmental Remediation - Unit Price. Pg 5-18. 18 05 0401
Hydrofertilizer	52,691	sf	$ 0.005	$ 286	Means 2009 Heavy Construction. Page 272. 32 01 90.13 0180
Watering	1	ac	$ 89.07	$ 108	Means 2005 Environmental Remediation - Unit Price. Pg 4-9; 18 05 0413
TOTAL				$ 544,770	

Notes:

Cover Area 52,691 sf

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Appendix F1. SiteWise™ Input Spreadsheet Screen Shots *(This appendix is provided on compact disc only.)*

Acronyms and Abbreviations

AB	aggregate base
BTU/gal	British thermal unit per gallon
CO_2	carbon dioxide
COCs	chemicals of concern
CH_4	methane
e-diesel	ethanol diesel
EPA	Environmental Protection Agency
FS	feasibility study
GAC	granulated activated carbon
GHG	greenhouse gas
GSR	green and sustainable remediation
GWP	global warming potential
HDPE	high-density polyethylene
HPS	Hunters Point Shipyard
HRC	hydrogen-releasing compound
ISB	in-situ bioremediation
LTM	long-term monitoring
MMBTU	million metric British thermal units
MNA	monitored natural attenuation
MWH	mega-watt hours
NAPL	nonaqueous-phase liquids
N_2O	nitrous oxide
NO_x	oxides of nitrogen
ORC	oxygen-releasing compound
PM_{10}	particulate matter of 10 micrometers or less

SO_x	sulfur oxides
SVE/AS	soil vapor extraction and air sparging
ZVIR	zero-valent iron reduction

Section F1. Introduction

This appendix summarizes the green and sustainable remediation (GSR) analysis conducted for Parcel E at Hunters Point Shipyard (HPS) in San Francisco, California. The GSR analysis provides information on the environmental footprint of the technologies that make up the remedial alternatives. This analysis was performed as part of the feasibility study (FS) to allow sustainability metrics to be considered in the evaluation of the remedial alternatives presented in the FS Report. This analysis addresses short-term effectiveness, one of the nine criteria specified by the National Oil and Hazardous Substances Pollution Contingency Plan for the FS process, by considering effects to the environment (U.S. Environmental Protection Agency [EPA], 2011). The analysis was performed using the SiteWise™ GSR tool, Version 1 (hereafter referred to as SiteWise™), which is a spreadsheet-based tool used to evaluate GSR metrics (Battelle et al., 2010).

The remedial alternatives presented in the Parcel E FS consist of various remedial technologies combined to address contamination in soil, groundwater, and nonaqueous-phase liquids (NAPL). The following remedial technologies were evaluated for soil, groundwater, and NAPL in the GSR analysis:

- Soil
  - Durable covers
  - Excavation of Tier 1 locations (defined as locations containing chemicals of concern [COCs] at concentrations equal to or greater than 10 times the remedial goals)
  - Excavation of Tier 2 locations (defined as locations containing COCs at concentrations equal to or greater than 5 times the cleanup goals)
- Groundwater
  - Long-term monitoring (LTM)
  - Containment
  - In-situ bioremediation (ISB)
  - Zero-valent iron reduction (ZVIR)
  - Soil vapor extraction and air sparging (SVE/AS)
- NAPL
  - Containment
  - LTM
  - Heating (i.e., NAPL extraction)
  - ISB

- Steaming
- Excavation of contamination in the unsaturated zone
- Full excavation
- Monitored natural attenuation (MNA)

The proposed remedial alternatives for each matrix (soil, groundwater, and NAPL) are combinations of the above technologies, as shown in Table F-1. The no action remedial alternatives were not included in this analysis because they would not have an associated environmental footprint. Detailed descriptions for each of the proposed remedial alternative are included in the Parcel E FS Report to which this GSR analysis is appended.

Section F2 of this report presents the methodology of SiteWise™, including the metrics evaluated and assumptions. Section F3 describes the SiteWise™ inputs, limitations of SiteWise™, and input assumptions made to account for the limitations. Section F4 presents the results of the SiteWise™ analysis for each remedial technology discussed in the FS Report. Section F5 summarizes the environmental impact of the remedial alternatives based on combinations of the SiteWise™ results for each remedial technology. Section F6 presents the conclusion of this GSR analysis. Section F7 lists the documents used to prepare this appendix. The following supplemental information is provided with this appendix:

- Exhibit F1: SiteWise™ Results for Soil Remedial Technologies
- Exhibit F2: SiteWise™ Results for Groundwater Remedial Technologies
- Exhibit F3: SiteWise™ Results for NAPL Remedial Technologies
- Exhibit F4: SiteWise™ Results for Soil Remedial Alternatives
- Exhibit F5: SiteWise™ Results for Groundwater Remedial Alternatives
- Exhibit F6: SiteWise™ Results for NAPL Remedial Alternatives
- Appendix F1: SiteWise™ Input Spreadsheet Screen Shots

Section F2. SiteWise™ Methodology

This section describes the methodology of the SiteWise™ tool used in this GSR analysis, including the metrics evaluated and modeling assumptions used to calculate the environmental footprint of the proposed remedial activities.

F2.1. SITEWISE™ METRICS

SiteWise™ is a computer spreadsheet-based tool used to perform quantitative assessments of GSR metrics. The quantitative metrics calculated by SiteWise™ include:

1. Greenhouse gas (GHG) emissions reported as metric tons of carbon dioxide (CO_2) equivalents and includes CO_2, methane (CH_4), and nitrous oxide (N_2O)
2. Total energy usage expressed as millions of British thermal units (MMBTU)
3. Water consumption in gallons
4. Air emissions of nitrogen oxides (NO_x)
5. Air emissions of sulfur oxides (SO_x)
6. Air emissions of particulate matter of 10 micrometers or less (PM_{10})
7. Accident risk as risk of fatality
8. Accident risk as risk of injury

It is understood that other metrics, such as ecological impacts (i.e., effects on wildlife, ecosystems, and the abiotic environment) or landfill space consumed, could be examined to evaluate the environmental footprint of a remedial alternative. However, these metrics are not calculated by SiteWise™, thus they were not included in the analysis.

SiteWise™ assesses the environmental footprint of each remedial alternative technology or combination of technologies to determine which potential remedies and which specific elements of a remedy would produce the greatest environmental footprint. In this GSR analysis, environmental impact refers mainly to the effects of air emissions, resource consumption, and risk to human health as quantified by the metrics described above. This analysis allows the FS preparer to consider the impacts of environmental footprints on the short-term effectiveness of a remedy.

The remediation industry has not yet developed standard methods of performing these assessments; however, information that can be used to perform an analysis is available from several recognized sources. For example, SiteWise™ uses emissions factors from various government and non-government sources—such as the EPA (2002) and the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation model developed by the Argonne National Laboratory (2010)—to evaluate the environmental footprint of each activity. These emission factors are all referenced within SiteWise™. The basis of the environmental impact calculation is multiplying the emission factors by the usage rate (i.e., consumption) of a material, electricity, or fuels used during the remedial actions, which the user selects or inputs into the program.

To estimate the environmental footprint for each remedial technology, only the remedial activities that produce significant impacts (with respect to total project impact) are considered in SiteWise™. The following activities were considered in this GSR analysis:

- **Material Production:** well materials, treatment chemicals and materials, granulated activated carbon (GAC), construction materials, and well decommissioning.
- **Transportation:** personnel transportation by road, air, or rail and equipment transportation by road, air, rail, or water.
- **Equipment Use:** earthwork (such as excavation and backfill); drilling; pump operation as determined by known electrical usage, pump head, or name plate specifications; diesel and gasoline pumps; blower compressor, mixer, and other equipment; generators; agricultural equipment; capping equipment; and mixing equipment.
- **Residual Handling:** residual disposal and recycling, landfill operations, thermal and catalytic oxidizers, water consumption, and landfill methane emissions.

The SiteWise™ output is a summary sheet of the calculated quantitative metrics for each remedial technology, categorized by phase of work:

- Remedial Investigation
- Remedial Activities: Construction
- Remedial Activities: Operation
- LTM

A final summary sheet displays up to six remedial technologies. In this GSR analysis, the technologies associated with the remedial alternatives for soil, groundwater, and NAPL were analyzed separately. The final summary sheet for each matrix was used to compute the total environmental impact for each remedial alternative by matrix (i.e., soil, groundwater, and NAPL).

F2.2. SITEWISE™ ASSUMPTIONS

The following subsections from the SiteWise™ User Guide (Battelle et al., 2010) describe the assumptions inherent to the model and the preset input parameters used to calculate the environmental footprint of the different remedial activities that make up the remedial actions.

F2.2.1. Air Emissions (GHG and Criteria Air Pollutants)

SiteWise™ considers CO_2, N_2O, and CH_4 to estimate GHG emissions. SiteWise™ calculates GHG emissions and reports them as CO_2 equivalents in tons. To convert N_2O and CH_4 emissions to CO_2 equivalents, they are each multiplied by their global warming potential (GWP). The EPA (EPA, 2002) defines GWP as the cumulative radiative forcing (i.e., measure of changes in the energy available to the earth-atmosphere system) over a period of time from the emission of a unit mass of gas relative to a reference gas that is CO_2. The GWPs of N_2O and CH_4 are 310 and 21, respectively. SiteWise™ also calculates the air emissions of criteria air priority pollutants (SO_x, NO_x, and particulate matter).

F2.2.2. Energy Usage

SiteWise™ calculates energy usage in MMBTU. For fuels, the energy used is a multiplication of the amount of fuel used by the amount of energy present in a gallon of fuel (124,000 British thermal units per gallon [BTU/gal] for gasoline and 139,000 BTU/gal for diesel, biodiesel, and ethanol diesel [e-diesel]). The energy used for biodiesel and e-diesel was assumed to be the same as diesel because biodiesel has only 20 percent ethanol and e-diesel is less than 10 percent diesel. Energy used from electric consumption by the equipment on site is reported by the tool in Mega-Watt Hours (MWH) and also in MMBTU of coal energy used. The energy used for material production is generally the electrical energy reported in MMBTU.

F2.2.3. Accident Risk and Worker Safety

Accident risk and worker safety is calculated in the tool because of transportation and equipment use. The U.S. Department of Transportation provides a statistical rate of fatalities and injuries per passenger miles traveled that is used in the tool to calculate the potential accident risk from transportation. Similarly, the U.S. Department of Labor provides a statistical rate of fatalities and injuries per hours worked using construction equipment that is used to calculate the accident risk from equipment. The accident risk during transportation is a multiplication of the statistical rate (e.g., injuries or fatalities per hundred million passenger miles [Federal Railroad Administration, 2009]) with the miles traveled and the number of passengers in the vehicle. The accident risk due to equipment use is a multiplication of the statistical rate (i.e., injuries or fatalities per 200 million hours worked, with 2,000 hours worked on average in a year by a worker) by the amount of time in hours the equipment is used at the site.

F2.2.4. Water Used

The water used at the site is primarily accounting for cooling water (510 gallons per MWH) for electrical production, which is insignificant. Most of the water consumption modeled in this assessment is the result of dust suppression, the volume of which is input by the user.

Section F3. Inputs and Limitations and Assumptions

This section describes how SiteWise™ was used in this GSR analysis. This section summarizes the basis of the inputs and limitations of SiteWise™ and assumptions made pertaining to materials, equipment, and consumables (i.e., materials that are completely consumed) inputs to account for the limitations.

F3.1. INPUTS

The SiteWise™ inputs used to calculate the environmental footprint for each remedial technology were based on values found in the cost estimates produced in support of the Parcel E FS (see Appendix E of the FS Report). The cost tables include estimated quantities of the various components required to implement each of the proposed remedial technologies, including construction materials and equipment, mobilization, labor, and schedule. Although the values are estimates and subject to change in the future, they can be used to provide a relative comparison of the environmental footprints associated with the remedial alternatives for each matrix. Appendix F1 contains screen shots of the SiteWise™ input spreadsheets for each remedial technology.

F3.2. LIMITATIONS AND ASSUMPTIONS

SiteWise™ includes a limited database of input options for materials, equipment, and consumables. To overcome this limitation, best engineering judgment was used to assign surrogate inputs that are available in SiteWise™ and similar in nature to represent missing materials, equipment, and consumables. Surrogate items were consistently assigned across all remedial technologies to ensure that the SiteWise™ results remain relative and comparable. The following list contains the surrogate assignments consistently assigned in this analysis:

- Construction materials: The drop-down menu option selected for imported backfill soil, bentonite, and aggregate base (AB) is gravel. The drop-down menu option selected for asphalt is concrete.
- Treatment chemicals: The drop-down menu option selected for hydrogen-releasing and oxygen-releasing compounds (HRC and ORC, respectively) used in ISB is hydrogen peroxide.

Another limitation of SiteWise™ is that it does not account for the water consumption associated with dust suppression at construction sites. At HPS, dust suppression is a paramount objective and significant volumes of water are sprayed over exposed soil surfaces and roads to control dust entrainment into the air during construction. All of the soil remediation technologies and NAPL remediation technologies

involving earthwork would result in consumption of significant amounts of dust suppression water. To account for the significant water usage, a manually entered value based on historical water use rates for dust suppression was added to the SiteWise™ water consumption results, where appropriate. The assumed water consumption rates during dust suppression are as follows:

- For technologies including large-scale earthwork, including large excavations or heavy grading, it was assumed that three water trucks (8,000-gallon total capacity), refilled five times daily, would be used throughout the estimated construction period.
- For technologies including small-scale earthwork, including small excavations or light grading, it was assumed that one water truck (2,000-gallon total capacity), refilled five times daily, would be used throughout the estimated construction period.

Consistent travel distance assumptions were assigned across all remedial technologies to ensure that the SiteWise™ results remain relative and comparable. The following list contains the travel distance assignments consistently implemented in this GSR analysis:

- Personnel transportation: The distance traveled per trip for personnel in a heavy duty truck is 40 miles, while the distance traveled per trip for personnel in a car is 15 miles. This assumption was made to account for travel for truck rental, the average commuting distance of personnel, and other transportation variables.
- Equipment transportation: The mobilization distance for nonspecialty equipment is 40 miles per piece based on the average proximity to rental locations.

Section F4. Results of SiteWise™ Sustainability Analysis for Remedial Technologies

This section presents the results of the SiteWise™ analysis for each remedial technology in the soil, groundwater, and NAPL matrix categories. The technologies are components of the remedial alternatives discussed in the FS Report.

F4.1. SOIL TECHNOLOGIES

Exhibit F1 displays the SiteWise™ output as quantitative metrics for each remedial technology for soil. The soil remedial technologies analyzed were covers, and excavation of Tier 1 and Tier 2 locations.

F4.1.1. Covers

Construction of covers would include transportation of equipment and personnel, installation of cover material (high-density polyethylene [HDPE] liner, AB, and asphalt), use of earthwork and capping equipment, annual monitoring, and asphalt repairs every 10 years. The environmental footprint of covers would be large in all metric categories. High GHG emissions and total energy use would result primarily from material consumption, and high air emissions would result primarily from equipment use. High accident risk would result primarily from personnel transportation.

F4.1.2. Excavation of Tier 1 Locations

Excavation of Tier 1 locations (36,823 cubic yards) would include transportation of personnel, use of earthwork and capping equipment, backfill, and transportation and off-site disposal of soil. The environmental footprint of excavating Tier 1 locations would be small for GHG emissions, total energy used, and water consumption but larger for air emissions and accident risk. High air emissions would result from residual handling, such as the numerous trips to disposal facilities for waste soil, and equipment use. High accident risk would result from high transportation requirements during residual handling.

F4.1.3. Excavation of Tier 2 Locations

Excavation of Tier 2 locations (6,121 cubic yards) would include transportation of personnel, use of earthwork and capping equipment, backfill, and transportation and off-site disposal of soil. Similar to excavation of Tier 1 locations, excavation of Tier 2 locations would result in air emissions from residual

handling and equipment use. However, environmental impacts would be small because of the lesser volume of soil to be excavated, disposed of, and backfilled.

F4.2. GROUNDWATER TECHNOLOGIES

Exhibit F2 displays the SiteWise™ output as quantitative metrics for each remedial technology for groundwater. The groundwater remedial technologies analyzed were LTM, containment and ISB, ISB at Building 406, ZVIR at Building 406, and SVE/AS at Building 406.

F4.2.1. LTM

LTM would include transportation of equipment and personnel; installation and drilling of wells; disposal of waste; and repair, decommissioning, and monitoring of wells. The environmental footprint of LTM would be small. Low air emission quantities would result from residual handling and equipment use during well installation, while low accident risk would result from residual handling and personnel transportation.

F4.2.2. Containment and ISB

Construction of a slurry wall for containment would include transportation of equipment and personnel, use of earthwork equipment, installation of soil and bentonite, and disposal of waste. ISB would include transportation of equipment and personnel, drilling of the injection points, and the consumption of HRC and ORC for treatment. The environmental footprint of containment and ISB would be small for water consumption, NO_x emissions, and SO_x emissions; larger for GHG emissions and total energy used; and largest for PM_{10} emissions and accident risk. Moderate GHG emissions and total energy use would result primarily from consumables, while high PM_{10} emissions and accident risk would result from a combination of residual handling of removed soil, equipment use during slurry wall construction and injection point drilling, and personnel transportation.

F4.2.3. ISB at Building 406

ISB would include drilling of the injection points and consumption of HRC for treatment. The ISB technology option for Building 406 would produce a small footprint in all metric categories. Low GHG emissions and energy use would result from material consumption, while low PM_{10} emissions and accident risk would result from equipment use.

F4.2.4. ZVIR at Building 406

ZVIR would include drilling of injection points and consumption of ZVI for treatment. The ZVIR technology option at Building 406 would produce a small environmental footprint for most metrics. Moderate GHG emissions would result from the use of consumables during construction.

F4.2.5. SVE/AS at Building 406

SVE/AS would include transportation of equipment and personnel, drilling and installation of SVE wells, consumption of GAC for treatment, operation of compressor and blower, regeneration of GAC, and inspections. The SVE/AS technology option for Building 406 would produce a large footprint for most metric categories. Moderate PM_{10} emissions would result from equipment use and personnel transportation during construction and personnel transportation during LTM inspections. High GHG emissions and energy consumption would result from blower and compressor use and GAC regeneration during operation, with a fractional contribution from GAC consumption during construction. High water consumption, NO_x emissions, and SO_x emissions would result from equipment use during operation of the SVE/AS system. High accident risk would result primarily from personnel transportation during construction and LTM activities, with a fractional contribution from equipment use during construction associated with well drilling.

F4.3. NAPL TECHNOLOGIES

Exhibit F3 displays the outputs of the SiteWise™ program as quantitative metrics for each NAPL remedial technology. The NAPL remedial technologies analyzed were containment and LTM, heating, ISB, steaming, unsaturated zone excavation, and full excavation and MNA.

F4.3.1. Containment and LTM

Slurry wall and cover construction for containment would include transportation of equipment and personnel, use of earthwork and capping equipment, installation of HDPE liner and soil, and disposal of waste. LTM would include transportation of equipment and personnel; installation and drilling of wells; disposal of waste; and repair, decommissioning, and monitoring of wells. The environmental footprint of containment and LTM would be very small in all metric categories. Low levels of accident risk would result from residual handling during construction and personnel transportation during LTM.

F4.3.2. Heating

NAPL heating would include transportation of equipment and personnel, drilling of electrode locations, use of electricity, operation of pumps, and disposal of waste. The environmental footprint of heating would be large for GHG emissions, energy use, water consumption, NO_x emissions, and SO_x emissions but small for PM_{10} emissions and accident risk. Very high levels of GHG emissions, energy use, water consumption, NO_x emissions, and SO_x emissions would result from heavy pump and electrode utility during remedial operation. Low PM_{10} emissions and accident risk would result from residual handling, personnel transportation, and equipment use during construction and operation.

F4.3.3. ISB

ISB would include transportation of equipment and personnel, drilling of the injection points, and consumption of ORC for treatment. The environmental footprint of ISB would be small for all metric categories. Low levels of accident risk would result from personnel transportation and equipment use during drilling.

F4.3.4. Steaming

Steaming would include transportation of personnel, consumption of GAC for treatment, use of electricity, operation of blower, and weekly inspections. The environmental footprint for steaming would be large for GHG emissions, energy use, water consumption, NO_x emissions, and SO_x emissions but small for PM_{10} and accident risk. High GHG emissions, energy use, water consumption, NO_x emissions, and SO_x emissions would result from heavy equipment use during blower operation. Low PM_{10} and accident risk would result primarily from personnel transportation during system construction.

F4.3.5. Unsaturated Zone Excavation

Excavation of contamination in the unsaturated zone (38,933 cubic yards) would include transportation of equipment and personnel, use of earthwork and capping equipment, backfill, and transportation and off-site disposal of soil. The environmental footprint for excavation of the unsaturated zone would be small for GHG emissions, energy use, NO_x emissions, and SO_x emissions, but moderate for water consumption, PM_{10} emissions, and accident risk. Low GHG emissions and energy use would result primarily from material consumption during backfilling, oxide emissions would result primarily from equipment use. Moderate water consumption would result from dust suppression during construction activities. Moderate PM_{10} emissions would result from equipment use and residual transport during construction. Moderate accident risk would result from personnel transportation and the transportation of excavated soil.

F4.3.6. Full Excavation and MNA

Excavation of the full volume of contaminated soil (95,624 cubic yards) would include transportation of equipment and personnel, use of earthwork and capping equipment, placement of backfill, and transportation and off-site disposal of soil. MNA would include transportation of equipment and personnel, drilling and installation of wells, and disposal of waste. The environmental footprint of full excavation and MNA would be the small for oxide emissions, moderate for GHG emissions and energy use, and high for water consumption, PM_{10} emissions, and accident risk. Low NO_x and SO_x emissions would result primarily from equipment use. Moderate GHG emissions and energy use would result primarily from materials consumption, with fractional contributions from residual handling, equipment use, and personnel transportation. High water consumption would result from the dust suppression requirements of a large-scale excavation project at HPS. High contributions PM_{10} emissions would result

from heavy equipment use, with a fractional contribution from residual handling of excavated soil. High accident risk would result from residual handling and personnel transportation.

Section F5. Results of SiteWise™ Sustainability Analysis for Remedial Alternatives

The results of the SiteWise™ analysis of the remedial technologies proposed for soil, groundwater, and NAPL were combined to obtain the estimated overall environmental footprint of each remedial alternative proposed in the FS Report. The following subsections summarize the overall impacts of each proposed remedial alternative by matrix category.

F5.1. SOIL ALTERNATIVES

Exhibit F4 shows the estimated overall environmental footprints of the proposed soil remedial alternatives as combinations of the environmental footprints of their associated technologies.

Covers are a component of all three alternatives and would account for a large portion of the environmental footprint for all metrics, indicating that the environmental impacts associated with all of the soil alternatives would be large. Excavation of Tier 1 and Tier 2 locations would produce slightly higher air emissions and accident risks, so Alternatives S-3 and S-4 would have greater environmental footprints for those metric categories.

F5.2. GROUNDWATER ALTERNATIVES

Exhibit F5 shows the estimated overall environmental footprints of the proposed groundwater remedial alternatives as combinations of the footprints of their associated technologies.

The environmental footprint for Alternative GW-2 would be very small in all metric categories because only LTM is implemented. ISB and ZVIR at Building 406 would produce small impacts in all categories, so the moderate environmental footprints of Alternatives GW-3A and GW-3B would be primarily from the contributions from containment and ISB. Alternative GW-4 would produce a large footprint for all metric categories because of the use of the SVE/AS system at Building 406 in addition to containment and ISB. The containment and ISB technology would contribute significantly to GHG emissions, total energy consumption, PM_{10} emissions, and accident risk for Alternatives GW-3A, GW-3B, and GW-4.

F5.3. NAPL ALTERNATIVES

Exhibit F6 shows the estimated overall environmental footprints of the proposed NAPL remedial alternatives as combinations of the impacts of their constituent technologies.

The environmental footprint from Alternative N-2 would be very small in all metric categories because the containment and LTM technology would produce low impacts and no other technologies were included. Alternatives N-3 and N-4A would produce moderate environmental footprints from GHG emissions, total energy use, water consumption, NO_x emissions, and SO_x emissions because a heating technology would be implemented. The environmental footprint of Alternative N-4B would be significantly larger than the metric categories for the other alternatives because steaming is included. Steaming would also contribute significantly to PM_{10} emission levels and accident risk levels. Moderate footprints would be produced from Alternative N-5 in those categories because of the proposed excavation activities. The environmental footprint of Alternative N-6 would produce comparatively small environmental footprints associated with GHG emissions, total energy use, water consumption, NO_x emissions, and SO_x emissions because heating technologies are not implemented; however, the large-scale excavation would be associated with significant PM_{10} emissions and accident risk.

Section F6. Conclusion

This GSR analysis provides information about the environmental footprint associated with the remedial technologies that make up the Parcel E remedial alternatives. The analysis evaluated technologies included in the remedial alternatives for soil, groundwater, and NAPL presented in the FS Report. The information derived from this analysis was used to support the evaluation of short-term effectiveness for the remedial alternatives evaluation presented in Section 4 of the Parcel E FS Report.

Section F7. References

Argonne National Laboratory, 2010. "GREET Model, The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model." Available Online at: <http://greet.es.anl.gov/>.

Battelle, U.S. Navy, and U.S. Army Corps of Engineers, and U.S. Army, 2010. "SiteWise™ User Guide." May.

Federal Railroad Administration, 2011. Federal Railroad Administration, Office of Safety Analysis Website. Available Online at: <http://safetydata.fra.dot.gov/OfficeofSafety/>.

U.S. Environmental Protection Agency (EPA), 2002. "Greenhouse Gases and Global Warming Potential Values," excerpt from the *Inventory of US Greenhouse Emissions and Sinks: 1990-2000*. April.

U.S. Environmental Protection Agency (EPA), 2011. "National Oil and Hazardous Substances Pollution Contingency Plan". January. Available Online at: <http://www.epa.gov/oem/content/lawsregs/ncpover.htm>.

Tables

Table F-1. Remedial Alternatives and the Technologies Included in Each Treatment Train

Soil Treatment Train			
Remedial Alternative	Covers	Excavation of Tier 1 Locations	Excavation of Tier 2 Locations
S-1			
S-2	X		
S-3	X	X	
S-4	X	X	X

Groundwater Treatment Train					
Remedial Alternative	LTM	Containment	ISB	ZVIR	SVE/AS
GW-1					
GW-2	X				
GW-3A	X	X	X		
GW-3B	X	X	X	X	
GW-4	X	X	X		X

NAPL Treatment Train							
Remedial Alternatives	LTM	Containment	Heating	ISB	Steaming	Unsaturated Zone Excavation	Full Excavation
N-1							
N-2	X	X					
N-3	X	X	X				
N-4A	X	X	X	X			
N-4B	X	X	X		X		
N-5	X	X	X	X		X	
N-6	X						X

Notes:

ISB = in-situ bioremediation

LTM = long-term monitoring

NAPL = nonaqueous-phase liquids

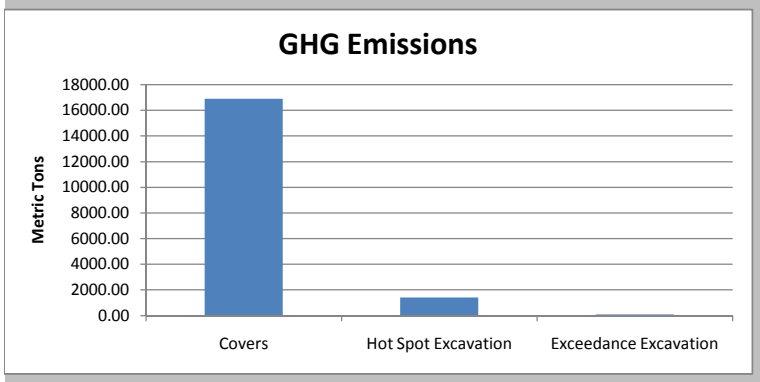
SVE/AS = soil vapor extraction and air sparging

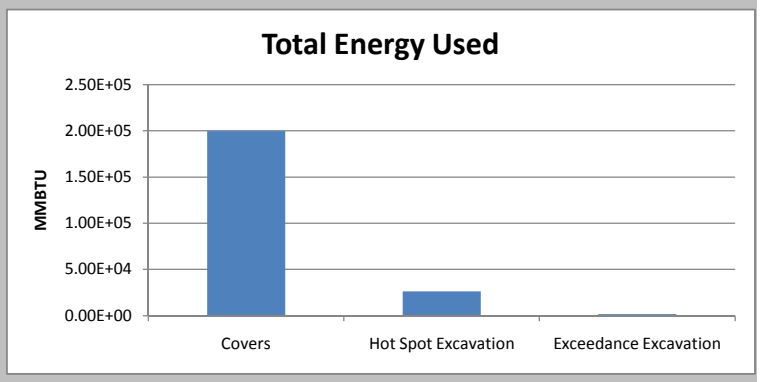
ZVIR = zero-valent iron reduction

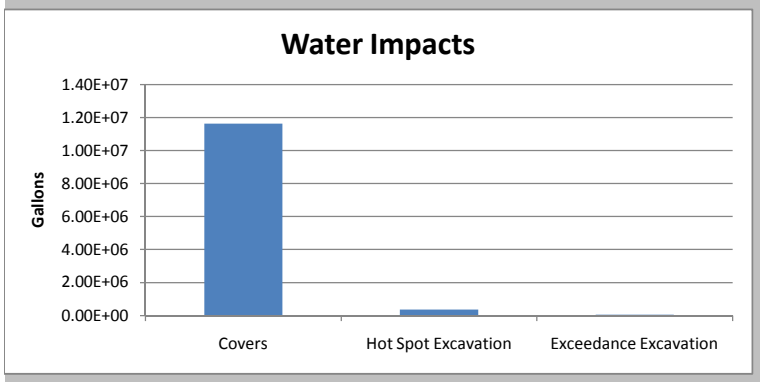
Exhibit F1. SiteWise™ Results for Soil Remedial Technologies

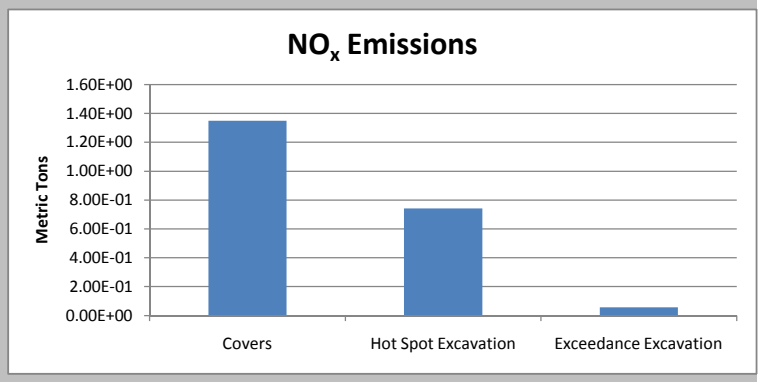
Exhibit F1. SiteWise Results for Soil Remedial Technologies

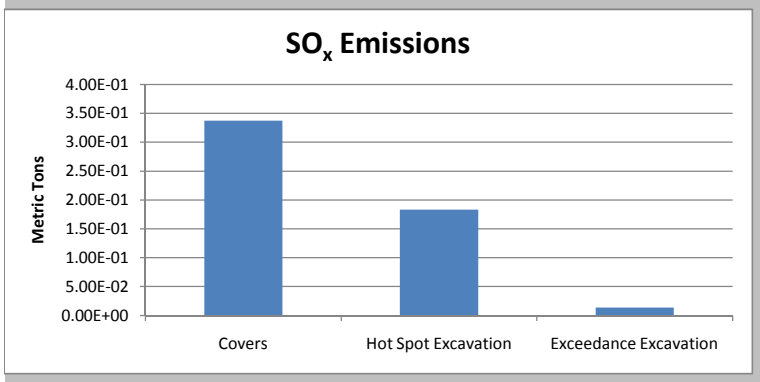
Remedial Technologies	GHG Emissions metric ton	Total energy Used MMBTU	Water gallons	NO_x emissions metric ton	SO_x Emissions metric ton	PM_{10} Emissions metric ton	Accident Risk Fatality	Accident Risk Injury
Covers	16895.28	2.00E+05	1.16E+07	1.35E+00	3.37E-01	1.43E-01	2.22E-03	2.20E-01
Hot Spot Excavation	1406.28	2.61E+04	3.60E+05	7.43E-01	1.83E-01	8.49E-02	1.01E-03	1.80E-01
Exceedance Excavation	84.83	1.63E+03	6.00E+04	5.66E-02	1.37E-02	6.80E-03	8.62E-05	1.32E-02

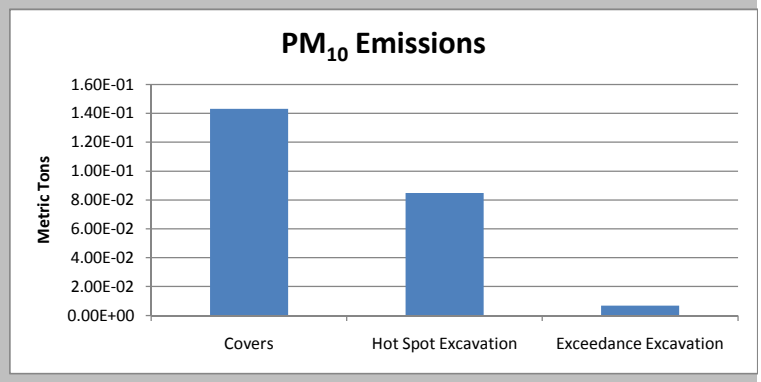


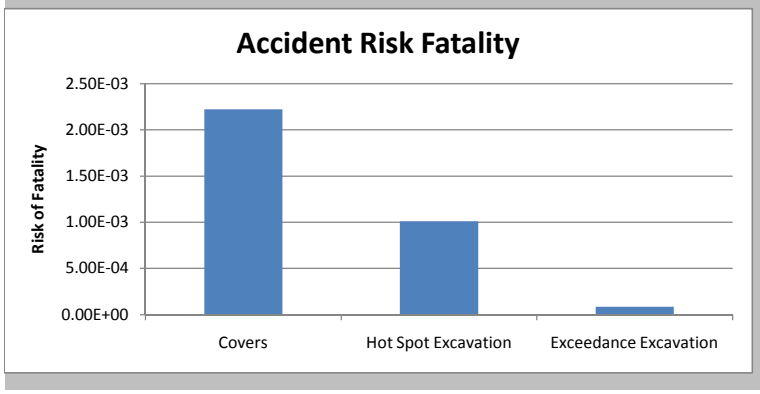












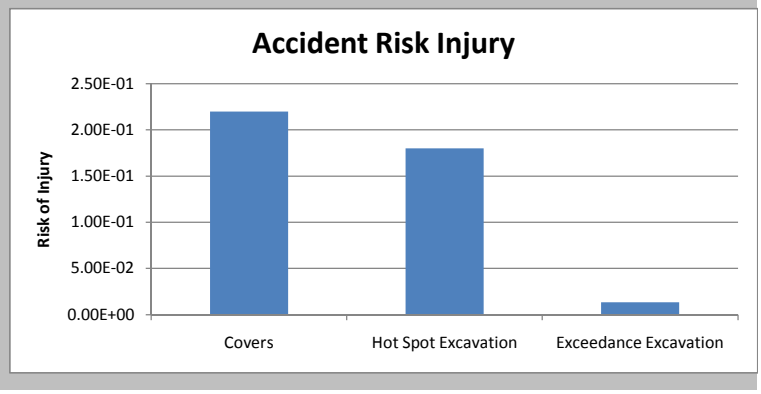
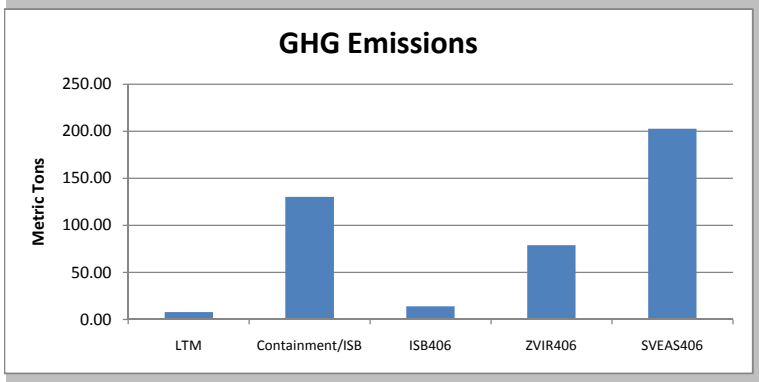
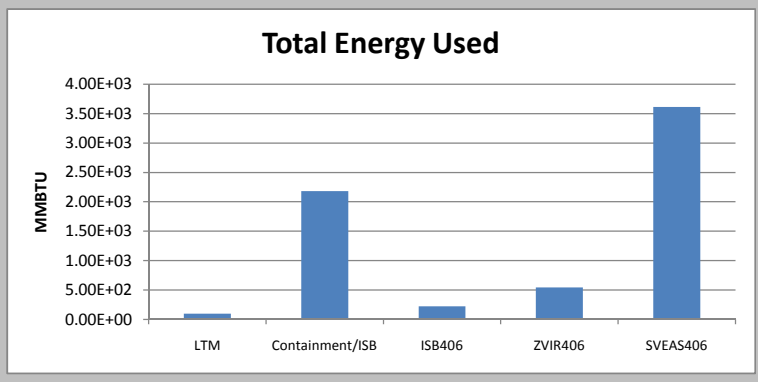


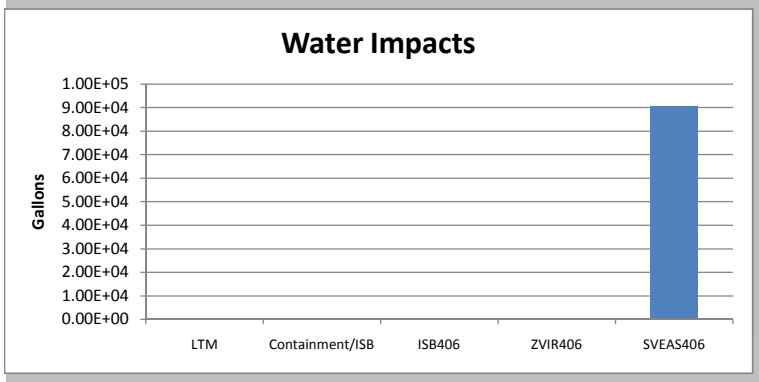
Exhibit F2. SiteWise™ Results for Groundwater Remedial Technologies

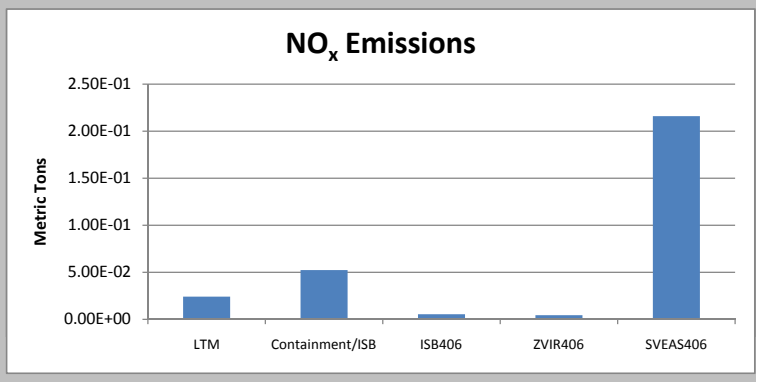
Exhibit F2. SiteWise Results for Groundwater Remedial Technologies

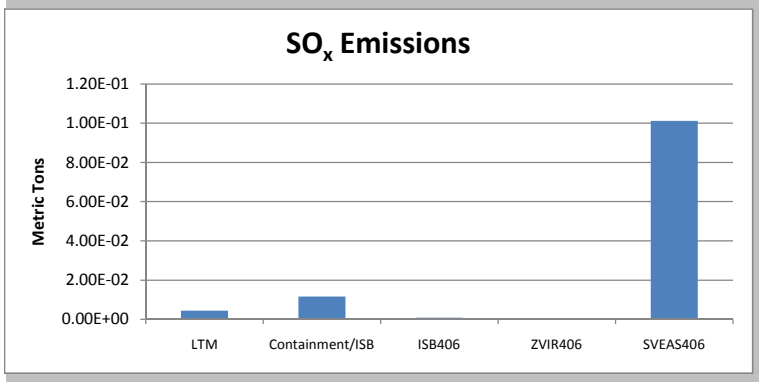
Remedial Technologies	GHG Emissions metric ton	Total energy Used MMBTU	Water gallons	NO_x emissions metric ton	SO_x Emissions metric ton	PM_{10} Emissions metric ton	Accident Risk Fatality	Accident Risk Injury
LTM	7.99	1.01E+02	0.00E+00	2.42E-02	4.35E-03	2.17E-03	3.44E-05	3.73E-03
Containment/ISB	130.41	2.18E+03	0.00E+00	5.25E-02	1.16E-02	5.89E-03	1.09E-04	2.13E-02
ISB406	13.89	2.23E+02	0.00E+00	5.48E-03	9.06E-04	4.15E-04	6.84E-06	2.94E-03
ZVIR406	79.00	5.47E+02	0.00E+00	4.46E-03	7.38E-04	3.38E-04	5.57E-06	2.39E-03
SVEAS406	202.73	3.61E+03	9.05E+04	2.16E-01	1.01E-01	1.96E-03	1.17E-04	1.26E-02

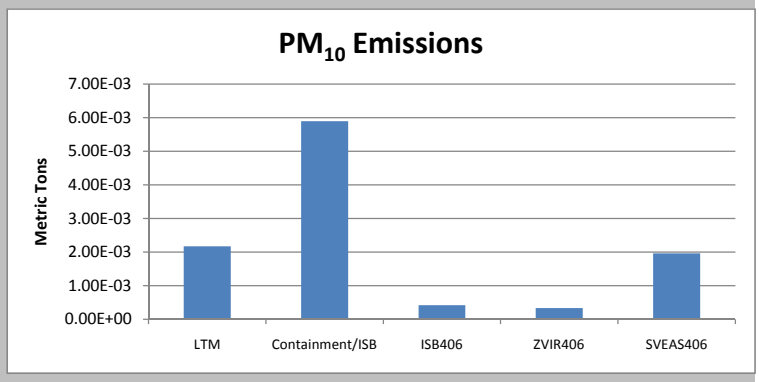


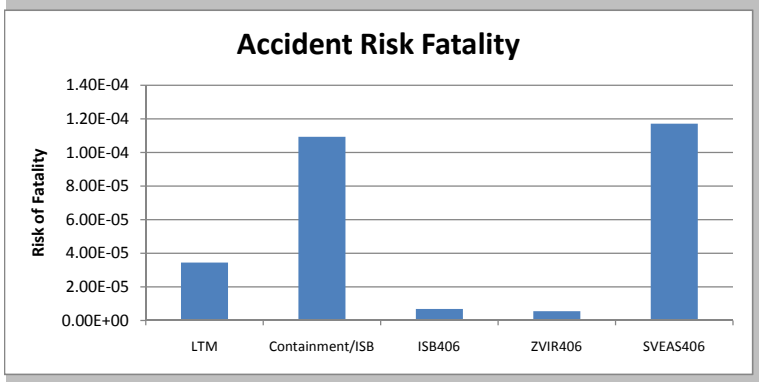












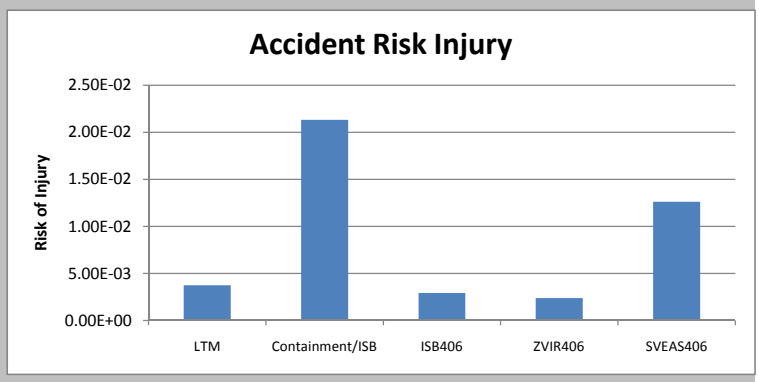
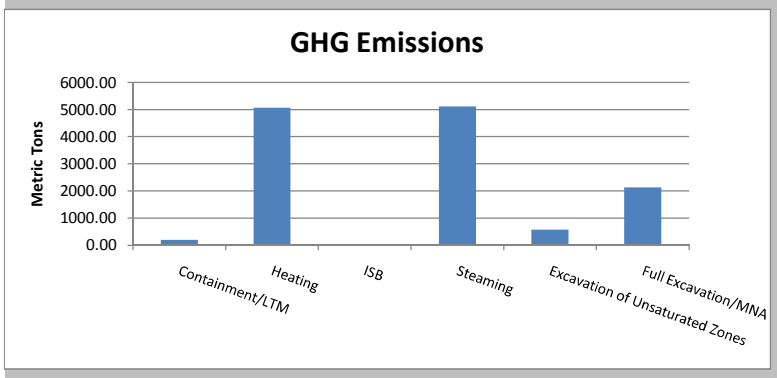
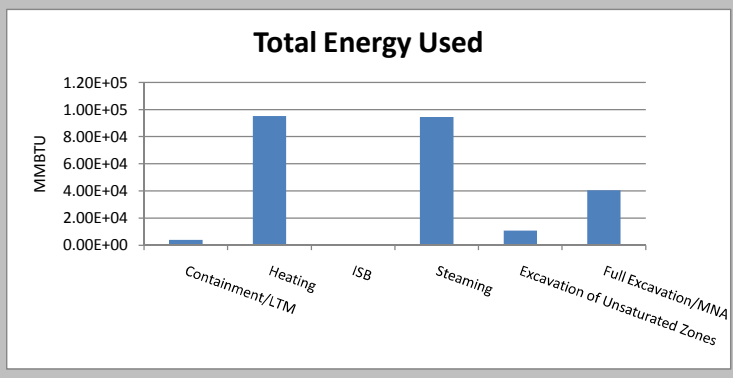


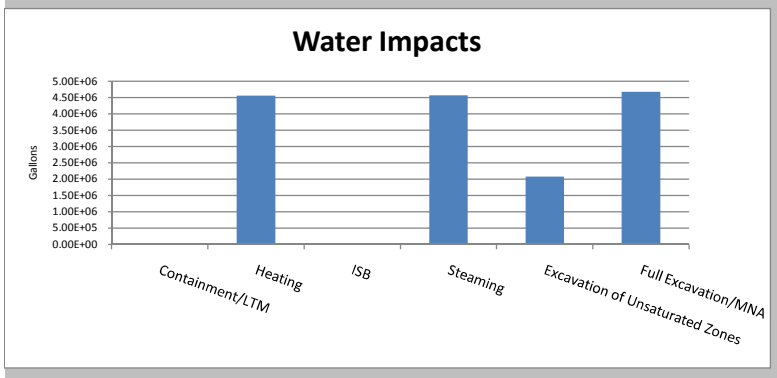
Exhibit F3. SiteWise™ Results for NAPL Remedial Technologies

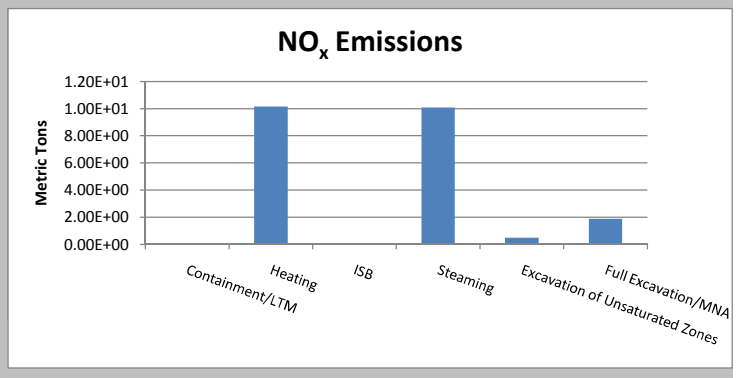
Exhibit F3. SiteWise Results for NAPL Remedial Technologies

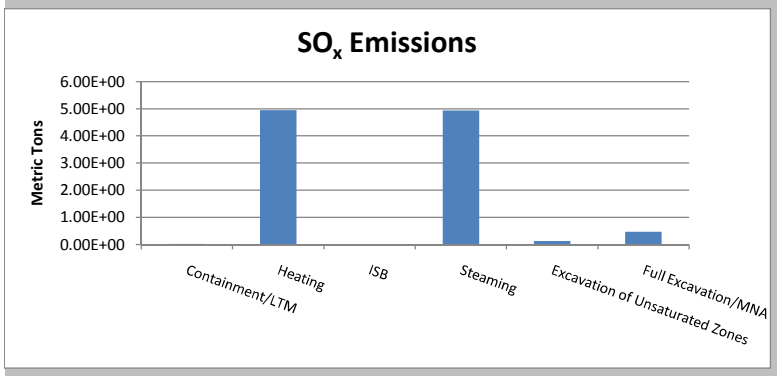
Remedial Technologies	GHG Emissions metric ton	Total energy Used MMBTU	Water gallons	NO_x emissions metric ton	SO_x Emissions metric ton	PM_{10} Emissions metric ton	Accident Risk Fatality	Accident Risk Injury
Containment/LTM	199.46	3.95E+03	0.00E+00	5.75E-02	1.36E-02	6.73E-03	9.85E-05	1.47E-02
Heating	5067.04	9.53E+04	4.57E+06	1.02E+01	4.95E+00	9.88E-03	3.18E-04	4.93E-02
ISB	46.19	6.76E+02	0.00E+00	3.90E-02	7.37E-03	3.88E-03	1.02E-04	1.92E-02
Steaming	5111.69	9.44E+04	4.57E+06	1.01E+01	4.94E+00	1.61E-03	7.21E-05	5.17E-03
Excavation of Unsaturated Zones	572.31	1.08E+04	2.08E+06	4.91E-01	1.22E-01	5.19E-02	5.44E-04	8.49E-02
Full Excavation/MNA	2123.79	4.04E+04	4.68E+06	1.87E+00	4.64E-01	1.90E-01	1.61E-03	2.76E-01

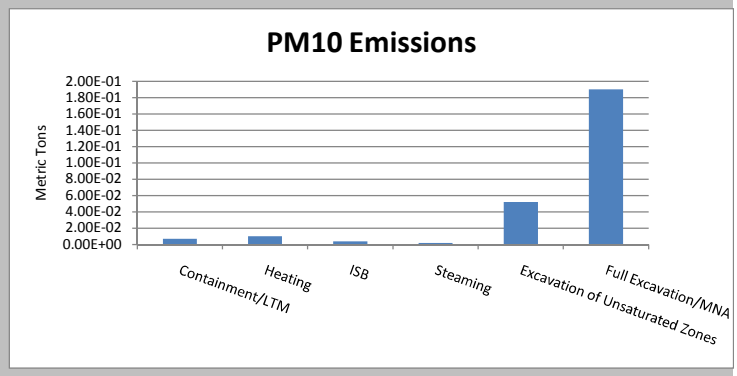


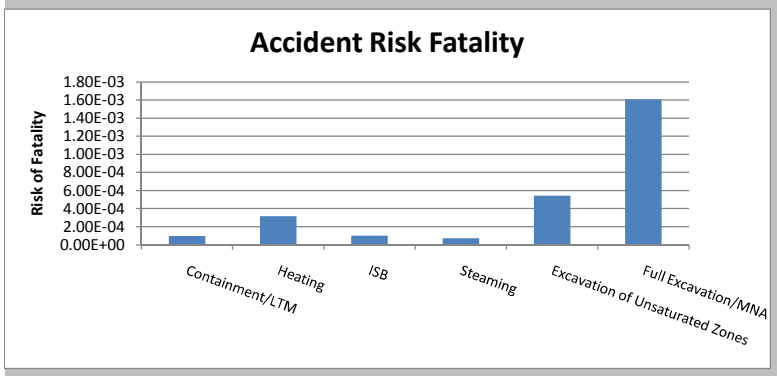












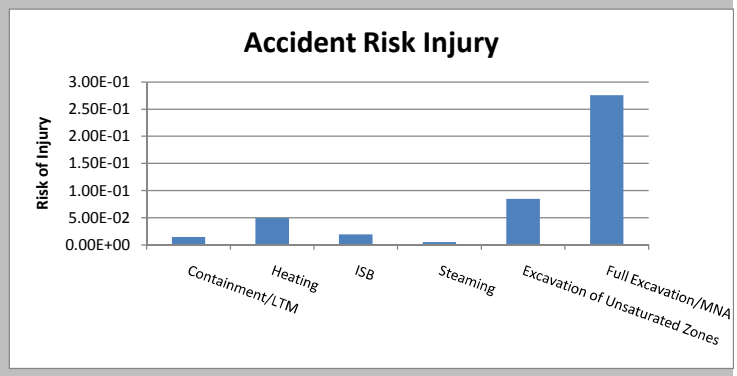


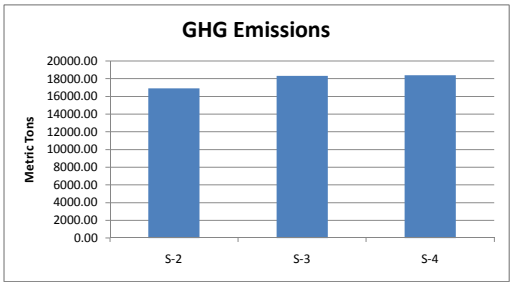
Exhibit F4. SiteWise™ Results for Soil Remedial Alternatives

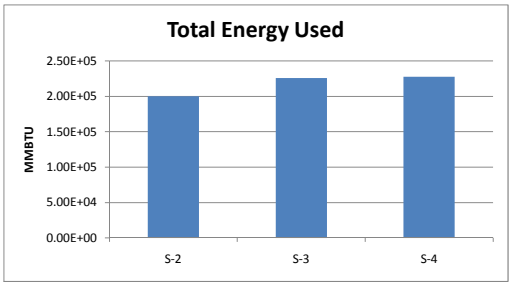
Exhibit F4. SiteWise Results for Soil Remedial Alternatives

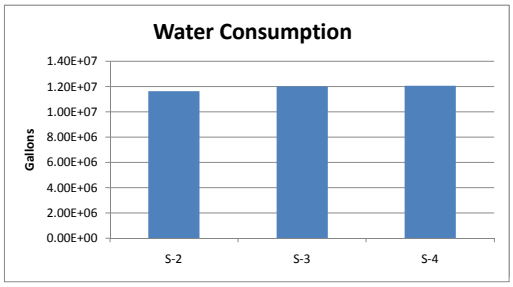
Soil SiteWise Output:

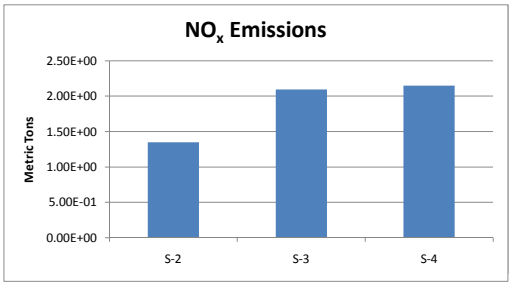
Remedial Alternatives	GHG Emissions	Total energy Used	Water Consumption	NO_x emissions	SO_x Emissions	PM_{10} Emissions	Accident Risk Fatality	Accident Risk Injury
	metric ton	MMBTU	gallons	metric ton	metric ton	metric ton		
Covers	16895.28	2.00E+05	1.16E+07	1.35E+00	3.37E-01	1.43E-01	2.22E-03	2.20E-01
Hot Spot Excavation	1406.28	2.61E+04	3.60E+05	7.43E-01	1.83E-01	8.49E-02	1.01E-03	1.80E-01
Exceedance Excavation	84.83	1.63E+03	6.00E+04	5.66E-02	1.37E-02	6.80E-03	8.62E-05	1.32E-02

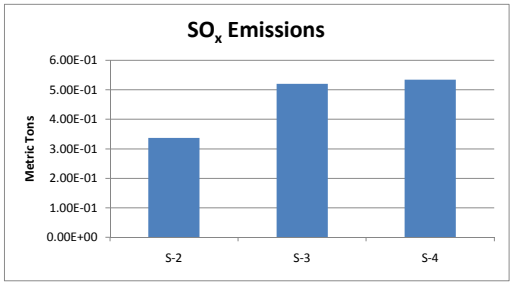
Remedial Alternatives	SiteWise Components	GHG Emissions	Total energy Used	Water Consumption	No_x emissions	So_x emissions	PM_{10} Emissions	Accident Risk Fatality	Accident Risk Injury
		metric ton	MMBTU	gallons	metric ton	metric ton	metric ton		
S-2	Covers	16895.28	2.00E+05	1.16E+07	1.35E+00	3.37E-01	1.43E-01	2.22E-03	2.20E-01
S-3	Covers, Hot Spot Ex	18301.55	2.26E+05	1.20E+07	2.09E+00	5.20E-01	2.28E-01	3.23E-03	4.00E-01
S-4	Covers, Hot Spot Ex, Exceedance Ex	18386.39	2.28E+05	1.21E+07	2.15E+00	5.34E-01	2.35E-01	3.32E-03	4.13E-01

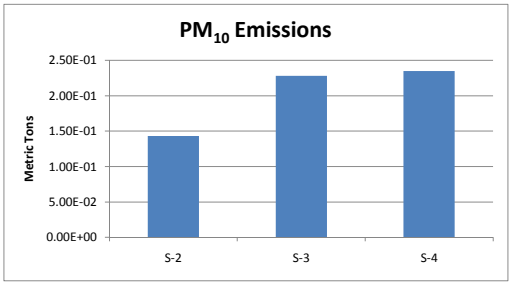


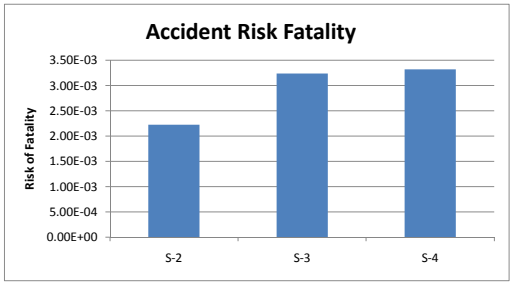












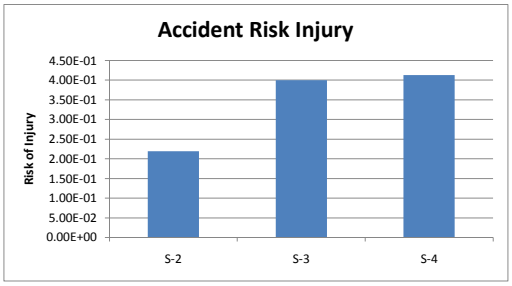


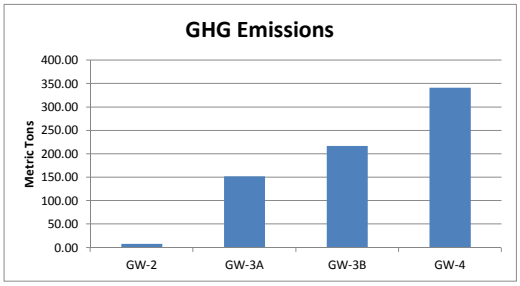
Exhibit F5. SiteWise™ Results for Groundwater Remedial Alternatives

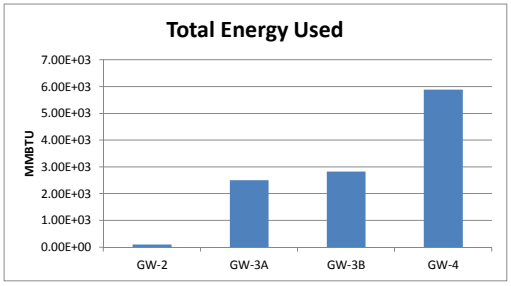
Exhibit F5. SiteWise Results for Groundwater Remedial Alternatives

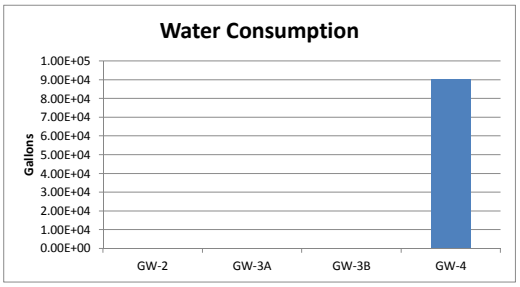
GW SiteWise Output:

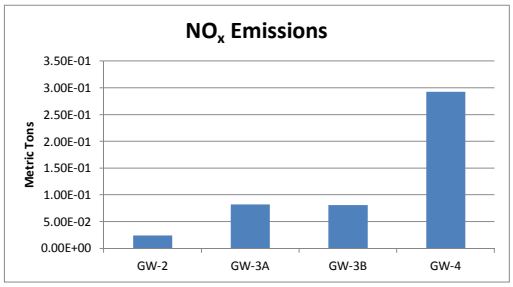
Remedial Technologies	GHG Emissions	Total energy Used	Water Consumption	NO_x emissions	SO_x Emissions	PM_{10} Emissions	Accident Risk Fatality	Accident Risk Injury
	metric ton	MMBTU	gallons	metric ton	metric ton	metric ton		
LTM	7.99	1.01E+02	0.00E+00	2.42E-02	4.35E-03	2.17E-03	3.44E-05	3.73E-03
Containment/ISB	130.41	2.18E+03	0.00E+00	5.25E-02	1.16E-02	5.89E-03	1.09E-04	2.13E-02
ISB406	13.89	2.23E+02	0.00E+00	5.48E-03	9.06E-04	4.15E-04	6.84E-06	2.94E-03
ZVIR406	79.00	5.47E+02	0.00E+00	4.46E-03	7.38E-04	3.38E-04	5.57E-06	2.39E-03
SVEAS406	202.73	3.61E+03	9.05E+04	2.16E-01	1.01E-01	1.96E-03	1.17E-04	1.26E-02

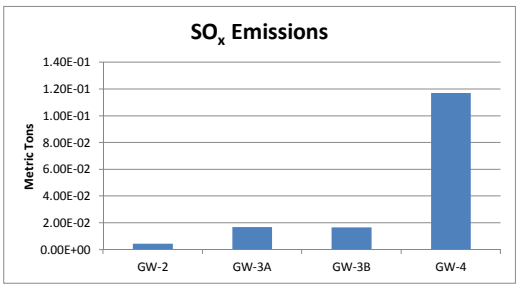
Remedial Alternatives	SiteWise Components	GHG Emissions	Total energy Used	Water Consumption	No_x emissions	So_x emissions	PM_{10} Emissions	Accident Risk Fatality	Accident Risk Injury
		metric ton	MMBTU	gallons	metric ton	metric ton	metric ton		
GW-2	LTM	7.99	1.01E+02	0.00E+00	2.42E-02	4.35E-03	2.17E-03	3.44E-05	3.73E-03
GW-3A	LTM, Containment/ISB, ISB406	152.28	2.50E+03	0.00E+00	8.22E-02	1.68E-02	8.48E-03	1.51E-04	2.80E-02
GW-3B	LTM, Containment/ISB, ZVIR406	217.39	2.83E+03	0.00E+00	8.12E-02	1.67E-02	8.40E-03	1.49E-04	2.75E-02
GW-4	LTM, Containment/ISB, SVEAS406	341.13	5.89E+03	9.05E+04	2.93E-01	1.17E-01	1.00E-02	2.61E-04	3.77E-02

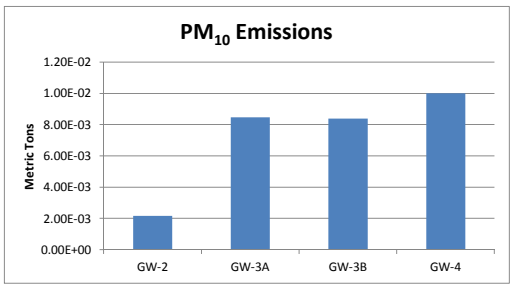


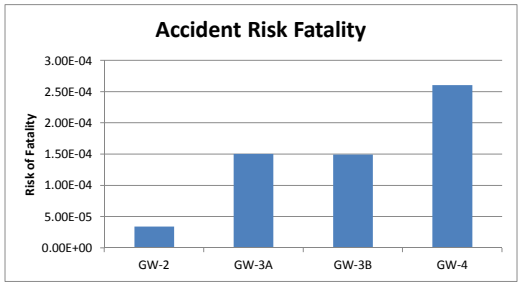












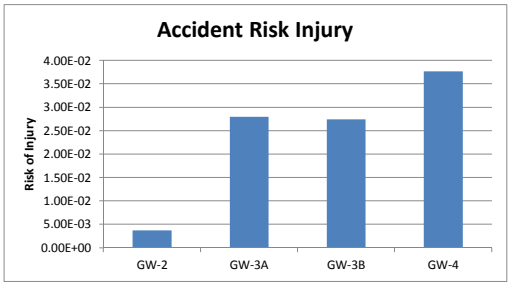


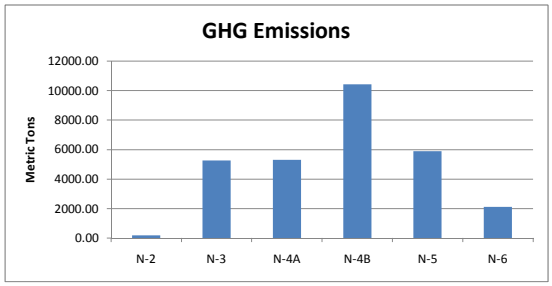
Exhibit F6. SiteWise™ Results for NAPL Remedial Alternatives

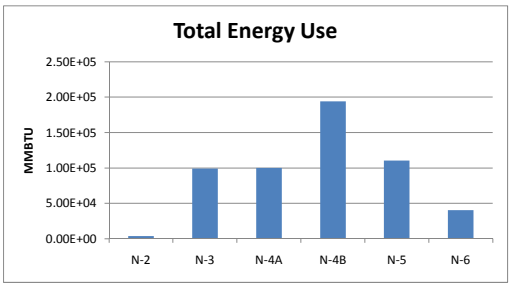
Exhibit F6. SiteWise Results for NAPL Remedial Alternatives

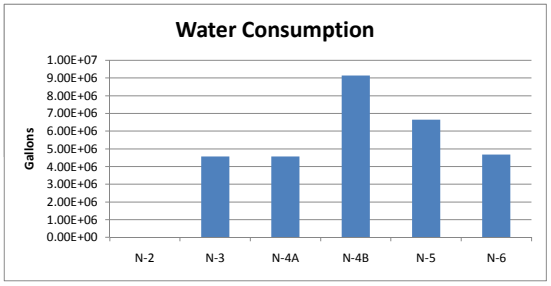
NAPL SiteWise Output:

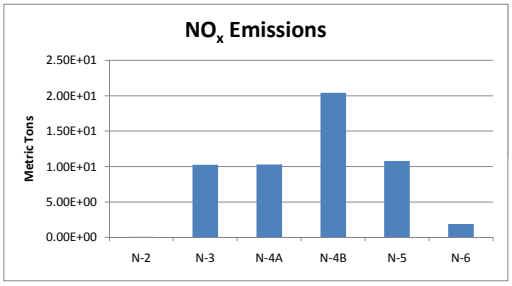
Remedial Technologies	GHG Emissions	Total energy Used	Water Consumption	NO_x emissions	SO_x Emissions	PM_{10} Emissions	Accident Risk Fatality	Accident Risk Injury
	metric ton	MMBTU	gallons	metric ton	metric ton	metric ton		
Containment/LTM	199.46	3954.64	0.00E+00	5.75E-02	1.36E-02	6.73E-03	9.85E-05	1.47E-02
Heating	5067.04	9.53E+04	4.57E+06	1.02E+01	4.95E+00	9.88E-03	3.18E-04	4.93E-02
ISB	46.19	6.76E+02	0.00E+00	3.90E-02	7.37E-03	3.88E-03	1.02E-04	1.92E-02
Steaming	5111.69	9.44E+04	4.57E+06	1.01E+01	4.94E+00	1.61E-03	7.21E-05	5.17E-03
Excavation of Unsaturated Zones	572.31	1.08E+04	2.08E+06	4.91E-01	1.22E-01	5.19E-02	5.44E-04	8.49E-02
Full Excavation/MNA	2123.79	4.04E+04	4.68E+06	1.87E+00	4.64E-01	1.90E-01	1.61E-03	2.76E-01

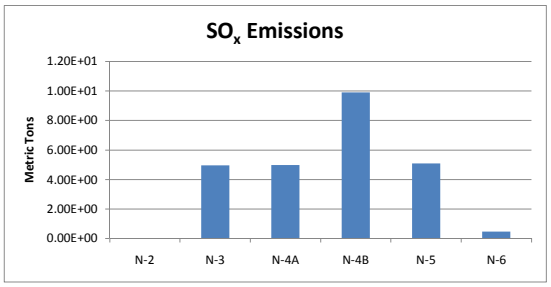
Remedial Alternatives	SiteWise Components	GHG Emissions	Total energy Used	Water Consumption	No_x emissions	So_x emissions	PM_{10} Emissions	Accident Risk Fatality	Accident Risk Injury
		metric ton	MMBTU	gallons	metric ton	metric ton	metric ton		
N-2	Containment/LTM	199.46	3.95E+03	0.00E+00	5.75E-02	1.36E-02	6.73E-03	9.85E-05	1.47E-02
N-3	Containment/LTM, Heating	5266.50	9.93E+04	4.57E+06	1.03E+01	4.96E+00	1.66E-02	4.16E-04	6.41E-02
N-4A	Containment/LTM, Heating, ISB	5312.69	9.99E+04	4.57E+06	1.03E+01	4.97E+00	2.05E-02	5.18E-04	8.33E-02
N-4B	Containment/LTM, Heating, ISB, Steaming	10424.38	1.94E+05	9.14E+06	2.04E+01	9.91E+00	2.21E-02	5.90E-04	8.85E-02
N-5	Containment/LTM, Heating, ISB, Unsaturated Zone Ex	5885.00	1.11E+05	6.65E+06	1.08E+01	5.09E+00	7.23E-02	1.06E-03	1.68E-01
N-6	Full Excavation /MNA	2123.79	4.04E+04	4.68E+06	1.87E+00	4.64E-01	1.90E-01	1.61E-03	2.76E-01

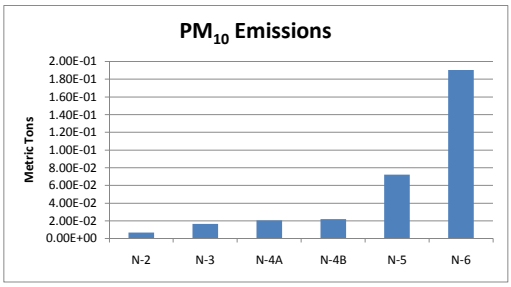


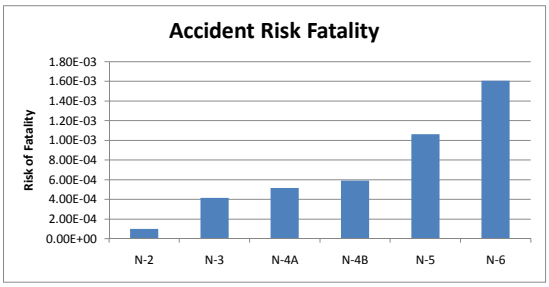


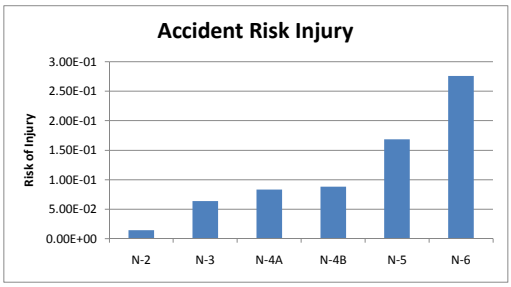












Appendix F1. SiteWise™ Input Spreadsheet Screen Shots

(This appendix is provided on compact disc only)

Soil: Covers RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	Gravel	General Concrete	Gravel	General Concrete	HDPE Liner
Input area of material (ft^2)	2,940,300	2,809,602	2,809,602	888,624	1,413,100	
Input depth of material (ft)	0.007	0.5	0.2	3	0.13	

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Heavy Duty	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15	40				
Input number of trips taken	4656	4074				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	120	120	120	160	80	40
Input weight of equipment transported (tons)	40	40	40	40	40	40

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)	19,722	188,533				
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Paver	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)	1,065,000	2,478,100	2,478,100	2,545,200		
Input time available (work days)	48	48	146	48		

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	1.2E+07
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

Soil: Covers LTM

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	General Concrete	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)	7,434,300					
Input depth of material (ft)	0.083					

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Heavy Duty	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15	40				
Input number of trips taken	120	180				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Paver	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)	7,434,300	7,434,300				
Input time available (work days)	15	15				

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

Soil: Hot Spot Excavation RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	Gravel	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)	150,757					
Input depth of material (ft)	8.6					

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Heavy Duty	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15	40				
Input number of trips taken	504	576				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Excavator	Loader/Backhoe	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)	48,046	48,046				
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)	2,562,869					
Input time available (work days)	12					

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)	40		40			
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips	1081		631			
Input number of miles per trip	50		220			

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	3.6E+05
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

Soil: Exceedance Excavation RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	Gravel	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)	13,900					
Input depth of material (ft)	5.3					

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Heavy Duty	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15	40				
Input number of trips taken	96	84				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Excavator	Loader/Backhoe	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)	2,733	2,733				
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)	152,900					
Input time available (work days)	2					

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)	40		40			
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips	62		36			
Input number of miles per trip	50		220			

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	6.0E+04
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	6	3				
Input depth of wells (ft)	20	35				
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)						
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40					
Input number of trips taken	30					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	180					
Input weight of equipment transported (tons)	3					

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	6	3				
Choose drilling method from drop down menu	Hollow Stem Auger	Hollow Stem Auger	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	5	5				
Input depth of wells (ft)	20	35				
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)	1	4				
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips	1	1				
Input number of miles per trip	220	220				

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	10	5				
Input depth of wells (ft)	20	35				
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	16	8				
Input depth of wells (ft)	20	35				
Input well diameter (in)	2	1	1	1	1	1
Choose material from drop down menu	Typical Cement	Typical Cement	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15					
Input number of trips taken	152					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Hollow Stem Auger	Hollow Stem Auger	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

Groundwater: Containment/ISB RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points	240	179				
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)	171	90				
Input number of injections per injection point	1	1				

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	Gravel	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)	2,675					
Input depth of material (ft)	33					

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)						1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Heavy Duty	Heavy Duty	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40	40				
Input number of trips taken	80	80				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	40	100				
Input weight of equipment transported (tons)	28	3				

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Excavator	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)	3,300					
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	419					
Choose drilling method from drop down menu	Direct Push	Hollow Stem Auger	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	1					
Input depth of wells (ft)	28					
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)	40		40			
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips	80		15			
Input number of miles per trip	50		220			

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

Groundwater: ISB RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points	113					
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)	188					
Input number of injections per injection point	1					

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)						
Input number of trips taken						
Input number of travelers						
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	113					
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	1					
Input depth of wells (ft)	28					
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

Groundwater: ZVIR RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points	92					
Choose material type from drop down menu	ZVI	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)	1500					
Input number of injections per injection point	1					

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)						
Input number of trips taken						
Input number of travelers						
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No

DRILLING	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Input number of drilling locations	92					
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	1					
Input depth of wells (ft)	28					
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	16	32				
Input depth of wells (ft)	20	10				
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	ZVI	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)	8,000					
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Light truck	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40					
Input number of trips taken	120					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	180					
Input weight of equipment transported (tons)	3					

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	16	32				
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	4	4				
Input depth of wells (ft)	20	10				
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)	24,000					
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15					
Input number of trips taken	48					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Compressor	Blower	Blower	Blower	Blower
Choose method from drop down	Method 2	Method 2	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	118336	59168	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15	15				
Input number of trips taken	312	144				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No

DRILLING	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1
Enthusiast operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the pump selected; otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the mixer selected; otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	5	3				
Input depth of wells (ft)	20	35				
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	Gravel	HDPE Liner	Gravel	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)	2,213	52,691	52,691			
Input depth of material (ft)	35	0.007	2			

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Heavy Duty	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40	40				
Input number of trips taken	60	30				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	40	180	40	40		
Input weight of equipment transported (tons)	28	3	20	18		

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Excavator	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)	2,868	3,903				
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	5	3				
Choose drilling method from drop down menu	Hollow Stem Auger	Hollow Stem Auger	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	4	4				
Input depth of wells (ft)	20	35				
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)	52,691					
Input time available (work days)	5					

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)	40	4	40			
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips	53	1	31			
Input number of miles per trip	50	220	220			

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Containment/Long-Term Monitoring LTM

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	2	2				
Input depth of wells (ft)	20	35				
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	7	4				
Input depth of wells (ft)	20	35				
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Typical Cement	Typical Cement	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Cars	Heavy Duty	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15	40				
Input number of trips taken	152	12				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No

DRILLING	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input this event drilling at each location (ft)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1
Enthusiast operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the pump selected; otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the mixer selected; otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Heating RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Other	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40					
Input number of trips taken	340					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	100					
Input weight of equipment transported (tons)	3					

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	429					
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	1.5					
Input depth of wells (ft)	25					
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Heating RAO

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40					
Input number of trips taken	208					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 3	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	5	0	0	0	0	0
Input number of pumps operating	1	0	0	0	0	0
Input operating time for each pump (hrs)	416	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Other	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	8951830	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)		40				
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips		111				
Input number of miles per trip		220				

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: ISB RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points	550					
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)	90					
Input number of injections per injection point	1					

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40					
Input number of trips taken	200					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	100					
Input weight of equipment transported (tons)	3					

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	550					
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	1					
Input depth of wells (ft)	28					
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Steaming RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)	20,000					
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40					
Input number of trips taken	160					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Steaming RAO

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)	8,000					
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40					
Input number of trips taken	16					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Other	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 2	Method 2	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	8951830	9720	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Steaming LTM

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Other	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15					
Input number of trips taken	96					
Input number of travelers	1					
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No

DRILLING	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input total event drilling at each location (ft)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1
Enthusiast operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the pump selected; otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the mixer selected; otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Saturated Excavation RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Choose well diameter (in) from drop down menu	1/2	1/2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	Gravel	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)	52,691					
Input depth of material (ft)	9					

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40	15				
Input number of trips taken	624	208				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	20	40	20	120	20	
Input weight of equipment transported (tons)	39	1	15	16	3	

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Excavator	Loader/Backhoe	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)	38,933	38,933				
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No

DRILLING	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)	948,438					
Input time available (work days)	10					

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)	40	40				
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips	425	248				
Input number of miles per trip	50	220				

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	2.1E+06
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Full Excavation/MNA RAC

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative

Yellow cells	require the user to choose an input from a drop down menu
White cells	require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	5	3				
Input depth of wells (ft)	20	35				
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	Gravel	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)	52,691					
Input depth of material (ft)	35					

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells						
Input depth of wells (ft)						
Input well diameter (in)	1	1	1	1	1	1
Choose material from drop down menu	Soil	Soil	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Heavy Duty	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	40	15				
Input number of trips taken	1404	468				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)	20	40	80	20	220	180
Input weight of equipment transported (tons)	40	40	7	15	16	3

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Excavator	Loader/Backhoe	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)	162,037	162,037				
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
DRILLING	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Event 6**
Input number of drilling locations	5	3				
Choose drilling method from drop down menu	Hollow Stem Auger	Hollow Stem Auger	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)	4	4				
Input depth of wells (ft)	20	35				
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1	2-Stroke: 0 to 1
Equipment operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the pump selected, otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Other	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 2	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6	3 to 6
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft^2)	3,688,370					
Input time available (work days)	40					

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (Input only if known for the mixer selected, otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)	40	4	40			
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips	1435	1	837			
Input number of miles per trip	50	220	220			

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	4.7E+06
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

NAPL: Full Excavation/MNA LTM

This worksheet allows the user to define material production, transportation, equipment use, and residual handling variables for the remedial alternative
Yellow cells require the user to choose an input from a drop down menu
White cells require the user to type in a value

MATERIAL PRODUCTION

WELL MATERIALS	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	2	1				
Input depth of wells (ft)	20	35				
Choose well diameter (in) from drop down menu	2	2	1/2	1/2	1/2	1/2
Choose material type from drop down menu	PVC	PVC	PVC	PVC	PVC	PVC
Choose specific material schedule from drop down menu	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC	Schedule 40 PVC

TREATMENT CHEMICALS & MATERIALS	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input number of injection points						
Choose material type from drop down menu	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide	Hydrogen Peroxide
Input amount of material injected at each point (pounds dry mass)						
Input number of injections per injection point						

GAC	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
Input weight of GAC used (lbs)						
Choose material type from drop down menu	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC	Virgin GAC

CONSTRUCTION MATERIALS	Material 1	Material 2	Material 3	Material 4	Material 5	Material 6
Choose material type from drop down menu	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner	HDPE Liner
Input area of material (ft^2)						
Input depth of material (ft)						

WELL DECOMMISSIONING	Well Type 1	Well Type 2	Well Type 3	Well Type 4	Well Type 5	Well Type 6
Input number of wells	7	4				
Input depth of wells (ft)	20	35				
Input well diameter (in)	2	2	1	1	1	1
Choose material from drop down menu	Typical Cement	Typical Cement	Soil	Soil	Soil	Soil

TRANSPORTATION

PERSONNEL TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose vehicle type from drop down menu*	Other	Cars	Cars	Cars	Cars	Cars
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled per trip (miles)	15	40				
Input number of trips taken	152	12				
Input number of travelers	1	1				
Input estimated vehicular fuel economy (mi/gal) (Input only if known for the vehicle selected, otherwise a default will be used by the tool)						

*For vehicle type 'Other' please enter values in Table 2b in the Look Up Table tab.

PERSONNEL TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input number of travelers						
Input number of flights taken						

PERSONNEL TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Choose vehicle type from drop down menu	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail	Intercity rail
Input distance traveled (miles)						
Input number of trips taken						
Input number of travelers						

EQUIPMENT TRANSPORTATION - ROAD	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - AIR	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of equipment transported (tons)						

EQUIPMENT TRANSPORTATION - RAIL	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (miles)						
Input weight of load (tons)						

EQUIPMENT TRANSPORTATION - WATER	Trip 1	Trip 2	Trip 3	Trip 4	Trip 5	Trip 6
Input distance traveled (mile)						
Input weight of load (tons)						

EQUIPMENT USE

EARTHWORK	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose earthwork equipment type from drop down menu	Dozer	Dozer	Dozer	Dozer	Dozer	Dozer
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input volume of material to be removed (yd^3)						
Will DIESEL-run equipment be retrofitted with a particulate reduction technology?	No	No	No	No	No	No

DRILLING	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
Input number of drilling locations						
Choose drilling method from drop down menu	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push	Direct Push
Input time spent drilling at each location (hr)						
Input depth of wells (ft)						
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

For each pump, select only one of the three methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused pump columns or unused methods

PUMP OPERATION	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1

Method 1 - ELECTRICAL USAGE IS KNOWN						
Input pump electrical usage (KWh)	0	0	0	0	0	0
Method 2 - PUMP HEAD IS KNOWN						
Input flow rate (gpm)	0	0	0	0	0	0
Input total head (ft)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Pump efficiency times motor efficiency (default already present, user override possible)	0.51	0.51	0.51	0.51	0.51	0.51
Input specific gravity (default already present, user override possible)	1	1	1	1	1	1
Method 3 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input pump horsepower (hp)	0	0	0	0	0	0
Input number of pumps operating	0	0	0	0	0	0
Input operating time for each pump (hrs)	0	0	0	0	0	0
Input pump load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input pump motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

DIESEL AND GASOLINE PUMPS	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1	2-Stroke; 0 to 1
Enthusiast operating hours (hrs)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the pump selected; otherwise a default will be used by the tool)						

For each type of equipment, select only one of the methods to calculate energy and GHG emissions
Enter "0" for all user input values for unused equipment columns or unused methods

BLOWER, COMPRESSOR, MIXER, AND OTHER EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose type of equipment from drop down	Blower	Blower	Blower	Blower	Blower	Blower
Choose method from drop down	Method 1	Method 1	Method 1	Method 1	Method 1	Method 1
Method 1 - NAME PLATE SPECIFICATIONS ARE KNOWN						
Input equipment horsepower (hp)	0	0	0	0	0	0
Input number of equipments operating	0	0	0	0	0	0
Input operating time for each equipment (hrs)	0	0	0	0	0	0
Input equipment load (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Input motor efficiency (default already present, user override possible)	0.85	0.85	0.85	0.85	0.85	0.85
Method 2 - ELECTRICAL USAGE IS KNOWN						
Input equipment electrical usage, if known (KWh)	0	0	0	0	0	0
Region						
Choose region from drop down menu (scroll right to see figure)	AKGD	AKGD	AKGD	AKGD	AKGD	AKGD

GENERATORS	Generator 1	Generator 2	Generator 3	Generator 4	Generator 5	Generator 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input operating hours (hr)						

AGRICULTURAL EQUIPMENT	Tillage Tractor 1	Tillage Tractor 2	Tillage Tractor 3	Tillage Tractor 4	Tillage Tractor 5	Tillage Tractor 6
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area to till (acre)						
Choose soil condition from drop down menu	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil	Firm untilled soil
Choose soil type from drop down menu	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Clay Soil
Input time available (work days)						
Input depth of tillage (in)						

CAPPING EQUIPMENT	Equipment 1	Equipment 2	Equipment 3	Equipment 4	Equipment 5	Equipment 6
Choose stabilization equipment type from drop down menu	Roller	Roller	Roller	Roller	Roller	Roller
Choose fuel type from drop down menu	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Input area (ft)						
Input time available (work days)						

MIXING EQUIPMENT	Mixer 1	Mixer 2	Mixer 3	Mixer 4	Mixer 5	Mixer 6
Choose fuel type from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Choose horsepower range from drop down menu	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3	1 to 3
Input volume (yd^3)						
Input production rate (yd^3/hr)						
Input estimated fuel consumption rate (gal/hr) (input only if known for the mixer selected; otherwise a default will be used by the tool)						

RESIDUAL HANDLING

RESIDUE DISPOSAL/RECYCLING	Soil Residue	Residual Water	Material Residue	Other Residuals	Other Residuals	Other Residuals
Will DIESEL-run vehicles be retrofitted with a particulate reduction technology?	No	No	No	No	No	No
Input weight of the waste transported to landfill or recycling per trip (tons)						
Choose vehicle type from drop down menu	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck	On-road truck
Choose fuel used from drop down menu	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline	Gasoline
Input total number of trips						
Input number of miles per trip						

LANDFILL OPERATIONS	Operation 1	Operation 2	Operation 3	Operation 4	Operation 5	Operation 6
Input tons of soil or waste to be incinerated (user must input emission factors in the Look Up Table, Table 7a)						

THERMAL/CATALYTIC OXIDIZERS*	Oxidizer 1	Oxidizer 2	Oxidizer 3	Oxidizer 4	Oxidizer 5	Oxidizer 6
Choose oxidizer type from drop down menu	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer	Simple Thermal Oxidizer
Choose fuel type from drop down menu	natural gas	Propane	natural gas	natural gas	natural gas	natural gas
Input waste gas flow rate (scfm)						
Input time running (hours)						
Input waste gas inlet temperature (F)						
Input contaminant concentration (ppmV)						

*(Electric blowers are included in the analysis)

WATER CONSUMPTION	Treatment System 1	Treatment System 2	Treatment System 3	Treatment System 4	Treatment System 5	Treatment System 6
Input water disposed/collected during treatment (gal)						
Input water disposed/collected during site preparation (gal)						
Input water disposed/collected during sampling (gal)						
Input water disposed/collected during site demobilization (gal)						

LANDFILL METHANE EMISSIONS	Landfill 1	Landfill 2	Landfill 3	Landfill 4	Landfill 5	Landfill 6
Input landfill methane emissions (metric tons)						

OTHER KNOWN ONSITE ACTIVITIES	Entire Site
Input energy usage (MMBTU)	
Water consumption (gallon)	
Input CO_2 emission (metric ton)	
Input N_2O emission (metric ton CO_2 e)	
Input CH_4 emissions (metric ton CO_2 e)	
Input NOx emission (metric ton)	
Input SOx emission (metric ton)	
Input PM_{10} emission (metric ton)	
Input fatality risk	
Input injury risk	

Appendix G. Responses to Comments on Draft and Draft Final Feasibility Study Report

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009				
1	--	General	The Draft Feasibility Study for Parcel E (the FS) indicates throughout the document that various components were not provided in the FS, but that these missing plans, performance standards, or details would "be developed in the RD [Remedial Design Report] if this alternative is selected," but the FS should include sufficient detail to support selection of a remedy in the Proposed Plan and associated Record of Decision (ROD). Without fully established remedial options, it is unclear how an appropriate assessment of remedial alternatives can be completed. The lack of fully developed remedial alternatives impacts both remedy assessment and development of the associated remedial costs. For example, the performance standards for the engineered covers have not been established and will not be selected until the remedial design phase. As such, selection of a preferred alternative based on the information currently included in the FS would be unsubstantiated. Please revise the FS to either specify each design component in the development of alternatives, or develop a broader range of alternatives or subfeatures to allow for all potential alternatives.	The Draft Final FS Report was revised to include a new table in Section 4 that (1) identifies various components of the remedial alternatives that may require further development in the remedial design (RD) and (2) provides a basis of determination that the remedial alternatives are adequately developed to support an informed risk management decision using evaluation criteria from the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Regarding the establishment of performance standards for engineered covers, the Navy agrees that such performance standards for engineered covers (such as the need to minimize infiltration) must be adequately detailed in the FS conceptual design, and believes that the potential applicable or relevant and appropriate requirements (ARARs) identified in the FS Report adequately specify the pertinent performance standards. To address this issue, the Navy revised Sections 3.3.2.1.7 and 3.3.2.3.7 to include tables that specify which performance standards apply to individual types of covers. With the update to the performance standards for engineered covers described above, the Navy believes that the remedial alternatives are adequately developed to support an informed risk management decision using the NCP evaluation criteria.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
2	--	General	During the review of the FS, it was noted that several aspects of the proposed remedial options were not discussed in detail in the text, but were only referenced/mentioned in Appendix D, Remedial Alternatives Cost Estimates. For example, three of the proposed alternatives (S-3, S-4, and S-5) for soil and sediment remediation require excavation of hot spots and exceedance locations. However, Section 4.2, Description of Soil and Sediment Remedial Alternatives, does not include a discussion of confirmation sampling upon completion of excavation. Yet, in Appendix D, confirmation sampling costs are provided. Information such as the number of confirmation samples, sample methodology, and laboratory analysis should be included in the text of the FS. Please review the proposed remedial alternatives and revise the FS as necessary to include text descriptions of each aspect of the remedial component costed.	Section 4.2 of the Draft FS Report clarifies that detailed confirmation sampling plans will be developed in the RD. The Navy believes that it is appropriate to defer the specific details for confirmation sampling plans because, while this component has a high degree of uncertainty, the cost of this effort is insignificant relative to other components, most notably excavation and off-site disposal. The Navy believes that the available information is adequate to support an evaluation relative to the NCP evaluation criteria, and the Navy does not agree with EPA's request to specify the number of confirmation samples, sample methodology, and laboratory analysis in the text of the FS Report. The information in Appendix D is provided to support a complete cost estimate that meets the accuracy prescribed in EPA guidance (+50/-30 percent) (EPA, 2000). Inclusion of these details in the text of the FS Report would imply a higher degree of certainty with regards to the confirmation sampling approach than actually exists. Regardless, the uncertainty related to the confirmation sampling approach does not affect the prescribed accuracy of the cost estimates for Alternatives S-3, S-4, and S-5. No change was made to the document in response to this comment. However, it should be noted that the Navy plans to perform additional characterization at the hot spots and exceedance locations (now referred to as Tier 1 and Tier 2 locations, respectively) prior to the RD, and the additional data will support more detailed excavation and confirmation sampling plans (to be provided in the RD).
3	--	General	The redevelopment plan for Hunters Point Shipyard specifies reasonably anticipated uses. In order to properly assess what land use controls are appropriate at each site, irrespective of the anticipated use, the Navy should discuss the allowable end uses for each alternative. For example, certain remedies specified in the FS may remediate industrial areas to the point at which they are safe for mixed use.	The Navy has consistently evaluated remedial alternatives to support reasonably anticipated uses, and does not agree with the request to evaluate remedial alternatives "irrespective of the anticipated use." The Navy understands that EPA's request is intended to optimize institutional controls at individual locations at Parcel E; however, in proposing institutional controls, the Navy must ensure that the institutional controls can be readily implemented (through regular inspection, reporting, and enforcement). As such, the Navy has proposed uniform institutional controls within each redevelopment block at Parcel E. The Navy believes that this approach is adequate to develop remedial alternatives that will be evaluated relative to the NCP evaluation criteria to support an informed risk management decision.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
4	--	General	Several tables throughout the FS present an exposure matrix summarizing the resident, industrial worker, recreational user and construction worker receptor pathways; however, the matrix does not clarify how the resident and recreational user exposure pathways differ and if the recreational user includes child receptors. Please revise the applicable tables to include a more detailed description of what the recreational user exposure pathway assessed and clarify whether child receptors are included in the recreational user assessment.	Section 2.5.1 includes two tables that list the chemicals of concern (COCs) in soil and groundwater, as identified in the human health risk assessment (HHRA) for Parcel E. The text and associated tables in Section 2.5.1 are intended to briefly summarize the HHRA findings and refer to the detailed information in the Revised Remedial Investigation (RI) Report for Parcel E (Barajas and Associates, 2008). Footnote "a" within the subject tables in Section 2.5.1 was revised to specify that the following: "The exposure scenarios evaluated in the Revised RI Report (Barajas and Associates, 2008) were based on the methodology developed by the Navy in 2003 and 2004, in consultation with EPA, DTSC, and RWQCB."
5	--	General	The FS does not present a risk-based rationale for proposed excavation of only the hot spots (concentrations at 10 times or greater than the remediation goals) and exceedance locations (concentrations at 5 times or greater than the remediation goals), or the basis for their development. Without presentation of the supporting rationale, it is difficult to completely understand the overall objective of the soil excavation, as it appears that the RAOs are not being achieved throughout each area of interest. Please revise the FS to present the rationale for the proposed limited excavation of hot spots and exceedance locations to ensure that the criteria are applied consistently throughout each area of interest. Further, it is unclear what the resulting risk will be once these proposed levels are achieved. Please also revise the FS to indicate what the residual risk will be as a result of the proposed excavations.	The Navy revised the FS Report to better describe the connection between risk-based remedial goals (RGs) and cleanup goals for hot spots and exceedance locations (now referred to as Tier 1 and Tier 2 locations, respectively). The following items describe the Navy's rationale. ▪ Section 3.1.1.3 of the Draft FS Report specifies that the RGs were based primarily on risk-based concentrations (RBCs) that equate to a target cancer risk level of 1E-06 and a target noncancer hazard index (HI) of 1. ▪ For example, the proposed removal of Aroclor-1260 concentrations in redevelopment blocks with industrial reuse would equate to the following risk levels: • RBC for Aroclor-1260 (1.0 milligrams per kilogram [mg/kg]) equates to a cancer risk of 1E-06 • Removal of Aroclor-1260 Tier 1 locations (with concentrations greater than 10 mg/kg) would reduce cancer risk to 1E-05 • Removal of Aroclor-1260 Tier 2 locations (with concentrations greater than 5 mg/kg) would reduce cancer risk to 5E-06 ▪ For select COCs, RGs were identified based on the laboratory practical quantitation limit or the Hunters Point ambient level, if those values were greater than the RBC. ▪ Arsenic and benzo(a)pyrene are the primary chemicals driving Tier 1 and Tier 2 locations with RGs that are not based on RBCs

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
5 *(cont.)*	--	General	*(see above)*	▪ The removal of Tier 1 and Tier 2 locations targets those soil areas posing the most substantial risk to humans and ensures that residual risk is within the risk management range specified in the NCP (10^{-4} to 10^{-6}) In addition, covers are proposed throughout Parcel E to prevent exposure to chemicals that pose a lower overall risk, including trace metals that are present in fill throughout HPS, thereby satisfying the remedial action objectives (RAOs).
6	--	General	The Navy should consider mapping soil contamination based on cumulative risk using appropriate exposure units. This information could be used as an alternative to the "hotspots" and "exceedances" approach for deciding which areas require excavation and would have a more transparent tie to risk.	The HHRA included an exposure scenario evaluating residential exposures throughout Parcel E, and determined that no Parcel E areas are suitable for unrestricted reuse without some form of remedial action. The Navy evaluated the planned reuse for Parcel E, as detailed in the amended redevelopment plan (San Francisco Redevelopment Agency [SFRA], 2010b), as the primary basis for evaluating a range of options needed to protect human health and the environment. Based on the available site data and HHRA findings, the Navy determined that containment and institutional controls, to be supplemented by focused removal of Tier 1 and Tier 2 locations, are the most viable options for addressing risks in soil at Parcel E. Based on working meetings with EPA staff, the Navy understands that the reference to “cumulative risk using appropriate exposure units” was not intended to suggest that soil excavations should be based on cumulative risk results within exposure units from the HHRA (0.5 acre or 2,500 square feet). The potential excavations at Tier 1 and Tier 2 locations are based on previous samples that were collected as part of multiple biased sampling programs during previous investigations and that contain chemicals at concentrations exceeding risk-based criteria. Covers and institutional controls are proposed to address remaining chemical concentrations in soil (with corresponding risk that is within the risk management range specified in the NCP [10^{-4} to 10^{-6}]). No change was made to the document in response to this comment.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009				
7	--	General	The Navy should retain for detailed analysis a soil alternative to excavate all soil above the risk-based cleanup goals in addition to the excavation alternatives proposed. Section 3.3.2.1.3 discusses why the Navy did not consider this alternative. However, for transparency, this alternative should be evaluated based on the nine criteria.	The Navy does not agree that a detailed evaluation of such an alternative is warranted, and believes that the streamlined set of remedial alternatives presented in the Draft FS Report, consistent with the streamlining approach outlined in the NCP (pp. 8704-8705 of NCP Preamble), is the most appropriate path forward for Parcel E. However, to better support the streamlining of the remedial alternatives, the Navy revised Section 3.3.2.1.3 (renumbered as Section 3.3.2.1.5 in the Draft Final FS Report) to more thoroughly evaluate (relative to effectiveness, implementability, and cost) the process option involving excavation and off-site disposal of all soil with chemical concentrations exceeding risk-based cleanup goals.
8	--	General	The list of remedial action objectives (RAOs) are too detailed and lengthy, which may lead to confusion. Each media, i.e., soil, sediment, should have two RAOs at the most, one for the human health and one for the environment. The RAOs should be made more general in order to best summarize the objectives in a meaningful way. For example, the soil RAO could be limited to preventing "ingestion of, outdoor inhalation of, and dermal exposure to soil with concentrations of COCs above the remedial goals specified for each user."	The RAOs are consistent with those presented in records of decision for other HPS parcels, and the Navy desires to maintain consistency between various FS reports at HPS. No change was made to the document in response to this comment.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA) Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
9	--	General	The FS states that the potential exists for contaminated groundwater to migrate into the San Francisco Bay and affect surface water. This statement demonstrates the need to protect, at a minimum, recreational users via development of an appropriate RAO for surface water and groundwater consistent with reasonably anticipated exposures. Please revise the applicable sections of the FS to include an RAO which addresses the potential exposure pathways associated with human contact with the surface water that receives groundwater from Parcel E.	As discussed in the response to EPA comment 8, the RAOs are consistent with those presented in FS reports for other HPS parcels that have been concurred upon by the regulatory agencies. RAOs were developed to address the on-site exposure pathways with potential unacceptable risk, based on the recommendations of the risk assessments in the Final Revised RI for Parcel E (Barajas and Associates, Inc., 2008b) and the risk evaluation provided in Appendix A of the Draft FS Report. Specifically, Appendix A of the Draft FS Report concluded that groundwater concentrations in select areas near the Parcel E shoreline posed a potential risk to aquatic wildlife, thereby requiring development of an RAO to address this pathway. RAOs are not required to address off-site exposure pathways (such as, human contact with surface water in San Francisco Bay). In addition, based on the Parcel F risk assessment, potential human exposure to chemicals in the offshore property was adequately addressed through evaluation of two exposure pathways: (1) direct contact with offshore sediments, and (2) ingestion of shellfish (Barajas and Associates, Inc., 2008a). No change was made to the document in response to this comment.
10	--	General	The evaluation of alternatives for the IR-02 metals plume requires further discussion. The Navy discusses ICs, monitoring, and containment; however, there is no mention of source control for this plume. Some of the proposed excavation areas already correspond with the areal footprint of the IR-02 metals plume, but there is no direct discussion of using excavation as a tool for addressing soil sources to groundwater. If the areal extent of the soil source is too large or not corresponding to the plume footprint, that information should be included in a source control discussion to support the necessity of a slurry wall. Please revise the FS to include a more comprehensive evaluation of remediation for the IR-02 metals plume.	The Navy revised Sections 4.2.3.1 and 4.2.4.1 of the Draft Final FS Report to describe past and future source control measures at Installation Restoration (IR) Site 02 Northwest relative to the decision (presented in Section 4.3.3.1) to include groundwater containment as part of the remedial alternatives.
11	--	General	The Soil Alternatives are limiting because they building on each other rather than weighing all of the options. For example, shoreline revetment is carried through in every alternative except the no action alternative; which leads to no	The remedial alternatives developed for Parcel E are generally consistent with those developed in FS reports for other HPS parcels, and the Navy desires to maintain consistency between various FS reports at HPS. In addition, the remedial alternatives were streamlined in accordance with the NCP (pp. 8704-

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
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Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
11 *(cont.)*	--	General	evaluation of whether or not it is independently necessary. Also, SVE is only mentioned in one of the alternatives and it's not clear why. Since shoreline revetment and SVE address issues that are independent of the general soil remedies, they should be evaluated independently.	8705 of NCP Preamble). Section 3.3.2.1 was revised to discuss the site conditions that support focusing the remedial alternatives for soil gas and shoreline sediment. In addition, the Navy developed a new appendix to evaluate various shoreline protection options for Parcel E. Also, Section 4.2 was revised to briefly summarize the rationale for focusing the remedial alternatives for soil gas and shoreline sediment and integrating them into the remedial alternatives for soil.
12	--	General	Preserving the natural shoreline at Parcel E is a concern for both the regulators and community. The FS discussion and evaluation of the General Response Actions (GRAs) indicates that during the screening process, Shoreline Stabilization Structures and Shoreline Nourishment were not carried forth for detailed analysis as options for erosion control. However, the brief explanation provided in Section 3.3.2.1.5 does not provide enough information to support that these alternatives to revetment are not viable. This is particularly true for the Shoreline Stabilization Structures alternative which is proposed in the FS for the Parcel E-2 Shoreline, which is adjacent to the Parcel E shoreline. In the next revision of the FS all shoreline alternatives should be weighed against the nine criteria in a detailed analysis, which should include the standards that will be used to measure viability.	While the Navy recognizes the desire for natural shoreline options, this must be balanced with the need to develop effective shoreline remedial options that are cost effective and implementable given the site conditions at Parcel E. The Parcel E shoreline and adjoining portions of IR Site 02 and IR Site 03 contain both chemical and radiological contaminants that would, based on the Navy's current analysis, need to be either removed or appropriately contained. The Navy revised the Draft Final FS Report to include a new appendix that supplements the information provided in Section 3.3.2.1.5 (renumbered as Section 3.3.2.1.7 in the Draft Final FS Report) by (1) evaluating several options for natural or hybrid stabilization structures, and (2) identifying the most promising natural or hybrid stabilization option to be used in combination with the shoreline revetment option presented in the Draft FS Report. As discussed in the response to EPA comment 11, the Navy does not agree with the suggestion that individual shoreline protection options be evaluated independent of the general soil remedies because site conditions do not support development of a wide range of remedial alternatives for shoreline sediment. Sections 3.3.2.1.5 (renumbered as Section 3.3.2.1.7 in the Draft Final FS Report) and 4.1 were revised to briefly summarize the rationale for focusing the remedial alternatives for shoreline sediment and integrating them into the remedial alternatives for soil.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
13	--	General	In an effort to prepare a workable ROD based on the information provided in this FS, cost estimates need to be included for all viable options. Please revise Appendix D to include cost estimates for each of the remedies deemed viable or at the very least, explain why the costed alternatives would also be representative of the non-costed alternatives for the purposes of the detailed FS evaluation.	The Navy does not agree with the recommendation that detailed cost estimates be prepared for each viable process option. Consistent with the NCP and EPA RI/FS guidance (EPA, 1988), the Navy developed remedial alternatives by combining various process options that were retained following a screening-level analysis based on effectiveness, implementability, and cost. Detailed cost estimates were developed for these remedial alternatives to support an evaluation relative to one of the NCP evaluation criteria. No change was made to the document in response to this comment.
14	--	General	For groundwater monitoring of plumes that are not an ecological concern, there is no discussion of monitoring results that would trigger a response action. This is particularly of concern for areas where vapor intrusion may be an issue. The FS should include a strategy for dealing with significant exceedances in groundwater during long term monitoring.	The Navy believes that adequate information is provided in the FS Report to support an evaluation of groundwater monitoring as a component of the groundwater remedial alternatives. Specifically, the FS Report proposes groundwater monitoring at plumes that pose a potential risk to humans, as identified in the Revised RI Report. The objectives of the groundwater monitoring, as discussed in Section 4.3.2.2, are: ▪ Monitoring for the migration of COCs and chemical of ecological concern (COECs) into previously uncontaminated areas and toward the bay ▪ Monitoring for changes in concentrations within the plumes ▪ Monitoring concentrations in and near individual wells where the HHRA identified unacceptable risk ▪ Monitoring to verify the results of the trigger-level attenuation models In addition, Appendix C provides a conceptual approach for groundwater monitoring, including a specific monitoring strategy at plumes that pose a vapor intrusion risk (Section C3, pages C-6 and C-7). Appendix C is consistent with similar documents developed in FS reports for other HPS parcels, and the Navy desires to maintain consistency between various FS reports at HPS. No change was made to the document in response to this comment.

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Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
15	--	General	Monitored natural attenuation (MNA) was retained as a groundwater remedial alternative, but documentation that MNA is occurring at those sites for which it has been proposed was not provided. Please revise the FS to clarify that the retained MNA remedial alternatives are supported by the measure of biological activity specified in the Office of Solid Waste and Emergency Response (OWSER) Directive 9200.4-17P and also acknowledge that depending on the results presented, unenhanced MNA may not be a viable alternative.	Monitored natural attenuation (MNA) was retained for use in conjunction with other process options. Section 3.3.2.2.5 states that "MNA would not be sufficiently effective as a single response action to achieve the RAOs. However, if institutional controls are implemented and other response actions are undertaken to reduce contamination in the source area, MNA would likely be an effective tool for monitoring residual groundwater impacts." The pertinent portions of Section 4 were revised to clarify that remedial alternatives that use MNA must demonstrate long-term biological degradation through site data or incorporate enhanced MNA.
16	--	General	The basis for the assumed radius of influences (ROIs) for groundwater alternatives that involve in-situ treatment is unclear. Please revise the FS to include a discussion of the basis for the ROIs, including all assumed or measured subsurface groundwater/soil properties used to assess/estimate ROI.	The pertinent portions of Section 4 were revised to (1) clarify the basis for the assumed radius of influence for various treatment technologies and (2) identify additional studies that may be required to refine these assumptions.
17	--	General	Rationale to support the timeframes established for the groundwater remedial alternatives has not been provided. For example, it is unclear why remediation activities will be completed in less than 30 years under Alternative GW-2. Further, it is unclear if the associated design and cost considerations have been appropriately based and/or assumed. Please revise the FS to provide rationale to support the timeframes established for each remedial alternative proposed and clarify the basis for the associated design and cost considerations.	The Navy believes that adequate information is provided in the FS Report to support an evaluation of various groundwater treatment technologies as components of the groundwater remedial alternatives. The assumptions used in this FS Report are generally consistent with those presented in FS reports for other HPS, and the Navy desires to maintain consistency between various FS reports at HPS. The assumptions are based on professional judgment and past experience, including treatability studies at other HPS parcels. Although past experience is useful in estimating approximate timeframes to achieve intermediate remediation endpoints, limited information is available to support definitive judgment on the absolute timeframes required to achieve final remediation endpoints. In the absence of such information, it is generally accepted that a 30-year period for long-term monitoring is adequate to support an FS. Section 4.3 was revised to clarify that intermediate remediation endpoints will be determined by the Navy and the regulatory agencies during the RD.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
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Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
18	--	General	It is unclear if the number and locations of monitoring wells, air sparging wells, vapor extraction wells and confirmation samples associated with remedial alternatives are appropriate to remediate contaminant impacted groundwater and soils. Details regarding the number and placement of remedial alternative components are provided in Appendix D (Remedial Alternatives Cost Estimates); however, supporting details that there are a sufficient number of these components to remediate the contaminant impacted groundwater and soils is not presented. Please revise the FS to clarify how the number and locations of remedial alternative components are sufficient to remediate contaminant impacted groundwater and soils.	Please refer to the responses to EPA comments 1, 2, 14, and 17. The Navy believes that adequate information is provided in the FS Report to support an evaluation of various remedial alternatives. No change was made to the document in response to this comment.
19	--	General	Section 2.1.3.4, Treatability Studies, refers to performing treatability studies in 2009, but does not present figures that show the locations and limits of these treatability studies to allow for a complete understanding of how they have impacted site constituents and could impact any remedial alternatives being considered. Please revise the FS to include a more detailed discussion of all previously performed and current remedial assessment/treatability studies. Additionally, the FS states results of these studies will be incorporated into the Final FS, if available. This information and additional data gathered during the treatability studies could impact the decision-making of the proposed remedial alternatives and subsequent ROD. Please consider delaying submission of the Final FS until the results of the referenced Treatability Studies are available.	The Draft Final FS Report was revised to include the available data from the treatability studies at various Parcel E sites. In particular, baseline characterization data at the volatile organic compound (VOC) plumes at IR Site 04, IR Site 12, IR Site 36 South, and IR Site 56 are presented in the Draft Final FS Report to refine the estimated plume areas requiring treatment. Complete post-treatability study data are not available for inclusion in the Draft Final FS Report; however, the Navy believes that available information from past treatability studies at other HPS parcels is adequate to support reasonable assumptions in the FS Report for Parcel E. Post-treatability study data not available during the issuance of the FS will be used, as appropriate, in the RD.

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Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
20	--	General	The FS is missing a discussion of sites with VOCs in soil gas and possible vapor intrusion risks. Please incorporate the soil gas data collected during the Treatability Study characterization effort in the next revision of this FS.	Section 2 was revised to (1) clarify that the VOC plumes, as identified in the Revised RI Report, pose a potential vapor intrusion risk; (2) clarify that soil gas data from the Parcel E treatability study identified elevated concentrations of VOCs at several locations under Building 406; and (3) note that the Navy plans to implement a parcel-wide soil gas investigation to identify additional areas that may pose unacceptable risks from vapor intrusion and to refine the VOC area requiring institutional controls (ARIC).
21	--	General	The FS indicates that the total TPH criterion range was derived based on HPS-specific methodology under the petroleum program and cites a study conducted by Shaw Environmental (Shaw 2007). However, the basis of this range has not been presented to substantiate that the range of 1,400 to 20,000 ug/L total TPH is protective of marine ecological receptors. To ensure that the protectiveness of this range of values is supported, a brief summary of the origin of the criterion and the different attenuation factors (AFs) that were applied to the original criterion must be included in the FS. It should be noted that FS states that the ecological protective criteria used in the FS primarily were based on promulgated and recommended values for protection of saltwater aquatic life, however, the four primary sources cited in Attachment A, page A-4 in Appendix A, did not include criteria for the TPH categories or the total sum of TPH constituents. Rather, a statement is made that for TPH the criterion was established based on a study by Shaw (2007) without further detail on the criterion derivation. Further, it is understood that the AFs applied to the total TPH criterion range were based on information from Parcel D, however, it is not explained how Parcel D AFs are applicable and appropriate to Parcel E. Thus, at a minimum, a brief summary on how the total TPH criterion was developed should be included in the FS to substantiate the protectiveness of the proposed remedial alternatives.	Petroleum hydrocarbons are not regulated hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); therefore, all criteria for total petroleum hydrocarbons (TPH) have been established under the HPS petroleum program. These criteria were developed in consultation with the Regional Water Quality Control Board (the lead regulatory agency for petroleum-related cleanup at HPS), and were the result of applying both scientific data and professional judgment (Shaw Environmental, Inc. 2007). As a result, the methodology for developing this criterion is not able to be concisely summarized, and it is not necessary to burden a CERCLA FS report with a detailed narrative that is already readily available in the administrative record. No change was made to the document in response to this comment.

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Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
22	--	General	This FS indicates that it addresses only CERCLA-regulated chemicals that are not radioactive. As a result, a radiological addendum to the FS is being prepared, but both chemical and radiological contaminants will be addressed together in the Proposed Plan. The FS needs to present a process that will allow for an assessment of the compatibility of the radiological contaminant remedial technologies and the non-radiological contaminant technologies to assess their synergies and compatibilities. Please revise the FS to discuss how this process will occur so that the Proposed Plan can be appropriately prepared and substantiated.	The Navy aligned the schedules for the FS Report and Radiological Addendum to ensure the compatibility of various remediation technologies. For example, the Navy closely reviewed cover options to ensure that protectiveness (for both radioactive and nonradioactive contamination) is maintained.
23	--	General	For the Aquatic Evaluation in Appendix A, a significant number of the pesticide results for groundwater are non-detect with detection limits exceeding the screening criteria in Table A-I. This issue also occurs for Aroclors (1221, 1242, 1254,and 1260). The Navy must include either direct discussion explaining why current analytical methods do not allow for reporting limits below the screening criteria or propose further monitoring in these areas.	The purpose of the aquatic evaluation in Appendix A is to evaluate all available data to identify the potential for risk to San Francisco Bay from the most prevalent chemicals in groundwater. The possibility exists that the presence of some chemicals may have not been identified by the ongoing groundwater monitoring program because some sample reporting limits exceeded certain chemical-specific RGs. However, the lowest achievable reporting limits (at the time the samples were collected) were used for all chemical analyses; thus, the most stringent evaluation of the extent of chemicals was conducted. Also, as stated in Appendix A, conservative assumptions are incorporated into the aquatic evaluation methodology. These assumptions compensate for many of the unknowns associated with this type of evaluation. Generally, the available data are adequate for the purpose of identifying remedial alternatives to address groundwater impacts to the bay. This issue is described further in the introductory sections of Appendix A of the Draft Final FS Report.
24	--	Table ES-l	Groundwater Plumes Identified During RI at Parcel E, Page 1: Several of the plumes presented in this table only list one identifying well (e.g., IR-05 Metals Plume and IR-02 Central Nickel Plume). It is unclear how data from one well was used to determine the presence of a plume and delineate the extent of contamination. Please revise the table and text to include an explanation of how the data was interpreted and the plumes were defined, including any assumptions or calculations.	The available information on groundwater characterization is described in Section 4.3 of the Revised RI Report (Barajas and Associates, Inc., 2008b), and does not need to be detailed in the Executive Summary to the FS Report. No change was made to the document in response to this comment.

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Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
25	Pages ES-4 and 2-23	ES and Section 2.3.3	The text states the groundwater plumes were manually adjusted using recent groundwater monitoring results and professional judgment. Please revise the text to include a discussion of how the data was interpolated.	As identified on Figure 2-5 and described in Section 2.3.3.2, the Navy made two minor adjustments to the VOC plume boundaries that involved extending the VOC plume boundary to capture several monitoring wells where recent data exceeded the RI screening criteria. Because the adjustments were minor, the Navy does not believe that any additional explanation is required in either the Executive Summary or Section 2. No change was made to the document in response to this comment.
26	Page ES-5	ES	This table provides chemicals of concern (COCs) for industrial, recreational, residential, and construction worker receptors. It is unclear why some of the chemical lists vary. For example, several of the COCs listed for the industrial exposure receptors are not included for the recreational receptors. Similarly, some of the COCs listed for recreational receptors (e.g., dioxins and individual polychlorinated biphenyls [PCBs]) are not included for residential receptors. The text does not explain why the chemical risks are different for the receptor groups. Please revise the FS to include this information.	The requested information is adequately detailed in Section 5.1 and Appendix I of the Revised RI Report for Parcel E (Barajas and Associates, Inc., 2008b), and does not need to be repeated in the FS Report. The level of detail provided in the FS Report is consistent with FS reports for other HPS parcels, and the Navy desires to maintain consistency between various FS reports at HPS. No change was made to the document in response to this comment.
27	Page 2-3	Section 2.1.2	The last paragraph states "IR-40 consists of two reinforced concrete structures, Pier 2 and Building 527 (former electrical substation), that directly overlie San Francisco Bay; because IR-40 does not contain any soil or groundwater, it is not evaluated in this report." Since this site is radiologically impacted, it needs to be addressed in an FS, Proposed Plan and Record of Decision. Please revise the text to explain the parcel and document that will address the radiological contamination at IR-40.	The FS Report was revised to clarify that potential radioactive contamination at Pier 2 and Building 527 is addressed in the radiological addendum to the FS Report for Parcel E.
28	Page 2-7	Section 2.1.3.4	Some of the sites listed for the 2009 Groundwater Treatability Study will not receive Zero Valent Iron injections, so the text should be updated in the next version of the FS. Please make this change.	The FS Report was revised to include available information on the zero-valent iron (ZVI) injections for the Parcel E treatability study.

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29	Page 2-7	Section 2.1.3.4	If no soil samples were collected after the SVE treatability study, what is the basis for the statement that the study "removed most of the TCE from soil?"	Section 2.1.3.4 was revised to remove the subject statement and clarify that additional investigation was recommended to further characterize the extent of residual trichloroethene (TCE) in vadose zone soil at Building 406. Section 2.1.3.4 was also revised to discuss the results of the recent groundwater treatability study (see the response to comment 20 above).
30	Pages 2-14 and 2-15	Section 2.2.7.3	The text briefly discusses the minimization of the groundwater depression, but conditions have continued to change since the March 2008 description included in the text. Since having an accurate understanding of the groundwater flow directions and gradients is necessary for remedy selection, please revise the description of groundwater flow directions and gradients in Parcel E in the next version of the FS.	The FS Report was revised to update the description of the groundwater flow directions and gradients in the A-aquifer.
31	Pages 2-17 - 2-26	Section 2.3	The discussion of the nature and extent of soil contamination references Table 2-5, which generally discusses areas of elevated COCs in soil; however, this section should refer readers to the figures in Section 4 that show the nature and extent of contamination above the remedial goals.	The FS Report was revised to refer to the figures presented in Section 4, and it was also revised to refer to pertinent figures in the Revised RI Report (which provide more specific information on the nature and extent of chemicals in soil).
32	Page 2-17	Section 2.3.1	The bulleted summary of the groundwater plumes and contaminants at the bottom of Page 2-17 in Section 2.3.1 does not include all of the contaminants identified in the Parcel E Remedial Investigation (RI). For example, the following items were identified in the RI and not discussed in the FS: a. Arsenic was identified in IR-02 and IR-03 on page 4-160 of the Parcel E RI. b. Vinyl chloride and naphthalene were identified in IR-02 Northwest on page 4143 of the Parcel E RI. c. 1,4-:dichlorobenzene, vinyl chloride, and naphthalene were identified in IR-03 on page 4-166. Please discuss/include all of the contaminants identified in the Parcel E RI in the text of the FS or explain why they were excluded.	Section 2.3.1 summarizes the groundwater plumes identified in the Revised RI Report for further evaluation in the FS and does not discuss every individual location where screening criteria were exceeded. Sections 4 and 6 of the Revised RI Report provide adequate information to support the delineation of the groundwater plumes that were further evaluated in the FS Report (Barajas & Associates, Inc., 2008b). No change was made to the document in response to this comment.

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33	Page 2-24	Section 2.3.3.1	The areal extent of the IR-02 Southeast metals plume illustrated on Figure 2-4, Updated Plume Delineations for Metals, extends beyond the area removed during the Time Critical Removal Action at the Metal Debris Reef as indicated on Figure 2-1, Site Features Map. Therefore the monitoring of more than one well (IR02MW301A) within the historic plume area may be necessary to support the assumption that the IR-02 Southeast Metals Plume has been attenuated. Please revise the FS to include the installation of further monitoring wells in and around the historic plume area of the IR-02 Southeast Metals Plume and the continued monitoring of IR02MW301A to evaluate attenuation of the metal plume.	The Navy has continued to collect data from well IR02MW301A and nearby well IR01MW175A. The Navy believes that the existing data, collected through October 2009, are adequate to conclude that groundwater conditions in this area do not pose a risk to aquatic wildlife in San Francisco Bay. This conclusion is based on the following points: 1. The plume depicted in the Revised RI Report was based on copper and zinc exceedances at well IR01MW300A, which was decommissioned prior to the removal action. 2. Groundwater monitoring performed at well IR02MW175A, located about 200 feet northwest of IRMW300A, has consisted of 16 sampling rounds (from 1992 to 2009), and no copper or zinc concentrations reported during this period exceeded the corresponding surface water criteria. 3. Eleven consecutive quarters of groundwater monitoring performed at well IR02MW301A, located less than 50 feet north of IR01MW300A, did not detect either copper or zinc at concentrations exceeding the corresponding surface water criteria. The FS Report was revised to include the additional groundwater data in this area since the issuance of the Draft FS Report (groundwater data through June 2008 were included in the Draft FS Report).

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34	Pages 2-24 and 2-25	Section 2.3.3.2	The assumption that the extent (delineation) of the RI volatile organic compound (VOC) plumes has not changed may not be valid because the groundwater flow directions and gradients have changed since the Parcel A sewage lift station was shut down. Some additional data is available from the 2009 Groundwater Treatability Study field delineation effort; this data should be used to evaluate whether the plumes have migrated. For plumes not included in this 2009 effort, groundwater flow directions and gradients from 2009 groundwater elevation measurements should be compared to those from the RI. If the flow directions and/or gradients have changed, it should be assumed that the plume delineation may not be the same. In addition, since the sanitary sewer system was essentially acting as a horizontal extraction well system, rebound of VOCs may occur in some areas. Please rewrite this section to consider 2009 data and the potential for rebound.	As discussed in the response to EPA comment 19, the Draft Final FS Report was revised to include available data from the treatability studies at various Parcel E sites. In particular, baseline characterization data at the VOC plumes at IR Site 04, IR Site 12, IR Site 36 South, and IR Site 56 are presented in the Draft Final FS Report to refine the estimated plume areas requiring further evaluation in the FS.
35	Page 2-29	Section 2.5.1.1	The first sentence in paragraph 2 states that there are no "toxicity criteria" currently available for lead; however, the sentence goes on to state that lead EPCs were compared to "HPS-specific risk based concentrations." It is unclear how that Navy could have risk based concentrations if no toxicity criteria are available.	Appendix I of the Revised RI Report (Section I7.4 and Attachment I6) details the methodology used to evaluate lead and develop RBCs using blood lead modeling. The statement provided in Section 2.5.1.1 is consistent with the summary provided in Section 5.1.2 of the Revised RI Report; as discussed above, more specific details regarding the evaluation methodology for lead are presented in Section I7.4 and Attachment I6 of the Revised RI Report (Barajas & Associates, Inc., 2008b).
36	Page 2-30	Section 2.5.1.1	The Navy should include a figure to show which soil grids exceeded the cancer risk threshold and non-cancer threshold.	The HHRA results from the Revised RI Report cannot be presented on a single figure. The Revised RI Report presented six separate figures (Figures 5-2 through 5-7, which were on large 18-inch by 24-inch drawings) to depict the HHRA results (Barajas & Associates, Inc., 2008b). The Navy believes that the text and tables in Section 2.5.1.1 adequately summarize the HHRA results, and does not agree that additional figures are required. However, Section 2.5.1.1 was revised to cite the specific figures in the Revised RI Report that present the HHRA results (Figures 5-2 through 5-7).

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37	Page 2-35	Section 2.5.2.3	Please define the groundwater/surface water interface in the context of using the surface water quality criteria.	The subject text pertains to the Navy's evaluation of groundwater; therefore, a definition of the groundwater/surface water interface in the context of applying the surface water criteria directly to groundwater would contradict the intent of the Navy's strategy. Specifically, the surface water criteria apply to surface water only (at the interface with A-aquifer groundwater), and the trigger levels were established as conservative comparison values for groundwater. The information provided in Section 2.5.2.3 is consistent with the information provided in FS reports for other HPS parcels, and the Navy desires to maintain consistency between various FS reports at HPS. No change was made to the document in response to this comment.
38	--	Table 2-2	Please explain asterisk in footnotes.	Table 2-2 was revised to explain that the asterisk identifies estimated areas of certain buildings; the information presented in this table is consistent with Table 3-1 from the Revised RI Report (Barajas & Associates, Inc., 2008b).
39	Page 3-7	Section 3.1.3.1	The second bullet item presents an RAO to protect or minimize exposure of construction workers to VOCs in the A-aquifer groundwater by dermal exposure and inhalation of vapors with chemicals exceeding remedial goals. The groundwater RAO should also address recreational users. Please revise the RAO to include recreational users who may come in contact with A-aquifer groundwater by dermal exposure.	Please refer to the response to EPA comment 9. No change was made to the document in response to this comment.
40	Page 3-29	Section 3.3.2.1.2	The Land Use controls should be based on risk at the site rather than intended future reuse.	Please refer to the response to EPA comment 3. Further, the Navy wishes to clarify that the HHRA was designed to estimates risks associated with the reasonably anticipated future use. No change was made to the document in response to this comment.
41	Page 3-31	Section 3.3.2.1.3	The last sentence of the first full paragraph on this page is unclear. It discusses "the total volume of material removed at the four removal action areas at Parcels E and E-2," but then only lists the "Metal Slag Area and PCB Hot Spot Area." Please add Metal Debris Reef and the IR-02 Radium Dial Disposal Area to the list of removal actions.	Section 3.3.2.1.3 (renumbered as Section 3.3.2.1.5 in the Draft Final FS Report) of the FS Report was revised accordingly.

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42	Pages 4-8 - 4-11	Section 4.2	According to the text presented in these sections, a minimum of 400 square feet (sq ft) will be excavated centering on sampling locations with exceedances and a minimum of 1,600 sq ft will be excavated from a hot spot location. The FS does not provide any decision criteria for expanding these minimum excavation zones to verify that the criterion 10 times the remedial goals is achieved throughout each excavation. Further, the FS does not indicate how contamination will be chased if confirmation sampling reveals high concentrations of site-related contaminants post-excavation. Please revise the applicable sections of the FS to include a decision-making process (e.g., flow chart) for defining the lateral and vertical extent of hot spot and exceedance location excavations which includes confirmation sampling to verify achievement of the overall objective of removal of contaminants more than 10 or 5 times the remedial goal. Also, please revise the cost estimate as necessary to reflect this approach.	The FS Report was revised to clarify that (1) additional characterization (both prior to and after excavation) would be performed and (2) specific data quality objectives and other decision criteria would be specified in the RD. In addition, the Navy is considering characterization of the Tier 1 and Tier 2 locations prior to the RD. If the Navy proceeds with these plans, specific data quality objectives and other decision criteria would be developed prior to implementing the characterization effort.
43	Page 4-3	Section 4.2.2.1	For the new covers, please clarify what the term "base material" means. Also, it's not clear what the criteria will be for determining if a geomembrane is necessary.	The FS Report was revised to include the requested clarifications.
44	Page 4-15 and Figure 4-10	Section 4.3.2.	The text states that 54 wells are proposed for monitoring, but Figure 4-10 only appears to include 51 wells proposed for monitoring. In addition, the first sentence of the first full paragraph on Page 4-15, which states that there are eight proposed new wells, contradicts the second to the last sentence, which states that nine wells will be added to the network of Parcel E monitoring wells. Please resolve these discrepancies.	The FS Report was revised to resolve these discrepancies.

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45	Pages 4-17 and 4-18	Section 4.3.3.1	The first paragraph states, "Cement and bentonite slurry walls are also capable of absorbing and retarding the movement of heavy metals and larger organic molecules," but this is a containment alternative and not a treatment alternative. Although treatment is a benefit, if the slurry wall is intended to act as a means of contaminant reduction through treatment (absorption and retardation), additional information needs to be provided which substantiates these claims. Please revise the text to include supplementary details (e.g., percentage of contaminant reduction expected) and include literature references for the information provided.	The FS Report was revised to clarify that the slurry wall is intended to contain potentially contaminated groundwater and, because it would not be relied upon for treatment, any reference to treatment benefits was removed from the text.
46	Pages 4-18 to 4-20	Section 4.3.3.2	This section states that ISB will be used to reduce groundwater contamination to intermediate endpoints followed by MNA to address residual contamination. It is unclear why ISB will not be used to treat groundwater to the remedial goal. Also, the intermediate endpoints are not defined. Please revise the FS to include the levels of contaminants that represent intermediate endpoints, and explain why ISB will not be used to reduce contaminants to the remedial goal instead of intermediate endpoints.	As discussed in the response to EPA comment 17, the Navy believes that adequate information is provided in the FS Report to support an evaluation of various groundwater treatment technologies as components of the groundwater remedial alternatives. The assumptions used in this FS Report are generally consistent with those presented in FS reports for other HPS, and the Navy desires to maintain consistency between various FS reports at HPS. The assumptions are based on professional judgment and past experience, including treatability studies at other HPS parcels. Section 4.3 was revised to clarify that intermediate remediation endpoints will be determined by the Navy and the regulatory agencies during the RD.
47	Page 4-27	Section 4.4	The section states that NAPL outside the IR-03 boundary will be excavated and disposed of under Alternatives S-3 through S-5. However, NAPL removal is not specifically discussed in Sections 4.2.3, 4.2.4, or 4.2.5 (Alternative S-3 through S-5, respectively), only a discussion of hot spot and exceedance locations. Please revise the soil alternative sections to discuss NAPL removal and disposal, or clarify if this is the intent of the hot spot/exceedance location excavations. Alternatively, please omit the text indicating that NAPL excavation is addressed under Alternatives S-3 through S-5 and include removal of soil containing NAPL in the NAPL alternatives.	The FS Report was revised to clarify that soil excavation of Tier 1 and Tier 2 locations adjacent to IR Site 03 is intended to include removal of nonaqueous-phase liquids (NAPL) to the extent practical. Section 4.4 of the Draft FS Report (page 4-27) specifies that (1) the IR Site 03 site boundary was the assumed limit of thermally enhanced extraction of NAPL, (2) source removal of NAPL by excavation is assumed outside of the IR Site 03 boundary, and (3) further study is needed to develop the RD, which may expand the area for thermally enhanced extraction of NAPL.

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48	Page 4-28 and Figure 4-14; Page 4-31 and Figure 4-15	Section 4.4.2.1; Section 4.4.3.2	It is unclear how the proposed location of the slurry wall was selected for these alternatives, since wells outside the existing sheetpile wall contain NAPL. In order to contain all of the NAPL, soil borings and/or installation of temporary wells likely is necessary, but this is not discussed in the text describing these alternatives. Further delineation is needed to determine the extent of the thermally enhanced extraction system. This comment also applies to Alternatives N-4A, N-4B, and N-5. In the case of Alternative N-6, delineation is needed because the location of the existing sheetpile wall is not sufficient to contain the NAPL, since there is NAPL beyond it. Please propose soil borings and/or temporary wells to determine the extent of NAPL and refine the location of the slurry wall and include these borings/wells in the cost estimate.	Section 4.4 of the Draft FS Report (page 4-27) specifies that (1) the IR Site 03 boundary was the assumed limit of thermally enhanced extraction of NAPL, (2) source removal of NAPL by excavation is assumed outside of the IR Site 03 boundary, and (3) further study is needed to develop the RD, which may expand the area for thermally enhanced extraction of NAPL. The FS Report was revised to clarify that the Navy is planning additional characterization efforts at IR Site 03.
49	Pages 4-30 and 4-31	Section 4.4.3.1	It is unclear if electrical resistive heating (ERH) will be implemented in all 429 electrodes at the same time or smaller areas will be treated sequentially. If smaller areas will be treated sequentially, it will be important to run dual-phase extraction wells in adjacent areas to prevent recontamination of areas that have already been treated. Please revise the text to discuss how ERH will be implemented and if smaller areas will be treated, ensure that the cost estimate includes running additional dual-phase extraction wells in adjacent, already treated areas.	The FS Report was revised to include the requested information.
50	--	Figure 4-5	The proposed excavation areas for EXIIB023 and EXIIB035 do not appear to include the boring locations with the exceedances. It is unclear if Building 521, which is radiologically impacted, still exists or if it is likely it will be removed when the radiological contamination is addressed. Please include the borings with the exceedances within the footprint of the excavation areas.	Building 521 still exists, and the Navy does not anticipate needing to demolish the building to complete the remediation of radiological contamination at the site. Additional delineation will be performed prior to the RD to determine if excavation under the current building footprint is required to achieve the RAOs. No change was made to the document in response to this comment.
51	Page 5-19	Section 5.3.2.4	This section should simply state that no treatment will occur to support the conclusion that the overall rating is poor.	The subject text was revised accordingly.

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Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
52	Page 5-46 and Table 5-7	Section 5.5.7.4	It is unclear why the performance of Alternative N-6 was rated good. Excavation is not considered treatment and will not reduce toxicity, mobility, or volume of the contaminants, since they will be relocated to a disposal facility. Further, it is unlikely that significant natural degradation would occur, so like Alternative N-2, this alternative should be rated poor or fair. Please rate performance of Alternative N-6 poor or fair for the criterion Reduction of Mobility, Toxicity, or Volume through Treatment.	The subject text was revised accordingly.
53	Page A-11	Section A3.1.1	PA50MW05A only has one sampling event to support that arsenic is not a concern. Since the 2001 sample was close to the screening criterion and this well has had exceedances in the past, it should be retained and sampled further during the RD before the decision is made that there is no arsenic concern at this well.	The Navy revised the document to reevaluate the available data and perform a trigger-level evaluation at PA50MW05A. The screening-level evaluation at PA50MW05A revealed that insufficient data exist to support the determination that arsenic is not a concern at this well, so a trigger-level evaluation was performed. Based on the results of the trigger-level evaluation, the text was revised to include arsenic as a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of well PA50MW05A.
54	Page A-13	Section A3.1.3	Although copper was not detected in MW228B for the 2002 events, the detection limit was higher than the screening criterion. Thus, this well should be retained for trigger evaluation.	The Navy revised the document to reevaluate the available data and perform a trigger-level evaluation at IR03MW228B. The screening-level evaluation at IR03MW228B revealed that insufficient data exist to support the determination that copper is not a concern at this well, so a trigger-level evaluation was performed. Based on the results of the trigger-level evaluation, the text was revised to include copper as a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of well IR03MW228B. However, the text was also revised to clarify that this potential exposure is considered unlikely because, as stated in Section A1, there is no apparent direct exposure pathway from B-aquifer groundwater to aquatic organisms in San Francisco Bay because a continuous Bay Mud aquitard is present along the Parcel E shoreline (which would separate the permeable B-aquifer zones from the surface waters of the bay offshore of Parcel E).

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Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
54 *(cont.)*	Page A-13	Section A3.1.3	*(see above)*	Although the detection limits exceeded the screening criterion in 2002, no estimated concentrations were detected during either of the two sampling events to suggest that copper concentrations in this well exceed the aquatic evaluation criterion. Supplemental monitoring will be recommended to verify that copper is not present in IR03MW228B at concentrations exceeding the aquatic evaluation criterion.
55	Pages A-16 and A-17	Section A3.1.4	This section states that one duplicate sample exceeded the lead criterion at PA50MW05A; however, Figure A3-4 indicates that both samples exceeded the screening criterion for the October 1993 event. In addition, there are no subsequent samples to show that lead is not an issue at this well. MW 226A and MW2l8Al are also a concern since there is little data at these wells to support that the exceedances were one-time events. Therefore, PA50MW05, MW226A and MW218A1 should be carried forth for a trigger evaluation for lead.	At well PA50MW05A, three sampling events were conducted after lead concentrations were found to exceed the screening criterion in October 1993. During the three sampling events (conducted in July 1995, March 1996, and April 1996), lead was not detected in the well, and the reporting limits were less than the screening criterion. However, results of the sampling events were erroneously omitted from Figure A3-4. Based upon the additional sampling events, sufficient data exists to support the determination that lead is not a concern at this well. Figure A3-4 has been revised to include the results from the additional sampling events. The Navy revised the document to reevaluate the available data and perform a trigger-level evaluation at IR03MW218A1 and IR03MW226A. The screening-level evaluations at IR03MW218A1 and IR03MW226A revealed that insufficient data exist to support the determination that lead is not a concern at these wells, so trigger-level evaluations were performed. Based on the trigger-level evaluation results, the text was revised to include lead as a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of wells IR03MW218A1 and IR03MW226A.
56	Pages A-17 and A-18	Section A.3.1.5	Wells IR03MWO-l and IR03MW226A both had mercury exceedances and limited sampling; thus, these wells should undergo trigger evaluation.	The Navy revised the document to reevaluate the available data and perform a trigger-level evaluation at IR03MWO-1 and IR03MW226A. The screening-level evaluations at IR03MWO-1 and IR03MW226A revealed that insufficient data exist to support the determination that mercury is not a concern at these wells, so trigger-level evaluations were performed. Based on the results of the trigger-level evaluations, the text was revised to include mercury as a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of wells IR03MWO-1 and IR03MW226A.

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Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
57	Pages A-18-A-20	Section A3.1.6	IR02MWB-5 should be retained for trigger evaluation since the 2002 events were in a different season and the 2001 sample was significantly higher than the screening criterion.	The Navy revised the document to reevaluate the available data and perform a trigger-level evaluation at well IR02MWB-5. The screening-level evaluation at IR02MWB-5 revealed that insufficient data exist to support the determination that nickel is not a concern at this well, so a trigger-level evaluation was performed. Based on the results of the trigger-level evaluation, the text was revised to include nickel as a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of well IR02MWB-5. Although samples were collected during different seasons at this location, seasonal fluctuations would not influence plume concentrations because groundwater elevation is heavily influenced by tides and groundwater is close to the ground surface year round. Therefore, seasonal influence is not likely to have a significant influence on chemical concentrations at this location. However, well IR02MWB-5 is an older well (installed in 1986) with a stainless steel casing, and it is possible that the elevated nickel concentrations are attributed to a deteriorating well casing. The Draft Final FS Report was revised to recommend replacement of this well (with a polyvinyl chloride casing) and supplemental monitoring to determine whether nickel is not present in IR02MWB-5 at concentrations exceeded the aquatic evaluation criterion.
58	Pages A-20-A-21	Section A3.1.7	Well IR36MW123B should be retained for trigger evaluation since the two subsequent sampling events after the exceedance had detection limits above the screening criterion. The same issue occurs with IR02MW300A; thus, IR02MW300A should also be retained for trigger analysis.	The Navy revised the document to reevaluate the available data and perform a trigger-level evaluation at well IR36MW123B. The screening-level evaluation at IR36MW123B revealed that insufficient data exist to support the determination that silver is not a potential concern at this well; so a trigger-level evaluation was performed. Based on the results of the trigger-level evaluation, the text was revised to state that silver is not a COEC that potentially affects aquatic organisms in San Francisco Bay downgradient of well IR36MW123B. At well IR02MW300A, the laboratory reporting limits for the four nondetect samples collected between June 2004 and March 2005 (at which point this well was decommissioned prior to initiating the removal action at the Metal Debris Reef) range from 1 to 5 micrograms per liter (µg/L).

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Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
58 *(cont.)*	Pages A-20-A-21	Section A3.1.7	*(see above)*	In addition, seven consecutive quarters of groundwater monitoring performed at well IR02MW301A, installed as a replacement well less than 50 feet north of IR01MW300A, did not detect silver at concentrations exceeding the laboratory reporting limit of 1 µg/L (as well as no estimated silver concentrations less than the reporting limit but exceeding the method detection limit). It should also be noted that, although this reporting limit exceeds the aquatic evaluation criterion of 0.38 µg/L, the laboratory-specific method detection limit (as specified in the March 2009 sampling and analysis plan for the basewide groundwater monitoring program) is 0.25 µg/L. Therefore, the recent samples were analyzed by a method capable of identifying silver if present at concentrations exceeding the aquatic evaluation criterion, but no such estimated concentrations were reported. Given this observation and the number of nondetect sample results (11) collected following the exceedance, a trigger level evaluation is not required for this well.
59	--	Table C-5	In general, the level of detail provided is too specific for an FS and is more representative of a remedial design. The appropriateness of the proposed monitoring and analyses has not been assessed as part of FS review and should be represented and substantiated in the remedial design, although the presented approach is reasonable for costing purposes.	Appendix C is consistent with similar documents developed in FS reports for other HPS parcels, and the Navy desires to maintain consistency between various FS reports at HPS.
60	Page 2-6	Section 2.1.3.3	If the term non-volatile is being used to describe the organic compounds, omit the acronym VOCs.	The text was revised to omit the acronym.
61	Page 2-19	Section 2.3.2.1	The first paragraph states that "Approximately 49,500 cubic yards of soil was excavated," and then the bulleted items following that statement, a break down of the excavated soil, is presented in tons. Please unify all units. Additionally, please specify in the second to last paragraph whether or not the "cap of radiologically screened soil" was clean imported soil.	The information provided is directly from the cited construction completion report. The total excavation volume was calculated based on the size of the excavation, and “cubic yards” is the appropriate unit for that parameter. The bullet items identify the weights of the low-level radioactive waste removed from the excavation, and are derived directly from the off-site disposal records. The text regarding the “cap of radiologically screened soil” was clarified to note that the soil was clean imported material.
62	Page 3-10	Section 3.1.4	The top bulleted list has a typo for Aroclor.	This typographic error was corrected.

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Comment #	Page #	Section	Comment	Response
Comments provided by EPA Remedial Project Manager (Sarah Kloss), dated September 30, 2009 *(continued)*				
63	--	Figures 4-11 through 4-13	The hash marks used to distinguish aerobic and anaerobic in-situ bioremediation for the impacted groundwater plumes are hard to decipher based on the orientation of the plumes. Please consider using a different fill pattern for at least one of the plumes.	The figures were revised to include a more visually distinctive fill pattern for these shapes.
64	Page 5-20	Section 5.3.3.1	"Remedial goals" is repeated.	This typographic error was corrected.
65	Page A-10		This page mentions the RD for Parcel E-2. It that a typo?	Yes. This typographic error was corrected.

Table 2. Responses to Comments from Department of Toxic Substances Control (DTSC)
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Comment #	Page #	Section	Comment	Response
Comments provided by DTSC Project Manager Senior Hazardous Substances Scientist (Ryan Miya), dated September 30, 2009				
1	--	Executive Summary	(a) Groundwater Plume Delineation Update subsection" The text states that the Revised RI Report did not identify any B-aquifer plumes at Parcel E. However, please clarify and state if the additional data gathered as a part of the ongoing base-wide groundwater monitoring program from March 2005 to June 2008 identified any B-aquifer plumes" (b) Text on page ES-13, Comparative Analysis of Remedial Alternatives subsection" The text at the bottom of the page inaccurately states that there are three threshold criteria evaluated, while the NCP Evaluation Criteria table correctly lists the two threshold criteria, Please correct the text accordingly.	a. The text was revised to clarify that the results of ongoing basewide groundwater monitoring have confirmed the lack of B-aquifer plumes at Parcel E. b. The text was revised accordingly.
2	--	Section 2.1.3.3	"Removal Actions" Please either add approximate volumes of materials removed for each removal/cleanup action that has been performed to date, or reference the appropriate section of the FS Report in which this information is presented.	The requested information is already presented in Table 2-4. No change was made in response to this comment.
3	--	Section 2.1.3.4	"Treatability Studies" (a) Please explain the technical basis upon which the assumption is made that most of the TCE in soil was removed from the Building 406 soil vapor extraction (SVE) treatability study. The text states that "no soil samples were collected and analyzed after operation of the SVE system" to verify this assumption. (b) Please note that soil gas sampling will be required to evaluate the potential vapor intrusion pathway at Building 406.	a. The FS Report was revised to better describe the estimate of residual trichloroethene (TCE) in soil at Building 406. b. Section 2.3 was revised to note that the Navy plans to implement a parcel-wide soil gas investigation to identify additional areas that may pose unacceptable vapor intrusion risks and refine the VOC ARIC.

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Comments provided by DTSC Project Manager Senior Hazardous Substances Scientist (Ryan Miya), dated September 30, 2009 (continued)				
4	--	Section 2.2.4	"Topography and Surface Water Drainage" The onsite location of Outfall 33 should be identified on a figure and referenced accordingly in the text.	Section 2.2.4 and Figure 2-2 were revised accordingly.
5	--	Section 2.3.2.1	"IR-02 Northwest and Central Excavation Area" The text should be modified to specify the radiological remedial objectives (RROs) as implemented in the time-critical removal action in order to compare with the radiological remedial goals established for other parcels at Hunters Point Shipyard.	The text was revised to clarify that the radiological remedial objectives (RROs) for the removal actions are consistent with the radiological remedial goals (RGs) established for other parcels at HPS.
6	--	Section 2.3.3	"Groundwater Plume Delineation Update." In cases where additional groundwater data since 2004 does not exist, consideration should be given not to assume that the plume delineation has remained the same but instead to state that no additional groundwater data exists to update the plume delineation since 2004.	The text was revised accordingly.
7	--	Section 2.3.3.3	"PCBs" The IR-02 Northwest PCB plume has been identified as an A-aquifer plume. However, data from B-aquifer groundwater in the area (primarily well IR02MWB-3 with historical detections as high as 40 µg/L in July 1992) suggest the plume extends into the B-aquifer. Please provide clarification as to the technical basis for not classifying this as a B-aquifer plume.	Monitoring well IR02MWB-3 is screened within the A-aquifer (from 4 to 19 feet below ground surface; see Appendix B in the Revised RI Report [Barajas & Associates, Inc., 2008b]). The historic data, as summarized in the Revised RI Report, do not indicate any reportable concentrations of polychlorinated biphenyls (PCBs) within the B-aquifer.
8	--	Figure 2-6	"Updated Plume Delineations for Total TPH and PCBs" (a) Please clarify how the plume map has been updated as the figure only appears to present the 2004 plume delineations. (b) Monitoring well labels and/or designations within the IR-02 PCB plume should be verified for accuracy as there appear to be two B-aquifer monitoring wells labeled in the figure (wells IR02MWB-3 and IR02MW127B) and only one B aquifer monitoring well icon in the plume vicinity.	Section 2.3.3 was revised to clarify that the additional data warranted adjustments only to the volatile organic compound (VOC) plumes at Installation Restoration (IR) Site 12 and IR Site 36 (as shown on Figure 2-5 and described in Section 2.3.3.2). As discussed in the response to DTSC comment 7, monitoring well IR02MWB-3 is screened within the A-aquifer (from 4 to 19 feet below ground surface; see Appendix B in the Revised RI Report [Barajas & Associates, Inc., 2008b]).

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Comments provided by DTSC Project Manager Senior Hazardous Substances Scientist (Ryan Miya), dated September 30, 2009 (continued)				
9	--	Section 3.1.3	"RAOs for Groundwater" It is unclear why the IR-05 metals plume (copper and zinc) within Redevelopment Block 43 has been omitted from the table listing the A-aquifer plumes identified for evaluation in this FS Report. The table should be revised to include the IR-05 metals plume information.	The metals plume within IR Site 05 does not require analysis in the FS Report based on the findings of the trigger-level evaluation (Appendix A). Section 2.5.2.3 was revised to cite the specific plumes that, based on the trigger-level evaluation, do not require further evaluation in the FS Report.
10	3-46	Section 3.3.2.3.4	"Treatment, In-Situ Thermal Treatment subsection, page 3-46." The text in paragraph one references the current section. It appears likely that the text should be corrected to reference the Extraction subsection from Section 3.3.2.3.3. The text should either be corrected or the reference removed.	The text was revised to refer to Section 3.3.2.3.5 (the "Removal" section was renumbered for the Draft Final FS Report).
11	--	Section 4.2.2.3	"Shoreline Revetment, Second bullet" Please consider adding additional text to this bullet emphasizing that this item takes into consideration potential future global climate change.	The second bullet item was revised to provide the requested clarification.
12	--	Section 4.2.2.4	"Radiological Control Procedures, Last bullet" Please provide additional details regarding the specific procedures for segregating, scanning, handling, and disposing of sandblast waste if encountered during excavation activities.	The text was revised to briefly summarize established procedures (under the basewide radiological program) to screen sandblast waste encountered during excavation activities.
13	--	Section 4.2.2.5	"Closure of Fuel Lines (IR-47)." The description of the IR-47 fuel line provided in the text appears inconsistent with the information presented in Figure 4-1. Parcel D-2 and E do not have a shared boundary. Berth 29, above-ground storage tank S-505, and the historic location of the former oil reclamation ponds are not clearly identified in Figure 4-1.	Section 4.2.2.5 was revised to refer to the shared boundary between Parcel D-1 and Parcel E. Figure 4-1 was revised to note the locations of Berth 29, former tank S-505, and the former oil reclamation ponds. Please note that Figure 4-1 clarifies that fuel and steam lines located in other parcels were previously closed.

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Comment #	Page #	Section	Comment	Response
Comments provided by DTSC Project Manager Senior Hazardous Substances Scientist (Ryan Miya), dated September 30, 2009 (continued)				
13	--	Section 4.2.2.5	Figure 4-1 also presents components of the IR-47 fuel line in Parcel B (near Building 134), Parcel C (starting from Berth 5 and ending in the vicinity of Building 203), and Building 709 in Parcel E. The text and Figure 4-1 should be updated accordingly. Figure 2-1 presents some of the above requested components but should also be verified for accuracy and updated as necessary.	*(see above)*
14	--	Section 4.3.2.2	"Long-Term Groundwater Monitoring." (a) In the first paragraph after the bullet points, the second sentence should be corrected as it appears redundant and currently states" ....concentrations exceeding remedial goals or remedial goals." (b) Please clarify if the nine additional Parcel E monitoring wells are proposed locations for additional monitoring well installations or if they are pre-existing wells that are anticipated additions to the long-term groundwater monitoring program in the future. The same comment applies to the proposed additional wells discussed in Sections 4.3.4.8 and 4.3.5.8.	a. Section 4.3.2.2 was revised to remove the noted typographical error. b. Section 4.3.2.2, as well as Sections 4.3.4.8 and 4.3.5.8, was revised to note that the proposed wells are "new" and do not currently exist. The text was also revised to verify the number of existing and new wells based on recent well installations that were not reflected in the Draft FS Report.
15	--	Section 4.3.2.4	"Radiological Control Procedures. Bullet #3" The text should be revised to clarify what is meant by decontamination "performed in accordance with approved procedures." Please reference the appropriate workplan / report in which these procedures are documented and specify who approves (CDPH? FFA signatories?) these decontamination procedures.	The subject bullet item was revised to clarify that the "approved procedures" are established by the basewide radiological contractor and reviewed by the Navy's Radiological Affairs Support Office in consultation with the Base Realignment and Closure (BRAC) Cleanup Team (BCT).

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Comments provided by DTSC Geological Services Branch Engineering Geologist (Gerard Aarons), dated September 30, 2009				
16	--	General	The GSU notes that the FS uses proxy data from Parcel D Groundwater Modeling & Attenuation Factors for calculating Trigger-Levels for chemicals within Parcel E, as shown in Appendix A of the Draft FS Report - Attachment A1 The most conservative hydrogeologic variables used as input parameters in the BIOSCREEN Model (Parcel D specific) would not be the most conservative hydrogeologic variables for Parcel E. In the BIOSCREEN model, a seepage velocity of 37.5 feet per year (ft/yr) is used. As presented in the Parcel E Final Revised RI Report, the estimated average groundwater velocity for the A-aquifer zone is 408 ft/yr (Barajas & Associates, 2008, page 3-15).. This estimated average groundwater velocity is one order-of-magnitude greater than that which was used in their Parcel D BIOSCREEN model calculations Other hydraulic properties specific to Parcel E are presented on page 3-15 of the Parcel E RI Report and include a hydraulic gradient of 0.01 (also one order-of-magnitude greater than what was used in the BIOSCREEN Model from Parcel Dwells). Using Parcel E-specific values would yield a hydraulic conductivity of 1.0 x 10-2 centimeters per second (cm/sec) or 27.94 ft/day (3 to 4 times greater than what was used to calculate attenuation factors for Parcel D). If Parcel E-specific hydraulic parameters were used as input values in the BIOSCREEN model, the output would show very little attenuation from the source to the Bay receptor. Using the current nomograph (Appendix A, Figure G-1) for the Trigger-Level Evaluations may not truly show whether a chemical concentration in groundwater at the Bay exceeds the surface water criteria selected for aquatic evaluation, based on the attenuation factors that are being used.	A sensitivity analysis was performed during development of the attenuation factor calculations prepared for Parcel D to identify the relative sensitivity of the model to variability in the core input parameters, including hydraulic conductivity (K) and hydraulic gradient (i). The sensitivity analysis is provided in Attachment A1 of the Draft FS Report (Section G3.0 as excerpted from the FS Report for Parcel D). It was reported that the BIOSCREEN model simulations, as used to generate the predicted peak concentrations at receptor locations, are insensitive to variations in K and i. This insensitivity occurs because the input parameters for K and i only affect the migration speed of the modeled plume, and consequently the arrival time of the predicted peak concentration at the receptor location (i.e., the San Francisco Bay). Varying the K and i input parameters does not affect the magnitudes of the predicted peak concentration. Attenuation factors were calculated as the ratio of peak source concentration to peak predicted concentration at the receptor location. To be conservative, only peak concentrations generated by the various model simulations were used to calculate the attenuation factor nomographs that are used to assign trigger levels. The peak concentrations are the highest concentrations modeled by the BIOSCREEN simulations, irrespective of the arrival time of that concentration at the receptor location. Because the model is insensitive to K and i inputs, the results of the Parcel D modeling can be applied to metals or organic chemical groundwater plumes at Parcel E, or any other parcel at HPS.

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Comments provided by DTSC Geological Services Branch Engineering Geologist (Gerard Aarons), dated September 30, 2009 (continued)				
16 *(cont.)*	--	General	Recommendation: The GSU recommends using Parcel E-specific A-aquifer hydrogeologic properties in the BIOSCREEN model with Parcel E-specific chemicals of potential ecological concern (COPECs) in order to derive conservative attenuation factors for use in evaluating Trigger-Levels.	*(see above)*
17	--	General	The GSU understands that the Navy is planning field investigations to better delineate the known groundwater contaminant plumes identified in the Parcel E RI Report and will also be conducting treatability studies to evaluate the effectiveness of zero-valent iron injection (ZVI) in treating groundwater contamination in Parcel E. The results, if available, will be incorporated into the draft final version of the FS report. Recommendations: a) The GSU recommends that the Navy use the step-out sampling approach for all Parcel E "Hotspot Locations" as well, where soil concentrations for one or more chemicals of concern (COC) exceeded the remediation goals (RGs), with results incorporated into the final version of the FS report. b) Groundwater samples should be collected in the vicinity of the "Hotspot Locations" and analyzed for all of the known COCs within the IR area.	Hotspot characterization (hot spots and exceedance locations are now referred to as Tier 1 and Tier 2 locations) will be performed as soon as practical and will help refine remediation cost estimates prior to implementation of the remedial action; however, the Final FS Report will not be delayed to incorporate the data because a 20 percent contingency was added to the FS cost estimates to provide an acceptable level of accuracy (+50/-30 percent per U.S. Environmental Protection Agency [2000] guidance). The Navy does not agree that further groundwater sampling is required at each Tier 1 and Tier 2 location because Section 6.1 of the Revised RI Report, using all available soil and groundwater data, identified the groundwater plumes requiring further analysis in the FS Report (Barajas & Associates, Inc., 2008b). No change was made in response to this comment.
18	--	General	"Groundwater" The most recent A-aquifer groundwater elevation contour map presented in the Parcel E RI Report is based on water level measurements taken on November 18, 2004. The A-aquifer groundwater elevation contour map presented in the Draft FS Report uses water level measurements collected in March 2008.	Both Figure 3-10 in the Revised RI Report and Figure 2-2 from the Draft FS Report were excerpted from previously published maps generated as part of the basewide groundwater monitoring program. The previously published maps represent the Navy's evaluation of groundwater flow patterns at the time of publication, and were subject to regulatory agency review and comment.

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18 *(cont.)*	--	General	It is difficult to compare the Parcel E RI Report Figure 3-10 to the Draft FS Report Figure 22 as they are on different scales/sizes and at different contour intervals. Recommendation: Please provide an A-aquifer groundwater elevation contour map at the same scale, size and contour interval (0.5-foot) as Figure 3-10 of the Parcel E RI Report for ease of comparison.	The Navy does not believe that refinement of these maps (such as, increasing the contour interval to 0.5-foot) as part of the FS Report is necessary in light of the established process within the basewide groundwater monitoring program and the substantial effort needed to make such refinements. No change was made in response to this comment.
19	ES-5	Executive Summary	"Soil and Shoreline Sediment Risk Summary Table" The table is difficult to follow because the corresponding IR and Redevelopment Block numbers are not included. Recommendation: Please add a column to the table that includes corresponding IR/Redevelopment Block numbers as is done on Table 3-3 of the Draft FS Report.	The table embedded on Page ES-5 (as well as page 2-30) is intended as a brief summary of all chemicals of concern (COCs) identified in the human health risk assessment (HHRA). The large combination of redevelopment blocks and COCs at Parcel E does not lend itself to a concise tabular summary of this information. However, the requested information is adequately summarized in the Revised RI Report on Tables 5-5 through 5-7 and Tables 5-11 through 5-13 (Barajas & Associates, Inc., 2008b). No change was made in response to this comment.
20	--	Section 2.1.3.4	"Treatability Studies" The first paragraph states "The SVE treatability study is assumed to have removed most TCE from soil, thereby reducing the likelihood for TCE to continue migrating from soil to groundwater or entering the building through volatilization. However, no soil samples were collected after operation of the SVE system. Therefore, the potential for migration of residual TCE from soil to air and groundwater at Building 406 remains." It is the GSU's understanding that the mass of TCE released in this area near Building 406 is unknown and that the SVE wells were installed primarily in low-permeability soils. Recommendation: Please clarify whether or not the mass of TCE released in the study area and impacting the subsurface soils was known or estimated prior to the SVE Treatability Study and/or provide additional details as to the basis for the assumption that most TCE has been removed from the soil.	As discussed in the response to DTSC comment 3, the FS Report was revised to better describe the estimate of residual TCE in soil at Building 406.

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Comments provided by DTSC Geological Services Branch Engineering Geologist (Gerard Aarons), dated September 30, 2009 (continued)				
21	2-16	Section 2.2.7.4	"Tidal Effects" The second paragraph on page 2-16 states "Results of a tidal influence study conducted in 2002 indicated the A-Aquifer tidal influence zone in Parcel E extends about 100 to 400 feet inland from the San Francisco Bay.." The sanitary sewer lift station has been shut down since May 2007 which may have had an effect on tidal influence in the A-aquifer since that time. Recommendation: Please acknowledge in the text that the changes in the A-aquifer water levels and groundwater flow directions may have affected the extent of tidal influence since the 2002 study.	The Navy does not believe that shut down of the sanitary sewer system is likely to have had any significant effect on the extent of tidal influence at Parcel E. Figure 3-14 from the Revised RI Report (Barajas & Associates, Inc., 2008b) identifies the tidal influence zone within the A-aquifer. This zone is limited to a narrow band along the Parcel E shoreline, and is generally outside of the inland area shown by recent potentiometric surface maps to have been affected by shut down of the sanitary sewer system.
22	2-18	Section 2.3.1	"Parcel E RI Summary" Sediment. The sentence at the top of page 2-18 says, "Results of the nature and extent evaluation indicated that concentrations of copper, lead and PCBs exceeded screening criteria in most locations along the Parcel E shoreline and could be a source of contamination to sediments in the adjacent offshore area (Parcel F)." In Section 3.1.2. –RAOs for Sediment, the second bullet describes chemicals of ecological concern (COECs) for benthic invertebrate: copper, lead, mercury, zinc, PCBs and DOTs. Recommendation: Please explain why the COECs zinc, mercury, and DDT are not included in the sediment discussion in Section 2.3.1, or include these COECs in the discussion.	Section 2.3.1 was revised to identify the additional chemicals of ecological concern (COECs) in shoreline sediment that were identified during the screening-level ecological risk assessment (discussed in Section 2.5.2.2).

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23	--	Section 2.3.2	"Removal Action Summary" Sections 2.3.2.1 IR-02 Northwest and Central Excavation Area, 2.3.2.2 Metal Debris Reef in IR-02 Southeast and 2.3.2.3 PCB hotspot Area. Materials potentially presenting an explosive hazard (MPPEH) were discovered during removal actions. MPPEH can be associated munitions containing potassium perchlorate or ammonium perchlorate and/or other high explosive compounds like Cyclotrimethylene-Trinitramine (RDX), Cyclotetrameth-ylene Tetranitramine (HMX), Tetryl-, and Trinitrotoluene (TNT). Recommendation: In areas where MPPEH have been discovered and removed, please verify whether soil and groundwater has been analyzed for perchlorates, RDX, HMX and TNT.	The type, age, and condition of the recovered MPPEH (material potentially presenting an explosive hazard) do not indicate that residual munitions-related chemicals would be present in soil or groundwater at Parcel E. Accordingly, no analyses for munitions-related chemicals have been performed in soil or groundwater. The Navy does not believe that such analyses are warranted based on the operational history (i.e., shipyard repair with no designated munitions storage [e.g., bunkers] or disposal areas [e.g., open burning/open detonation areas]) and the relative scarcity of MPPEH encountered during the previous removal actions at Parcel E. MPPEH is an interim designation for any component of ordnance and explosive munitions that may have come into contact with energetic material (i.e., high explosives or propellant) and could have energetic residue remaining. This interim designation applies to items for which the presence or absence of energetic residue cannot be immediately verified by visual inspection. Following verification and documentation that MPPEH does not present an explosive hazard, as performed by two competent unexploded ordnance (UXO) technicians, such items are referred to as material documented as safe (MDAS). Most of the MPPEH items identified during the Parcel E removal action were verified to not present an explosive hazard and were reclassified as MDAS. The remaining MPPEH items appeared to have been subject to previous demilitarization actions and could not be completely inspected by UXO technicians for possible explosive hazards. Although the type, age, and condition of the MPPEH items did not suggest a high potential for residual energetic material, the Navy, as a precautionary measure, properly handled, transported, and disposed of these items as either material documented as an explosive hazard or munitions and explosives of concern (Tetra Tech EC Inc., 2010). Section 2.3.2 was revised to discuss the above-stated information regarding MPPEH discovered during the previous removal actions at Parcel E.
24	--	Section 2.3.3.1	"Metals". The last sentence states " …. it is assumed for the purposes of the FS evaluation, none of the composite RI plume delineations for metals have changed, except for the IR-02	As discussed in the response to DTSC comment 6, the text was revised to state that, at locations where additional groundwater data have been collected since 2004, no additional groundwater data exist to update the plume delineation presented in the Revised RI Report

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24 *(cont.)*	--	Section 2.3.3.1	Southeast Metals Plume, since the RI was performed.. The metals plume delineation considered in the FS evaluation are shown in Figure 2-4. " No wells were sampled within or near metals plumes at IR-05 Metals Plume, IR-12 Nickel Plume or the IR-02 Central Nickel Plume since 2004. The A-aquifer groundwater contour map presented in the Draft FS Report appears to differ significantly from the 2004 groundwater contour map presented in the Parcel E RI Report. These changes would be expected to change the configuration of the metals contaminant plumes. Plumes would be expected to be elongated in the direction of groundwater flow Recommendation: Please provide explanations in the text for plume orientations presented on Figure 2-4.	(Barajas & Associates, Inc., 2008b). Also, based on the trigger-level evaluation presented in Appendix A, neither the IR Site 05 metals plume nor the IR Site 12 nickel plume requires further evaluation in the FS Report. As discussed in the response to DTSC comment 9, Section 2.5.2.3 was revised to cite the specific plumes that, based on the trigger-level evaluation, do not require further evaluation in the FS Report. Finally, the Navy does not believe that changes in the groundwater flow patterns at inland portions of Parcel E are likely to have had any significant effect on the extent of the IR Site 02 Central nickel plume (which is estimated to be of a limited lateral extent next to the shoreline). However, Section 4 discusses that, during development of the RD, additional field investigations may be performed to support the design of the selected remedies for the shoreline plumes. However, for the purposes of this FS Report, additional data gathering is not warranted because the existing data are adequate for supporting the selection of remedial alternatives.
25	2-25	Section 2.3.3.2	"VOCs" The first paragraph on page 2-25 states " ... of the eight VOC plume delineations presented in the Revised RI Report, two were adjusted for the purposes of the FS evaluation based on data collected since 2004. The adjusted plume delineations are shown in Figure 2-5.." The A-aquifer groundwater contour map presented in the Draft FS Report appears to differ significantly from the 2004 groundwater contour map presented in the Parcel E RI Report, and these changes would be expected to change the configuration of the VOC contaminant plumes. Plumes would be expected to be elongated in the direction of groundwater flow. Recommendation: Please provide explanations in the text for plume orientations presented on Figure 2-5.	The Draft Final FS Report was revised to include the available data from the treatability studies at various Parcel E sites. In particular, baseline characterization data for the VOC plumes at IR Site 04, IR Site 12, IR Site 36 South, and IR Site 56 are presented in the Draft Final FS Report to refine the estimated plume areas requiring treatment. The Navy believes that these updates are adequate to support the evaluation of groundwater remedial alternatives in the FS Report.

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26	--	Section 2.3.3.2	"VOCs" This section does not mention non-halogenated semi-volatile organic compounds (SVOCs), yet chrysene is a COC in the A-Aquifer. Recommendation: Please include the non-halogenated SVOCs that apply in this case to this section of the Draft Final FS Report.	Section 2.3.3 discusses the primary COCs that prompted identification of groundwater plumes in the Revised RI Report. These primary COCs are present over the largest spatial extent, thus they define the outer limits of each plume. Because a large number of secondary COCs are present at individual plumes, Section 2.3.3 does not discuss each COC identified in the HHRA because it does not significantly affect the analysis to be performed in the FS Report. In addition, chrysene and other semivolatile organic compounds were identified as COCs for the construction worker exposure scenario, which is not associated with a specific planned reuse at Parcel E. As such, the FS Report does not focus analysis of remedial alternatives on the COCs present for the construction worker exposure scenario only; potential risks to future construction workers can be adequately mitigated through institutional controls. No change was made to the document in response to this comment.
27	2-25	Section 2.3.3.2	"VOCs" The last paragraph on page 2-25 makes a statement that pertains to IR-02 and IR-03. The text states" .... the human health risk assessment (HHRA) in the Revised RI Report clarified that the vapor intrusion exposure scenario was incomplete for the planned open space reuse in these redevelopment blocks." In their response to comments on the Human Health Risk Assessment presented in Appendix L (page L-47) of the Revised Parcel E RI, the Navy indicated that it had plans to complete a focused soil gas survey to address this pathway before the FS Report for Parcel E is finalized, as necessary. Recommendation: DTSC will require a soil gas survey to evaluate soil vapor pathway from impacted soil and groundwater. Please provide a more complete explanation to summarize the vapor intrusion exposure pathways from groundwater to outdoor air at IR-02 and IR-03 and describe the plans and process for completing soil gas surveys at IR-02 and IR-03.	The Draft Final FS Report was revised to more completely summarize how various exposure pathways for inhalation of VOCs were evaluated in the HHRA. Based on the exposure assumptions in the HHRA, soil gas surveys are not required in the Parcel E areas planned for open space reuse. The Navy plans to perform a soil gas survey at Parcel E areas planned for industrial and residential reuse, in accordance with the clarifications made in the Final Revised RI Report (Barajas & Associates, Inc., 2008b). Figure I-1 from the Revised RI Report indicates that for future recreational users inhalation of VOCs in outdoor air (1) is a complete exposure for surface soil (0 to 2 feet below ground surface [bgs]) and was adequately evaluated in the HHRA, and (2) is not a complete exposure pathway for subsurface soil (0 to 10 feet bgs) and was not evaluated in the HHRA. Figure I-1 also indicates that the focused soil gas survey was planned to address inhalation of VOCs in indoor air for future industrial and residential receptors. As a result, Parcel E areas planned for open space reuse will not require a soil gas survey.

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28	--	Section 2.3.3.3	"PCBs" This section does not mention PCBs in IR-03, although the next section (Section 2.3.3.4) does mention PCBs in IR-03 groundwater at concentrations warranting further evaluation of the IR-03 plume in the FS. Recommendation: Please include the IR-03 PCB information in this section of the Draft Final FS Report and remove the references to PCBs in Section 2.3.3.4, as appropriate.	The text was revised accordingly.
29	--	Section 2.5.1.1 & 2.5.1.2	"Soil Risk Summary" and "Groundwater Risk Summary" It would be useful to the reviewer if these tables made reference to the corresponding IR/Redevelopment Block numbers. Recommendation: Please add a column to these tables that includes corresponding IR/Redevelopment Block numbers. As an example see Section 3.1.1 of the Draft FS Report.	As discussed in the response to DTSC comment 19, these tables are intended to briefly summarize all COCs identified in the HHRA. The large combination of redevelopment blocks and COCs at Parcel E does not lend itself to a concise tabular summary of this information. However, the requested information is adequately summarized in the Revised RI Report on Tables 5-5 through 5-7 and Tables 5-11 through 5-16 (Barajas & Associates, Inc., 2008b). No change was made in response to this comment.
30	ES-2	Figure ES-2	"Parcel History and Environmental Setting" IR-45, IR-47, and IR-50 are described in the first paragraph on page ES-2 and represent facility-wide IRs pertaining to the former utility network at HPS. These geographic units are not readily apparent on Figure ES-2. Recommendation: Please reference Figures 2-1 and 2-2 in the text of the Executive Summary.	The text was revised to reference Figures 2-1 and 2-2.
31	--	Figure ES-2	"Parcel History and Environmental Setting" IR-51 is described in the first paragraph on page ES-2. The former electrical transformer locations in Parcel E are not shown on Figure ES-2. Recommendation: Please include a figure that shows former electrical transformer locations within Parcel E.	Figure 2-1 was revised to include the former transformer locations (consistent with the information presented on Figure 4.19-1 of the original 1997 RI Report [Tetra Tech EM Inc., Levine-Fricke-Recon, and Uribe & Associates, 1997]), and the text of the executive summary was revised to reference Figure 2-1.

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32	--	Figure ES-3	"Updated RI Plume Delineations for Metals" The legend states the IR-02 Southeast metals "plume no longer exists based on an evaluation of updated data (March 2005 to June 2008)." The GSU questions whether this is due to the removal action conducted between 2005 and 2007 at the IR-02 Southeast Metal Debris Reef Area. Recommendation: Please clarify whether the removal action conducted between 2005 and 2007 at the IR02 Southeast Metal Debris Reef Area may be the reason that the plume no longer exists.	The existing text in Section 2.3.3.1 states that "it is assumed that the Metal Debris Reef removal action was successful in removing the contaminant source and the composite RI plume has been attenuated below the RI screening criteria."
33	--	Figure 4-7	The highest concentration of Aroclor-1260 was found in a sample collected from location IR03B372 adjacent to the north of the IR-03 footprint, having a concentration of 280 milligrams per kilogram (mg/kg) at a depth of 14 to 15 feet below ground surface (bgs). The remedy for this location was to be evaluated in the FS as part of the IR-03 oily waste ponds (Appendix L, page L-21 Response to Comments US EPA, Barjas & Associates, Inc., 2008). Recommendation: The GSU recommends that this location be evaluated in the Draft Final FS Report as part of the IR-03 oily waste ponds as stated in the Parcel E RI Report.	Location IR03B372 is evaluated as part of the alternatives for nonaqueous-phase liquids in the FS Report.

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1	--	General	**(IR-03 - Former Oil Reclamation Ponds) –** The location of the existing sheet-pile wall should be illustrated on figures that cover the IR-03 area. At a minimum, this should be done for the following portions of the document: • Section 2.0 (Site Characterization) - illustrate the location of the existing sheet-pile wall along with existing groundwater monitoring wells; • Section 4.0 (Development and Description of Remedial Alternatives) – illustrate the location of the existing sheet-pile wall on figures depicting groundwater alternatives; and, • Appendix A (Evaluation of Migration of Chemicals in Groundwater to the Aquatic Environment) - illustrate the location of the existing sheet-pile wall on all figures including those in Attachment A3. As discussed by the Navy during the July 30, 2009 public technical meeting regarding the *Draft FS*, the existing sheet-pile wall does not have cathodic protection. Evaluation of containment technologies (Section 3.0 RAOs, ARARs, GRAs, and Process Options, pages 3-46 and 3-47) includes consideration for modification or improvement of the existing sheet-pile wall. Has an evaluation of the condition and lifespan of the existing sheet-pile wall been recently performed? After installation of the sheet-pile, what performance monitoring measures were undertaken to assess/document whether there is any indication of discharge of non-aqueous phase liquid (NAPL) from the former oil reclamation ponds area to San Francisco Bay? Is there an ongoing shoreline (sediment and surface water) inspection program? Results of these activities should be summarized in Section 2.0 (Site Characterization).	Figures in Sections 2 and 4 and Appendix A were revised as requested to show the existing sheet-pile wall at Installation Restoration (IR) Site 03. The Navy has not evaluated the condition and lifespan of the sheet-pile wall since it was installed in 1998. Testing performed in July 1998 indicated that without cathodic protection the wall would provide adequate containment for 3 years (IT Corporation, 1999). The Navy has performed a focused investigation and cleanup action along the Parcel E shoreline, as summarized in Tables 2-3 and 2-4. There was no observed discharge of nonaqueous-phase liquids (NAPL) during these activities. The Navy believes that this finding is attributed to the high viscosity of the residual NAPL that limits its mobility. In addition, the riprap along the IR Site 03 shoreline is covered in concrete, which prevents direct contact with the NAPL and contaminated soil. Additional text was added to Section 2.3.1 to discuss these findings along the IR Site 03 shoreline.

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2	--	General	**(Background Regarding NAPL) –** The *Draft FS* includes sets of alternatives addressing soil, groundwater, and NAPL. In Section 2.0 (Site Characterization), information is presented regarding the distribution of chemicals in soil and groundwater, but this section and the report lacks a coherent summary of the distribution of NAPL. A summary of the distribution of NAPL based on field observations (boring logs, field notes from sheet-pile wall installation, shoreline observations, etc.), wells with NAPL (measured thicknesses over time), and total petroleum hydrocarbon (TPH) results (soil and groundwater data over time where available) should be included in Section 2.0 (Site Characterization). A geologic cross-section illustrating the location and occurrence of NAPL in IR-03 should be included in the *Draft FS*; this should be included even if one was presented in the associated remedial investigation report.	Section 2.3.1 was revised to summarize available information regarding the distribution of NAPL at IR Site 03; however, detailed information (such as boring logs) that was previously presented in the Revised Remedial Investigation (RI) Report will not be repeated in the FS Report. Section 2 was revised to include a figure identifying the distribution of NAPL at IR Site 03 and a conceptual cross section at IR Site 03. The Navy believes that the conceptual cross section provides the best overall summary of potential site conditions at IR Site 03. Because NAPL was detected sporadically in the historic borings, the previous geological cross sections prepared for IR Site 03 do not provide enough information to identify the potential distribution of NAPL at IR-03.
3	--	General	**(Groundwater Plume Delineation Update) –** In Section 2.3.3, for many of the plumes, the *Draft FS* states that no wells within or near the plume were sampled recently and therefore the *Draft FS* assumes that the remedial investigation plume delineation has not changed. Going forward (perhaps as part of the Remedial Design [RD] or a data gap investigation), the plume delineations should be re-evaluated by sampling groundwater within and particularly down gradient of the plumes, particularly for the following plumes: IR-05 metals, IR-12 nickel, IR-02 central nickel, IR-03 benzene, IR-39 benzene (as part of the Petroleum Program), IR-02 northwest polychlorinated biphenyl (PCB) plume, and IR-03 TPH (also see General Comment #2 regarding NAPL). In addition, there are very few groundwater monitoring wells near some plumes making it difficult to evaluate the plume delineation and protection of potential receptors. Going forward, the adequacy of the well networks should	Since the Draft FS Report was issued, the volatile organic compound (VOC) plume delineations at Parcel E have been refined through field investigations performed as part of the Parcel E Treatability Study. The updated delineations for the VOC plumes are included in the Draft Final FS. The aquatic evaluation presented in Appendix A evaluates existing groundwater data and concludes that inland metals plumes (IR Site 05 metals plume and IR Site 12 nickel plume) at Parcel E do not pose a risk to aquatic organisms in San Francisco Bay. The data gathered at these plumes in the past is adequate to make this determination; therefore, no further investigations and data evaluation are warranted. In addition, the Revised RI Report indicated that the benzene plumes identified in IR Site 02 Northwest and IR Site 03 did not require further evaluation in the FS Report. The benzene plumes were identified based on conservative risk-based criteria accounting for vapor intrusion to indoor air.

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3 *(cont.)*	--	General	be evaluated for the following plumes: IR-02 northwest metals, IR-02 central nickel, and IR-02 northwest benzene. For the next version of the *Draft FS*, information from the Parcel E Groundwater Treatability Study should be used to update the delineation of the chlorinated volatile organic compound plumes at IR-04, IR-12, IR-56, and Building 406. Similarly, for the evaluation of potential migration of chemicals in groundwater to the bay (Appendix A), the adequacy of the well network and data sets should be evaluated.	The human health risk assessment (HHRA) determined that this exposure pathway was incomplete for future recreational users of the planned open space areas of Parcel E (Barajas & Associates, Inc., 2008b). The aquatic evaluation (Appendix A) also evaluates existing groundwater data for plumes located along the shoreline of Parcel E. Shoreline plumes for metals, polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons (TPH) were all determined to pose a risk to aquatic organisms in San Francisco Bay and were considered during development of the remedial alternatives in the FS. During development of the remedial design (RD), additional field investigations may be performed to support the design of the selected remedies for the shoreline plumes. However, for the purposes of this FS, additional data gathering is not warranted because the existing data are adequate for supporting the evaluation of remedial alternatives. Collection of groundwater data along the downgradient edges of the shoreline plumes is not feasible because monitoring wells cannot be drilled close to the shoreline because large debris is present. If nearshore groundwater data could be collected, it could not be used to support the plume delineation evaluation because groundwater collected in the shoreline mixing zone would not be representative of stable groundwater conditions.
4	--	General	**Laboratory Reporting Limits In Excess of the Evaluation Criteria) –** In Appendix A (Evaluation of Migration of Chemicals in Groundwater to the Aquatic Environment, Section A2.2 - Identification of Chemical Detections in Groundwater), it is very briefly stated that laboratory reporting limits for current, routinely used analytical methods are greater than the aquatic evaluation criteria for cyanide, sulfide, organochlorine pesticides, and PCBs.	The purpose of the aquatic evaluation in Appendix A is to evaluate all available data to identify the potential for risk to aquatic organisms in San Francisco Bay from the most prevalent chemicals in groundwater. The possibility exists that some chemicals may have not been identified by the ongoing groundwater monitoring program because some sample reporting limits exceeded certain chemical-specific remedial goals (RGs).

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4 *(cont.)*	--	General	This limitation needs to be addressed directly and more fully in the Draft FS. The questions that must be addressed include why there is this discrepancy, what measures have been taken to reduce laboratory reporting limits to or near the criteria, and how the data evaluation can move forward for these chemicals given this limitation. Also, the corresponding text write-ups for these sections need to be revised to reflect this limitation. For instance, on p. A-27, for Aroclor 1260 it is stated that "*During all subsequent sampling events at the wells listed above, Aroclor-1260 was not detected at concentrations exceeding the aquatic evaluation criterion. Based on the low frequency of detection, Aroclor-1260 is not considered a COPEC for these wells*." When it is not possible to detect the chemical at concentrations at or below the aquatic evaluation criterion, such language is at best misleading. Furthermore, given that the aquatic evaluation criterion is 0.03 micrograms per liter (ug/L), and the best recent reporting limit is 0.5 ug/L (about 16 times greater than the criterion), eliminating Aroclor 1260 as a COPEC for these particular wells using frequency of detection is problematic. Going forward, has there been a recent evaluation of whether lower laboratory reporting limits could be achieved that meet or are close to the respective aquatic evaluation criteria? For instance, it may be possible to use a gas chromatograph equipped with a mass spectrometer in selection ion monitoring mode to obtain lower laboratory reporting limits for these chemicals.	However, the lowest achievable reporting limits (at the time the samples were collected) were used for all chemical analyses; thus, the most stringent evaluation of the extent of chemicals was conducted. Also, as stated in Appendix A, conservative assumptions are incorporated into the aquatic evaluation methodology. These assumptions compensate for many of the unknowns associated with this type of evaluation. Generally, the available data are adequate for the purpose of identifying remedial alternatives to address groundwater impacts to the bay. This issue is described further in the introductory sections of Appendix A of the Draft Final FS Report.
5	--	General	**(Soil Alternatives) –** The *Draft FS* does not include an alternative for removal or treatment of all chemicals in soil that exceed remedial goals, citing that the Navy does not consider this as a practical cleanup option (Section 4.2). Nonetheless, for comparison and completeness, please include an alternative that addresses removal of all soil areas at concentrations in excess of remedial goals.	Please refer to response to EPA Comment 7. Section 3.3.2.1.3 of the Draft FS Report (renumbered as Section 3.3.2.1.5 in the Draft Final FS Report) presented a rationale for focusing removal options on soil posing the highest risk to humans (that is, hot spots and exceedance locations; now referred to as Tier 1 and Tier 2 locations, respectively).

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5 *(cont.)*	--	General	Inclusion of this alternative for comparison purposes is consistent with requests by members of the public, and for document completeness. In the *Draft FS*, the Navy has focused on the following locations where chemicals of concern (COCs) are present at concentrations significantly greater than remedial goals: • Hot spots (COCs at concentrations equal to or greater than 10 times the remedial goals) and • Exceedance locations (COCs at concentrations greater than 5 times the remedial goals). For other locations with exceedances, the Navy intends to manage the soil through the use of covers. Please provide a description regarding how the hot spots and exceedances locations relate to risk.	This rationale was based on the Navy's conclusion that removing widespread, low-level contamination throughout Parcel E would not be feasible because of poor short-term effectiveness, implementation challenges, and high cost. The Navy's decision to focus the remedial alternative analysis is consistent with the streamlining approach outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (pp. 8704-8705 of NCP Preamble). The Navy does not agree that a detailed evaluation of such an alternative is warranted, and believes that the streamlined set of remedial alternatives presented in the Draft FS Report is the most appropriate path forward for Parcel E. However, to better support the streamlining of remedial alternatives, the Navy revised Section 3.3.2.1.5 to more thoroughly evaluate (relative to effectiveness, implementability, and cost) the process option involving excavation and off-site disposal of all soil with chemical concentrations exceeding risk-based cleanup goals. In addition, the Navy has revised the FS Report to better describe the connection between risk-based RGs and cleanup goals for Tier 1 and Tier 2 locations. Please refer to the response to EPA comment 5 for a description of this rationale.
6	--	General	**(Shoreline Protection and Natural Shoreline Considerations)** The *Draft FS* appears to use the terms shoreline protection and shoreline revetment interchangeably. Please consider using "shoreline protection" as the general term and "shoreline revetment" (or rock revetment) as the specific technology evaluated in the *Draft FS*. As the Navy is aware, recently there have been concerns raised by members of the public regarding future shoreline use (e.g., "Bucks Beach" in Parcel B). Although this is a future land use issue and more appropriately associated with the redevelopment agency, please consider development of a natural shoreline option for all or part of the shoreline in addition to rock revetment as part of the next version of the *Draft FS*	While the Navy recognizes the desire for natural shoreline options, this desire must be balanced with the need to develop effective shoreline remedial options that are cost effective and implementable given the site conditions at Parcel E. The Parcel E shoreline and adjoining portions of IR Site 02 and IR Site 03 contain both chemical and radiological contaminants that would, based on the Navy's current analysis, need to be removed or appropriately contained. The Navy revised the Draft Final FS Report to include a new appendix that supplements the information provided in Section 3.3.2.1.7 by (1) evaluating several options for natural or hybrid stabilization structures, and (2) identifying the most promising natural or hybrid stabilization option to be used in combination with the shoreline revetment option presented in the Draft FS Report.

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7	ES-3 & ES-4	Executive Summary	**(Executive Summary – Investigation and Removal Action Summary)** Please clarify that some of the underground storage tanks (USTs) and aboveground storage tanks (ASTs) that contained petroleum products are being addressed under the Petroleum Program. Also, the status of the Parcel E Groundwater Treatability Study should be updated.	The text was revised accordingly.
8	ES-14	Executive Summary	**(Executive Summary – Detailed Evaluation of Remedial Alternatives), third full paragraph, last sentence.** To clarify this sentence, I recommend adding "in the unsaturated zone" after the word "excavation"; this is the same wording used under the Alternative N-5 bullet on p. ES-13.	The text was revised accordingly.
9	1-4	Figure ES-4 & Section 1.1	**(References to the Petroleum Program)** The *Draft FS* uses inconsistent references to the Petroleum Program including "Petroleum Hydrocarbon Corrective Action Program" (Figure ES-4) and "TPH corrective action program" (Section 1.1, last paragraph, p. 1-4). Please standardize these references.	The text, tables, and figures were revised to consistently use the phrase "TPH corrective action program."
10	2-3	Section 2.1.2	**(Geographic Units at HPS and Parcel E, last paragraph)** Please briefly state how IR-40 (two reinforced concrete structures overlying San Francisco Bay) will be evaluated and addressed.	Section 2.1.2 was revised to clarify that, although the structures (Pier 2 and Building 527) comprising IR Site 40 do not contain soil or groundwater requiring evaluation in the FS Report, they are considered radiologically impacted and are evaluated in the radiological addendum to the FS Report.
11	2-7	Section 2.1.3.4	**(Treatability Studies)** This paragraph should be updated to reflect the status of the Parcel E Groundwater Treatability Study at the time of the next version of this document.	The text was revised accordingly.
12	2-8	Section 2.2.2	**(Parcel E Historic Areas)** This paragraph mentions IR-75, a formerly used defense site. Is IR-75 addressed as part of the *Draft FS*? If not, under what program and by whom is it being addressed? Are there any other sites on Parcel E that are not being addressed under this *Draft FS*? If so, please identify these sites in the *Draft FS*.	IR Site 75 is a formerly utilized defense site that is not part of HPS, and is being addressed by the U.S. Army Corps of Engineers under a separate environmental restoration program. In the context of this section, IR-75 was only referred to as a general geographic reference point for the potential shellmound site along Crisp Avenue. No change was made in response to this comment.

Table 3. Responses to Comments from Regional Water Quality Control Board (RWQCB)
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Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009 *(continued)*				
13	2-18	Section 2.3.1	**(Parcel E RI Summary, Nonaqueous-Phase Liquids)** This paragraph includes reference to an IT Corporation document dated 1997 in which "free-phase petroleum is documented as deep as 25 feet bgs". If possible, I would like to obtain a copy of this document.	The Navy will provide a copy of the subject report to RWQCB.
14	2-20 & 2-21	Section 2.3.2.1	**(IR-02 Northwest and Central Excavation Area), first full paragraph)** In the second full sentence on p. 2-20 and second line of p. 2-21, it is stated that chemical results are evaluated in conjunction with development of soil alternatives in Section 4.0. Please include the specific references to the text sections and/or figures so that the reader can better evaluate what actions are being considered related to these specific chemical results.	Section 2.3.2.1 was revised to reference Figure 4-2, which identifies proposed excavations adjacent to the removal area within IR Site 02 Northwest. In addition, references were provided to Sections 4.2.3.1 and 4.2.4.1 that briefly discuss the manner in which the proposed excavations were developed and how they will be further refined in the RD.
15	2-22 & 2-23	Section 2.3.2.3	**(PCB Hotspot Area, first full paragraph)** Similar to the previous comment, in the second-to-last sentence of the first full paragraph on p. 2-23, it is stated that PCB and petroleum hydrocarbons chemical results in the southeast sidewall are evaluated in conjunction with development of soil alternatives in Section 4.0. Please include the specific references to the text sections and/or figures so that the reader can better evaluate what actions are being considered for these specific chemical results. Are any future actions planned for impacted soil areas that could not be excavated due to proximity to San Francisco Bay?	Section 2.3.2.3 was revised to reference Figure 4-2, which identifies proposed excavations adjacent to the PCB hotspot removal area. In addition, references were provided to Sections 4.2.3.1 and 4.2.4.1 that briefly discuss the manner in which the proposed excavations were developed and how they will be further refined in the RD.
16	2-25	Section 2.3.3.2	**(Groundwater Plume Delineation Update, VOCs, Las full paragraph)** For the discussion regarding the benzene plumes in IR-02 Northwest and IR-03, how close are these plumes to other redevelopment blocks with potential future residential use?	As shown on Figure 2-5, the benzene plumes in IR Site 02 Northwest and IR Site 03 are located completely within redevelopment blocks planned for open space reuse, and are located more than 1,000 feet away (in a hydraulically downgradient direction) from the nearest redevelopment block with planned residential reuse.

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Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009 *(continued)*				
17	--	Figure 2-5	**(Figure 2-5 Updated RI Plume Delineations for VOCs)** The note in the legend that applies to the benzene plumes labeled IR-02 Northwest and IR-03 is unclear. Please clarify which exposure pathway(s) is considered incomplete. Note that these data are evaluated in Appendix A (see Figure A3-9) for potential migration of benzene-impacted groundwater to San Francisco Bay.	Figure 2-5 was revised to clarify that, for the benzene plumes at IR Site 02 Northwest and IR Site 03, (1) the vapor intrusion exposure pathway is incomplete (consistent with the HHRA from the Revised RI Report), and (2) these plumes will not require evaluation in the groundwater remedial alternatives (other than the application of institutional controls and incidental treatment of other collocated chemical plumes).
18	--	Figure 2-7	**(Figure 2-7 – Screening- and Trigger-Level Groundwater Plume Delineation Update, VOCs)** The following plumes do not appear to have groundwater monitoring wells between the plume and San Francisco Bay: IR-02 (Aroclor 1254, metals), IR-02 NW (benzene), and IR-02 Central (nickel). Is this correct? Are there any grab groundwater sample or other data to indicate that these plumes are not discharging to the bay?	No additional data are available for the area between the shoreline plumes and San Francisco Bay. As discussed in the response to RWQCB comment 3, collection of groundwater data along the downgradient edges of the shoreline plumes is not feasible because monitoring wells cannot be drilled close to the shoreline because large debris is present. Also, if nearshore groundwater data could be collected, it could not be used to support the plume delineation evaluation because groundwater collected in the shoreline mixing zone would not be representative of stable groundwater conditions. The aquatic evaluation in Appendix A conservatively evaluates the potential for plumes to migrate to the bay, and concludes that all plumes along the Parcel E shoreline could pose a risk to the bay and should be considered during the development of the remedial alternatives. No change was made in response to this comment.
19	--	Table 2-3	**(Table 2-3 Summary of Previous Environmental Investigations at Parcel E), 2004 TPH Corrective Action Program, last sentence, p. 15 of 18** The text of the last sentence should be updated to reflect that the TPH data <u>have been</u> evaluated and corrective action recommended in the *Final Petroleum Hydrocarbon Corrective Action Plan, Parcel E, Revision 2009*. Alternatively, a separate row for the 2009 CAP could be included.	Table 2-3 was revised to state that the TPH data have been evaluated and to cite the final corrective action plan.

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Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009 *(continued)*				
20	--	Table 2-4	**(Table 2-4 – Summary of Removal Actions at Parcel E), 1991 to 1994 Removal and Closure of ASTs and USTs, p. 1 of 4** The reference given for this entry is HLA, 1994a. Based on documents in our files, the appropriate document references appear to be the July 12, 1994 *Draft Summary Report of Phase I and II UST Removals and Closures in Place* prepared by PRC Environmental Management, Inc. and the December 10, 2001 *Final Tank Closure Report – Aboveground/Underground Tank Cleaning and Removal* prepared by IT Corporation. Please check the table entry and reference, and revise, if appropriate.	Table 2-4 was revised to cite the correct reference from PRC Environmental Management, Inc. The reference to the Harding Lawson Associates document was corrected to "*Draft Construction Summary Report, Tank S-505 Removal Action, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California.*" The 2001 IT Corporation document was not discussed in the Revised RI Report and will therefore not be discussed in the FS Report.
21	4-3	Section 4.2.2	**(Alternative S-2: Covers, Institutional Controls, and Shoreline Revetment)** It is stated that the alternative includes conservative assumptions for maintenance, upgrades, or repairs to the existing covers. What are these assumptions for the soil covers and the shoreline protection?	The technical assumptions are briefly described in Section 4.2.2.1, and are detailed in Appendix D (Table D-19).
22	--	Figure 4-6	**(Proposed Excavations for Redevelopment Block EOS-1)** For the table beginning with proposed excavation EX02B415, the color scheme is missing from the column entitled "proposed excavation name."	The embedded table in Figure 4-6 was revised to specify the appropriate color for each proposed excavation.
23	5-17	Section 5.3.2.1	**(Section 5.3.2.1 – Overall Protection of Human Health and the Environment: Alternative GW-2)** In the second paragraph, it is stated that although trigger levels are exceeded, no impact to the bay has been demonstrated. Please clarify the meaning of "no impact" and provide supporting information, if available.	Section 5.3.2.1 was revised to delete the subject statement.
24	5-35	Section 5.5.3.4	**Reduction of Mobility, Toxicity, or Volume through Treatment: Alternative N-3, second to last sentence)** This sentence appears to be lacking the word "not". Please check and change as appropriate.	Section 5.5.3.4 was revised to clarify that Alternative N-3 removes the NAPL source, but does not actively treat or degrade it.

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Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009 *(continued)*				
25	A-7	Appendix A Section A2.5	**(Appendix A: Section A2.5 Trigger-Level Evaluation Theory)** The trigger-level methodology was originally developed for Parcel D, and also has been used at Parcel C. Given the large size of the facility, please provide adequate support for using the Parcel D-specific assumptions as part of this Parcel E evaluation.	A sensitivity analysis was performed during development of the attenuation factor calculations prepared for Parcel D to identify the relative sensitivity of the model to variability in the core input parameters, including hydraulic conductivity (K) and hydraulic gradient (i). It was reported that the BIOSCREEN model simulations, as used to generate the predicted peak concentrations at receptor locations, are insensitive to variations in K and i. This insensitivity is because the input parameters for K and i only affect the migration speed of the modeled plume, and consequently the arrival time of the predicted peak concentration at the receptor location (i.e., the San Francisco Bay). Varying the K and i input parameters does not affect the magnitudes of the predicted peak concentration. Attenuation factors were calculated as the ratio of peak source concentration to peak predicted concentration at the receptor location. To be conservative, only peak concentrations generated by the various model simulations were used to calculate the attenuation factor nomographs that are used to assign trigger levels. These peak concentrations are the highest concentrations modeled by the BIOSCREEN simulations, irrespective of the arrival time of that concentration at the receptor location. Because the model is insensitive to K and i inputs, the results of the Parcel D modeling can be applied to metals or organic chemical groundwater plumes at Parcel E or any other parcel at HPS.
26	A-12	Appendix A Section A3.1.1	**(Appendix A: Section A3.1.1 Arsenic)** Monitoring well IR03MWO-1 has had multiple samples that exceed the aquatic evaluation criterion. Please add a bullet discussing the results from this well	Section A3.1.1 was revised accordingly.
27	A-13	Appendix A Section A3.1.2	**(Appendix A: Section A3.1.2 Cadmium)** In the first sentence of the second paragraph, replace “arsenic” with “cadmium.”	Section A3.1.2 was revised accordingly.

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Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009 *(continued)*				
28	A-13 & A-14	Appendix A Section A3.1.3	**(Appendix A: Section A3.1.3 Copper)** Please reconcile the number of wells that exceed the criterion in the first and second sentences of this section on p. A-13. For the discussion relating to well PA36MW03A on p. A-14, how do the results from this well relate to the results from nearby well IR05MW85A? For instance, do the wells have similar well screen depths?	The text in the second sentence of Section A.3.1.3 was revised to indicate that copper exceeded its aquatic evaluation criterion in 27 wells, rather than 26. Wells PA36MW03A and IR05MW85A are both screened in the A-aquifer within a similar depth interval; therefore, they should display similar groundwater chemical concentrations. However, as shown on Figures A3-3 (copper) and A3-8 (zinc), the concentrations of these particular metals differ significantly between the two wells. Consistent exceedances are associated with well PA36MW03A, while none are associated with IR05MW85A. In the Parcel E RI Report, Section 4.3.5.4.2, the exceedances associated with PA36MW03A are briefly discussed. The RI text states that the presence of copper and zinc in groundwater at this location is not directly related to any known source of contamination at IR-36, but may be related to the random and undocumented use of abrasive blast material as fill material. Regardless of the spatially anomalous data observed within the vicinity of these two wells, both wells were evaluated appropriately as part of the aquatic evaluation to determine if they pose a risk to aquatic organisms in San Francisco Bay. As the text in Section A3.1.3 states, neither well contains concentrations of either copper or zinc that could potentially affect aquatic organisms in the bay.
29	A-11	Appendix A Section A3.1	**(Appendix A: Section A3.1 Metals)** Based on review of the evaluation results, I note that there have been recurring exceedances for multiple metals in samples from monitoring well IR02MW373A, which is located about 250 feet from San Francisco Bay. Has a removal action been considered for this area?	The Navy does not have any current plans to perform a removal action at this specific location. However, as depicted on Figure 4-6, numerous excavations are proposed in the immediate vicinity of well IR02MW373A to address elevated metals concentrations in shallow soil. The Navy is going to perform supplemental characterization in these areas (as well as other Tier 1 and Tier 2 locations throughout Parcel E), and will share the characterization results with the BCT and CCSF.

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Comment #	Page #	Section	Comment	Response
Comments provided by RWQCB Engineering Geologist (Ross Steenson), dated September 30, 2009 *(continued)*				
30	--	Appendix A	**(Appendix A, Attachment A3: Aquatic Evaluation Maps, Figure A3-1 – Evaluation of Arsenic in Groundwater)** The explanation title block "Parcel E Redevelopment Blocks" has a typographical error (lacks the third "e"). Please correct and check the remaining figures in Attachment A3.	The figures in Attachment A3 were revised to eliminate this typographical error.
31	--	Appendix A	**Appendix A, Attachment A3: Aquatic Evaluation Maps, Figure A3-6 – Evaluation of Mercury in Groundwater)** For bedrock water-bearing zone (WBZ) well IR15MW09F, are there any more recent bedrock WBZ or A-aquifer groundwater data for mercury to the east on Parcel D-1 that are non-detect or below the criterion?	No bedrock water-bearing zone wells are near IR-15 because the shallow bedrock in that area covers a limited geographic extent. This feature is identified on Figures 3-6, 3-8, and 3-17 in the Revised RI Report (Barajas & Associates, Inc., 2008b).
32	--	Appendix A	**(Appendix A, Attachment A3: Aquatic Evaluation Maps, Figure A3-8 – Evaluation of Zinc in Groundwater)** For several wells that were sampled in July 1992, the detected concentrations of zinc were elevated, but earlier and/or subsequent data are significantly lower concentration. Is there any information indicating whether the samples were filtered prior to preservation or not?	The metals data collected prior to 1995 in numerous wells at Parcels E and E-2 revealed consistently higher concentrations than data collected from 1995 to the present. The Navy believes that the elevated metals concentrations prior to 1995 are not representative of actual site conditions based on the extensive data collected from 1995 to the present. Although records indicate that the samples were filtered prior to analysis, the anomalous data suggest the possibility that improper sampling and field filtering techniques were used at the time.
33	--	--	**Recently Abandoned Groundwater Monitoring Wells** As appropriate, the figures throughout the document illustrating well locations should be updated to indicate those wells recently abandoned per the Navy August 28, 2009 memorandum *Proposed Wells to Abandon*.	Figures were revised to reflect recent well decommissioning activities.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health, Environmental Health Section Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009

Comment #	Page #	Section	Comment	Response
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009				
General Comments				
1	--	--	Vapor Intrusion remedial goals need to be established and soil gas samples collected to analyze the vapor intrusion pathway. It is inappropriate to restrict the entire Parcel E with a blanket Institutional Control (e.g. VOC ARIC) for all of Parcel E when the Navy has 5 years before it expects to transfer Parcel E. We have been discussing this soil vapor issue with the Navy since at least 2006. Please see the attached meeting summary (Attachment A) from a meeting held in March 2007 discussing this issue for Parcel B. Part of the reasoning for the chosen remedy on Parcel B for a blanket VOC restriction was to prevent further delays in the transfer process. However assurances were given at the time that soil gas sampling and establishment of soil vapor remedial goals would be required for future parcels. The Navy stated in its July 2007 cover letter to its draft revised RI for Parcel E that it would complete a soil gas survey. Can we please meet with the regulators to discuss this issue and resolve when and how this will be done for Parcel E and other parcels?	The Navy regrets that the agreements made during previous meetings were not reflected in the Draft FS Report for Parcel E. The Navy plans to perform a soil gas survey at Parcel E in accordance with the clarifications made in the Final Revised RI Report and as stated during previous working meetings. The Draft Final FS Report was revised to briefly discuss the planned soil gas survey at Parcel E; specific changes will include noting the objectives of the survey and the schedule for submitting the planning documents.
2	--	--	The Open Space designation for the railroad right of way (i.e. IR52, "the tail", EOS-5) should be changed to Residential Use to match the mixed use character of the surrounding neighborhood. The reuse for this area was not specified in the 1997 Reuse Plan so it should be assigned a category the same as the surrounding neighborhood.	Based on the CCSF's redevelopment plan for the Bayview Hunters Point redevelopment project (SFRA, 2010a), Installation Restoration (IR) Site 52 is planned primarily for light industrial use with small portions adjacent to planned residential and public (open) spaces. These planned reuses are consistent with existing conditions at the October 2006 zoning map from the CCSF. The Navy met with the Base Realignment and Closure (BRAC) Cleanup Team (BCT) and CCSF on November 9, 2010, to further evaluate cleanup options for IR Site 52. Based on a review of the existing data, it was determined that the most viable cleanup approach for IR-52 consists of (1) removal of hot spots and exceedance locations at IR Site 52 (now referred to as Tier 1 and Tier 2 locations, respectively), and (2) institutional controls precluding residential land use. The FS Report was revised to incorporate this approach, as appropriate, into the remedial alternatives.

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Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
General Comments				
3	--	General	IR52/EOS-5, the railroad right of way, should be evaluated separately from the rest of Parcel E as far as cleanup goals and remedy selection - particularly the cover remedy. This area does not have the same fill history as the rest of the Shipyard. This area should be treated similar to other sites with former railroad right of ways where the area is converted to the use of the surrounding neighborhood. Requiring a cover remedy for an irregular shaped parcel which is surrounded by adjacent neighborhoods may create problems with long term implementation and enforcement and is unnecessary if the Navy evaluates and cleans up the contamination. The use of EPA's risk range, if needed, could be considered as a tool in the evaluation process.	Please refer to the response to CCSF comment 2.
4	--	General	The Navy is allowed to evaluate their cleanup and remedies based on the reasonable anticipated reuses as stated in the 1997 Redevelopment Plan. However, if the selected remedies will ultimately be protective of all uses then the Navy should write the Institutional Controls to allow all uses including residential. Specifically, if you require a cover everywhere and a vapor barrier for all buildings built over areas that contain soil gas above vapor intrusion cleanup goals then there is no need to restrict that area from residential use. If the chosen remedy cuts off the exposure to contaminants that generate the risk and therefore the risk drops to an acceptable level for residential use then the area is safe for residential use and does not need a restriction against residential use.	The Navy plans to develop institutional controls for Parcel E in a similar manner as agreed to in the Records of Decision (RODs) for Parcels B, G, and D-1 and UC-1 (Navy, 2009a, 2009b, and 2009c, respectively). As presented in the RODs, the institutional controls consist primarily of activity restrictions that may accommodate potential residential use. However, the institutional controls also included land use restrictions precluding residential reuse for areas planned for industrial reuse. The Navy will work collaboratively with the BCT and CCSF to identify the most appropriate institutional controls for Parcel E that protect human health and the environment, and that best satisfy the other evaluation criteria presented in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). No change was made in response to this comment.

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Comment #	Page #	Section	Comment	Response
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
General Comments				
5	--	General	Rather than shoreline revetment using large rocks, we propose using articulating concrete block mats in shoreline areas. The gaps in the mats would allow grasses to establish and soften the look of the shoreline edge, while also providing additional habitat. These mats would accomplish the remedial goals of preventing soil contaminants from being washed into Bay and also allow for a more natural shoreline that is desired by many. Please see Attachment B for some suggested cross section designs that have been prepared by Lennar's consultants. We are happy to work with Navy engineers on the all aspects of the shoreline design. Section HP-2 shows use of articulating concrete block mats where possible in the less exposed areas. This is preferred over riprap as this will allow for a softer shoreline edge more in keeping with an "Ecology Park". The gaps in the mat will allow grasses to become established. Section HP-5 is similar to HP-2, but also shows creating a flatter area in the tidal zone to create a mudflat habitat. Section HP-8 also shows articulating concrete block mats with grasses and new marsh soils and wave berms to create habitat area. Section HP-9 shows keeping the existing mudflat and beach zones as habitat area and only stepping up the grade further back as needed for sea level rise. Because of the large flatter beach / mudflat zones, harder shoreline protections such as riprap or concrete block mats are not needed.	The Navy appreciates that CCSF shared their conceptual designs for shoreline protection. The Navy revised the Draft Final FS Report to include a new appendix that supplements the information provided in Section 3.3.2.1.7 by (1) evaluating several options for natural or hybrid stabilization structures, and (2) identifying the most promising natural or hybrid stabilization option to be used in combination with the shoreline revetment option presented in the Draft FS Report.
Specific Comments				
6	ES-2	Executive Summary	**Executive Summary, Page ES-2, 1st full paragraph.** Please reference the 1997 SFRA Redevelopment Plan consistent with the main body of the text.	The text was revised to reference and use the amended redevelopment plan for HPS (SFRA, 2010b).

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health, Environmental Health Section Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
Specific Comments				
7	ES-10	Executive Summary	**Page ES-10, Soil and Sediment Alternatives.** Alternative S-3 should state Shoreline Revetment rather than Shoreline Protection.	The text was revised accordingly; however, the specific titles of each alternative may be refined to reflect adjustments to the shoreline protection strategy (as discussed in the response to CCSF comment 5).
8	--	Executive Summary	**Figures ES-2 and 1-2, Reuse Areas, Redevelopment Blocks and IR Sites at Parcel E.** Please note that the Reuse Areas and Redevelopment Blocks are based on the 1997 SFRA Redevelopment Plan.	The text was revised to reference and use the amended redevelopment plan for HPS (SFRA, 2010b).
9	2-2	2.1.1	**Section 2.1.1, Page 2-2, Second full paragraph, last sentence** Remove the phrase "with live/work facilities". Please end the sentence with "an artist colony".	The text was revised accordingly.
10	--	2.2.7	**Section 2.2.7.3, Groundwater Flow.** Please identify Building 521 on Figure 2-2.	The figure was revised accordingly.
11	--	3.3.2.1	**Section 3.3.2.1, Screening and Detailed Analysis of GRAs and Process Options for Soil and Sediment**, considers both in-situ and ex-situ technology and process options for soil and sediment remediation; however, only hot spot excavation (ex-situ) and soil vapor extraction (in-situ) options were carried forward and evaluated as remedial alternatives. Based on previous experience with hot spot excavation at Hunters Point, the possibility exists that the excavation alternative will become economically infeasible due to the extensive volume of over-excavation that may be required to meet the remedial action objectives. We recommend either providing additional justification (e.g., results of previous Navy studies) for screening out certain in-situ soil treatment technologies or incorporating these technologies into the remedial alternative analysis to allow for flexibility for selecting in-situ technologies to be implemented in conjunction with excavation in areas where over-excavation may become prohibitively expensive.	The Navy further evaluated in-situ treatment options for soil and, based on the evaluation results, revised Section 3.3.2.1 to briefly discuss why in-situ treatment options (other than soil vapor extraction) were not included in the remedial alternatives.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health, Environmental Health Section Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
Specific Comments				
11 *(cont.)*	--	3.3.2.1	Specific in-situ options that we recommend retaining (i.e., not screening out) and carrying forward into the remedial alternatives analysis include solidification/stabilization, chemical oxidation, and phytoremediation.	*(see above)*
12	3-29	3.3.2.1.2	**Section 3.3.2.1.2 Institutional Actions, Activity Restrictions Relating to Soil and Associated VOC Vapors at Specific Locations within Parcel E, Page 3-29** The second sentence reads "Initially, the ARIC will include all of Parcel E". Five years before transfer seems like an inappropriate time to be placing this type of restriction on an entire parcel just because the Navy hasn't collected soil gas data and established vapor intrusion remediation goals. At a minimum, please remove the sentence and say that area that will require this restriction will be identified in the Proposed Plan or a later document. Please see first general comment and request to meet and discuss.	Please refer to the response to CCSF comment 1. The text was revised to clarify that the VOC ARIC will be adjusted based on the findings of an upcoming survey. The text was also revised to clarify that the implementation schedule for the soil gas survey is scheduled for implementation in 2011, and that the adjustments to the ARIC will be made as soon as practical.
13	3-29	3.3.2.1.2	**Section 3.3.2.1.2 Additional Land Restrictions for Areas Designated Open Space, Industrial, and Maritime-Industrial, Page 3-29** As stated in our general comment, the Navy does not need to restrict an area from residential use if the risk from contaminants post remedy implementation are below the residential risk. Please either remove this section or state that the proposed plan will evaluate these areas based on the selected remedy and determine if these post remedy implementation restrictions are necessary.	As discussed in the response to CCSF comment 4, the Navy plans to develop institutional controls for Parcel E in a similar manner as agreed to in the RODs for Parcels B, G, and D-1 and UC-1 (Navy, 2009a, 2009b, and 2009c, respectively). The Navy will work collaboratively with the BCT and CCSF to identify the most appropriate institutional controls for Parcel E through the review process on the FS Report, the Proposed Plan, and ROD. However, at this early stage in the remedy evaluation process, the Navy does not believe that any adjustments to this portion of the FS Report are warranted. No change was made in response to this comment.

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Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
Specific Comments				
14	--	3.3.2.3	**Section 3.3.2.3, Screening and Detailed Analysis of GRAs and Process Options for NAPL at IR-03,** considers only active treatment or extraction of LNAPL and does not consider any passive methods of LNAPL removal. It is our opinion that the active process options considered will be effective at removing the bulk of the LNAPL mass; however, operating these active process options at the point where the LNAPL thickness is small (1 to 3 feet or less) may be economically infeasible due to significantly decreased recovery rates. We recommend including consideration of some passive recovery process options following active recovery processes to allow for the flexibility of implementing more cost effective alternatives when the thickness of LNAPL is small but still exceeds levels specified in the remedial action objectives. Specific passive recovery process options that we recommend including as remedial alternatives include absorbent socks and variable density floating skimmers.	Past efforts to passively remove nonaqueous-phase liquids (NAPL) at IR Site 03 have proved largely unsuccessful, due primarily to the viscous nature of the NAPL. Appendix A (Section A4.1.3) of the Revised RI Report briefly describe the previous efforts at NAPL recovery at IR-03. Specifically, a prolonged effort during 1991 resulted in the recovery of only a modest volume of NAPL and the recovery effort was limited by the high viscosity of the NAPL. Section 3.3.2.3.5 was revised to briefly discuss the past results to clarify why passive removal of NAPL is not considered an effective process option for IR Site 03.
15	--	4	**Section 4, Figures 4-2 through 4-9.** Where practical, please consider using the same scaling on the proposed excavation.	The scale of Figures 4-2 through 4-9 was reviewed and adjusted, as appropriate. However, ultimate consideration was given to the individual drawing scales that maximize the available space to ensure clarity.
16	4-2	4.2	**Section 4.2, Description of Soil and Sediment Remedial Alternatives, Page 4-2, 2nd Bullet.** Add "but less than 10 times the remedial goal" to the end of the sentence.	The text was revised accordingly.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health, Environmental Health Section Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
Specific Comments				
17	--	4	**Figure 4-6** In the IR-02 Northwest and Central Excavation Area, backfill material used during the 2005 -2007 TCRA exceeded the industrial screening criteria (Section 2.3.2.1, Page 2-20). However, according to Figure 4-6, the only excavation proposed for this area appears to be around the perimeter of the backfilled area. Because the samples collected in this area are from discrete locations and may not be situated in localized areas of contamination, and because chemicals results from the backfill soil (Page 2-20) indicate several chemicals at concentrations greater than 10 times the remedial goals, it appears that additional investigation in this area is warranted during the RD phase. Please state as such.	The Navy believes that adequate data exist within the IR Site 02 Northwest removal area to evaluate appropriate remedial alternatives in soil and groundwater. The Navy wishes to clarify that, as discussed in Section 2.3.2.1, the top 3 feet of the excavation was backfilled with clean imported soil, thereby breaking the direct exposure pathway to wildlife and future site users of this open space area. As a result, the Navy's evaluation focused on the most appropriate combination of actions to prevent contaminated groundwater from migrating to the bay at concentrations that pose a risk to aquatic wildlife. No change was made in response to this comment.
18	--	4.2.2.1	**Section 4.2.2.1 Covers, New Covers.** The text specifies a minimum of 3 feet of clean imported soil. In previous FS reports, such as the Parcel D FS, only 2 feet of clean soil was specified. If the 3 feet of cover is referring to cover for the radiological restricted area near the shoreline, please clarify and state that other areas will have 2 feet of clean soil and the reason for this difference.	The 3-foot thick soil cover was identified based on the likely presence of residual radioactivity at depth; however, since publication of the Draft FS Report, the Navy has determined, in the draft radiological addendum to the FS Report (that evaluated both a 2-foot- and 3-foot-thick soil cover), that a 2-foot-thick soil cover is adequately protective for residual radioactivity. As a result, the Draft Final FS Report was revised to specify a 2-foot-thick soil cover in areas planned for open space reuse.
19	--	4.2.2.2	**Section 4.2.2.2 Institutional Controls.** Navy-defined reuse area EOS-5 is part of the IR-52 former railroad right-of-way where impacts would be expected to be limited to shallow soil contamination and few concentrations detected in soil exceeded cleanup goals. A hot spot excavation to remove copper and lead and a TPH removal excavation are planned. Due to the specific use of the railroad corridor and the limited impacts found as well as its location within the mixed use area situated west of the shipyard, EOS-05 should be a noted exception to the parcel-wide ICs implementation.	Please refer to the response to CCSF comment 2.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health, Environmental Health Section Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
Specific Comments				
20	--	4.2.2.5	**Section 4.2.2.5, first sentence** Should read Parcel D-1, not D-2, as written. Please correct.	The text was revised accordingly.
21	--	4.2.3.1	**Section 4.2.3.1, Excavation.** Please include a description of the methodology for identifying excavation locations and limits to be followed in the RD (such as providing coordinates of the sample locations). Also please describe the sampling protocols that will be used for verification sampling and reference appropriate Corrective Action Plan Work Plan or removal action work plan.	Section 4.2 of the Draft FS Report clarifies that detailed (pre- and post-excavation) confirmation sampling plans will be developed in the RD. The Navy believes that it is appropriate to defer the specific details for confirmation sampling plans because, while this component has a high degree of uncertainty, the cost of this effort is insignificant relative to other components, most notably excavation and off-site disposal. The Navy believes that the FS Report provides an adequate conceptual design to support an informed risk management decision. No change was made to the document in response to this comment. However, it should be noted that the Navy plans to perform additional characterization at the Tier 1 and Tier 2 locations prior to the RD, and the additional data will support more detailed excavation and confirmation sampling plans (to be provided in the RD).
22	--	4.2.2.6	**Section 4.2.2.6 Closure of Steam Lines (IR-45):** This section states that uncontaminated steam lines would be abandoned in place, but notes that the steam lines are covered in asbestos pipe lagging insulation. The presence of the asbestos should warrant removal of the steam lines. At a minimum, please add a bullet indicating that if friable asbestos material is encountered, it will be removed.	The Navy does not agree that the presence of friable asbestos warrants removal under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) actions being evaluated in the FS Report. Asbestos-containing materials would only be removed to the extent required to address collocated contamination from CERCLA-regulated chemicals. No change was made to the document in response to this comment.
23	4-8	4.2.2.7	**Section 4.2.2.7 Engineering Controls and Monitoring, Page 4-8** Listed here and other areas of the document it states "the Navy will conduct a comprehensive soil gas survey across the parcel after significant progress in groundwater remediation". We went over this again and again during the Parcel B ROD discussions (please see Attachment C containing all our comment letters on the Parcel B proposed plan and ROD with yellow highlights on the areas that commented this issue)	Please refer to the response to CCSF comment 1. The text was revised to clarify that the implementation schedule for the soil gas survey is scheduled for implementation in 2011.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health, Environmental Health Section Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
Specific Comments				
23 *(cont.)*	4-8	4.2.2.7	You do not need to wait until after groundwater remediation to conduct soil gas surveys. The establishment of soil vapor intrusion remediation goals can be accomplished prior to groundwater remediation and the goals need to be established so you will know when an area can be released from a vapor intrusion restriction.	*(see above)*
24	--	4.3.2.1	**Section 4.3.2.1, Institutional Controls.** The text states that "Institutional Controls would be enforced on an entire block even if only a portion of that block posed an unacceptable risk through vapor intrusion or domestic use pathways." Please remove this sentence and any other similar reference from the documents – it makes no sense and results in over-restricting land use, and is inconsistent with previously agreed upon strategies regarding ICs in areas with groundwater/vapor concerns.	Please refer to the response to CCSF comments 1 and 12. The text was revised to clarify that the ARIC for soil vapors will be adjusted based on the findings of an upcoming survey. The text was also revised to clarify that the implementation schedule for the soil gas survey is scheduled for implementation in 2011, and that the adjustments to the ARIC will be made as soon as practical.
25	--	4	**Figure 4-2, Proposed Excavations for Redevelopment Blocks.** Excavation area EX05B104 appears to be 65' by 20' instead of 65' by 40' as indicated in Table D-25.	Figure 4-2 and Table D-25 were reviewed and revised, as appropriate, to ensure consistency.
26	--	Appen-dix D	**Appendix D, Table D-25.** Please present a basis for how the excavation areas listed in Table D-25 were determined. Is there a contingency built into the excavation areas presented in Table D-25? Historically, actual excavation volumes at Hunters Point have exceeded the estimated excavation volumes by roughly 2 to 3 times. a. Please provide a basis for the "Over Excavation Volumes" listed in Table D-25. Table D-25 indicates an over excavation volume of 4,243 cubic yards and Table D-26 Alternatives S-4 and S-5 – Hotspot and Exceedance Excavations Cost Detail lists an over excavation volume associated with chasing contamination as 10% of the estimated total volume including the Over Excavation Volume listed in Table D-25. b. Note 2 at the bottom of page 3 states "Exceedance Types are as follows:" No exceedance type definitions are provided.	Table D-25 was revised to clarify that the column labeled "over-excavation volume" refers to a 15 percent volume increase to account for excavation growth. In addition, the Navy wishes to clarify that a 20 percent contingency was added to the subtotal cost for each remedial alternative; the Navy believes that these assumptions adequately support the cost estimate that meets the accuracy prescribed in EPA guidance (+50/-30 percent) (EPA, 2000). Finally, the notes on Table D-25 were reviewed and revised, as appropriate, to address the identified errors and omissions.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health, Environmental Health Section Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the City Environmental Engineer (Amy Brownell), dated October 2, 2009 *(continued)*				
Specific Comments				
26 *(cont.)*	--	Appen-dix D	c. Note 3. There appears to be a typographical error in Note 3. Please revise accordingly.	*(see above)*
27	--	Appen-dix D	**Appendix D Table D-26.** Please provide the source for Class I and II soil (RCRA and Non-RCRA) transport and disposal Unit Prices shown in Table D-26. a. Please clarify the difference between "Total volume requiring excavation and backfill" 42,944 cy (39,040 cy plus 3,904 cy over excavation) and "Backfill excavations with unclassified fill" 39,040 cy as shown in Table D-26.	The table was revised to provide the requested clarifications.

ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
ARARs	applicable or relevant and appropriate requirement
ARIC	area requiring institutional controls
BRAC	Base Realignment and Closure
BCT	BRAC Cleanup Team
bgs	below ground surface
CCSF	City and County of San Francisco
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COCs	chemicals of concern
COECs	chemicals of ecological concern
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
HHRA	human health risk assessment
HI	hazard index
HPS	Hunters Point Shipyard
i	hydraulic gradient
IR	Installation Restoration
K	hydraulic conductivity
MDAS	material documented as safe
mg/kg	milligrams per kilogram
MNA	monitored natural attenuation
MPPEH	material potentially presenting an explosive hazard
NAPL	nonaqueous-phase liquid
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PCB	polychlorinated biphenyl
RAOs	remedial action objectives
RBC	risk-based concentration
RD	remedial design
RI	Remedial Investigation
ROD	Record of Decision
RROs	radiological remedial objectives
RWQCB	California Regional Water Quality Control Board
SVE	soil vapor extraction
TCE	trichloroethene
TPH	total petroleum hydrocarbons
UXO	unexploded ordnance
VOCs	volatile organic compounds
ZVI	zero-valent iron

REFERENCES

Barajas & Associates, Inc. 2008a. "Final Feasibility Study Report for Parcel F, Hunters Point Shipyard, San Francisco, California." April 30.

Barajas & Associates, Inc., 2008b. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

IT Corporation. 1999. "Final Post-Construction Report, Site IR-03 Waste Oil Reclamation Ponds Removal Action, Sheet Pile Containment Barrier, Cap and Soil Cover, Hunters Point Naval Shipyard, San Francisco, California." July.

Department of the Navy (Navy), 2009a. "Final Amended Parcel B Record of Decision, Hunters Point Shipyard, San Francisco, California." January 14.

Navy, 2009b. "Final Record of Decision for Parcel G, Hunters Point Shipyard, San Francisco, California." February 18.

Navy, 2009c. "Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California." July 24.

San Francisco Redevelopment Agency (SFRA). 2010a. "Redevelopment Plan for the Bayview Hunters Point Redevelopment Project." City and County of San Francisco. May 27.

SFRA. 2010b. "Hunters Point Shipyard Redevelopment Plan." City and County of San Francisco. August 3.

Shaw Environmental, Inc. (Shaw). 2007. "Final New Preliminary Screening Criteria and Petroleum Program Strategy, Hunters Point Shipyard, San Francisco, California." December 21.

Tetra Tech EC Inc. 2010. "Final Material Potentially Presenting an Explosive Hazard (MPPEH) Processing and Removal Completion Report, Hunters Point Shipyard, San Francisco, California." June 30.

Tetra Tech EM Inc., Levine-Fricke-Recon, and Uribe & Associates, 1997. "Parcel E Remedial Investigation Report, Draft Final, Hunters Point Shipyard, San Francisco, California." October 27.

U.S. Environmental Protection Agency (EPA), 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final." Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01 and -02. EPA/540G-89/004. Available Online at: <http://www.epa.gov/superfund/policy/remedy/sfremedy/rifs/overview.htm>.

REFERENCES *(continued)*

EPA, 2000. "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study." OSWER Directive 9355.0-75. EPA/540/R-00-002. July. Available Online at: <http://www.epa.gov/superfund/policy/remedy/costest.htm>.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Project Manager (Craig Cooper), dated November 18, 2011				
1	--	General	EPA appreciates the use of terms "Tier 1" and "Tier 2" soil areas. In the future (i.e. in the Final FS, Proposed Plan and ROD for Parcel E), the Navy should use a clear, ready reference guide with the definitions and location maps for these areas.	The Navy agrees that it will need to clearly define and identify the Tier 1 and Tier 2 hot spots in the Proposed Plan and ROD[1]. The Navy believes that the existing description within the Draft Final FS Report (in the Executive Summary and Section 4.2) is adequate to convey the definition and location of these areas.
2	--	General	In the Parcel E Final FS and Proposed Plan, the Navy should clearly explain why the "full excavation" alternative is not possible due to the ubiquitous nature of historic fill soils and other factors.	Section 3.3.2.1.5 of the Draft Final FS Report describes the basis for focusing the excavation options at Parcel E based on criteria identified in the NCP (55 Federal Register 8849, March 8, 1990) and EPA RI/FS guidance (EPA, 1988). Specifically, the excavation options for Parcel E were evaluated based on effectiveness, implementability, and cost. Excavation options retained following this evaluation were incorporated into the remedial alternative analysis. The text in Section 3.3.2.1.5, which was expanded based on EPA comments received on the Draft FS Report, will be retained in the Final FS Report. The Proposed Plan and ROD will discuss how the remedial alternative analysis satisfies the NCP criteria, including effectiveness, implementability, and cost.
3	--	General	The railroad right-of-way (now known as Parcel UC-3) does not appear to be analyzed separately in the Parcel E FS. In the Proposed Plan for Parcel UC-3, how will the Navy identify how the preferred alternative for Parcel UC-3 is supported by a feasibility study in accordance with the CERCLA and NCP?	The Navy wishes to clarify that the railroad right-of-way (which is referred to as IR-52) was evaluated in the Parcel E FS to identify and evaluate remedial alternatives that are necessary to prevent unacceptable exposure to chemicals in soil. In addition, the proposed extent of Parcel UC-3 (which includes the railroad right-of-way and the portion of Crisp Avenue from Griffith Street to Spear Avenue) is still considered part of Parcel E because the parcel boundary changes will not be formally implemented until the ROD stage. A similar approach was implemented for HPS Parcels C and D, which contained Parcels UC-2 and UC-1, respectively, prior to the ROD. Section 1 was revised to (1) better describe the proposed remediation along Crisp Avenue, and (2) indicate the Navy's intent to create a separate utility corridor parcel (UC-3) that will be identified in the Proposed Plan for Parcel E.

[1] Acronyms and abbreviations are defined at the end of this appendix (following Table 6).

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Project Manager (Craig Cooper), dated November 18, 2011 *(continued)*				
4	--	General	EPA understands that the Navy's Draft Final Parcel E FS identifies the following recommended alternatives: • NAPL: N4A and N4B • Soil: S4 • Groundwater: GW-3, GW-4A, and GW-4B Therefore, specific recommendations concerning the preferred alternatives for NAPL and Groundwater are not identified. In the final FS, the Navy must identify the specific recommended alternatives for Soil, NAPL and Groundwater. EPA understands that the results for the treatability study for IR-03 will influence the Navy's process for making specific recommendations on NAPL and Groundwater.	The Navy acknowledges that the cited alternatives received the highest overall rankings based on the Navy's comparative evaluation in the Draft Final FS Report. The Navy reexamined the groundwater and NAPL remedial alternatives and made several minor modifications for the Final FS Report: • Alternative GW-3, which involves ISB treatment for all VOC plumes, was renamed as Alternative GW-3A. Alternative GW-4A, which involves ZVI injection at the Building 406 TCE Plume and ISB at all other VOC plumes, was renamed Alternative GW-3B. This change was made because both alternatives received similar rankings, indicating that both technologies may be viable. The Navy is currently performing additional studies at the Building 406 TCE Plume that will help determine which process option would be the most effective. The Navy proposes to utilize the new information in the RD to determine which option will be used. • Alternative GW-4B, which involves air sparging at the Building 406 TCE Plume and ISB at all other VOC plumes, was renamed Alternative GW-4. This change was made because the Navy reexamined the ranking for air sparging and determined that the heterogeneous fill at Building 406 limits the performance of this option when compared to ISB and ZVI. • Alternatives N-3, N-4A, N-4B, and N-5 each involve actions to address the NAPL source at IR-03. The Navy is preparing a report, concurrent with the final version of this FS Report, summarizing the results of additional characterization (performed in 2011) and a bench-scale treatability study (performed in 2012), and the Navy expects that the recent findings will help refine the NAPL remediation approach at IR-03. The Navy believes that there is adequate information to develop and evaluate an appropriate range of remedial alternatives to address NAPL. However, because the complex site conditions result in some uncertainty regarding the effectiveness and implementability of certain remediation technologies, the remedial alternatives were revised to incorporate a broader range of removal and treatment technologies that could be used in combination to cost-effectively achieve the NAPL RAOs.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Project Manager (Craig Cooper), dated November 18, 2011 *(continued)*				
4 *(cont.)*	--	General	*(see above)*	Specifically, Alternatives N-3, N-4A, N-4B, and N-5 were revised to clarify that the NAPL source may be addressed using a combination of removal and treatment technologies that were retained following a detailed evaluation (most notably, excavation and off-site disposal, solidification/stabilization, and thermally-enhanced extraction with off-site disposal). Prior to preparing the Proposed Plan, the Navy will meet with EPA, DTSC, and the Water Board to discuss which specific groundwater and NAPL alternatives should be identified as the preferred alternatives. The Navy may recommend that groundwater or NAPL alternatives with "A" and "B" designations both be retained as the preferred alternatives, with a final determination of the specific process options to be identified in the RD (after the completion of pre-design studies). The Navy does not believe that it is appropriate to recommend groundwater and NAPL alternatives in the Final FS Report.
5	--	Figures 2-5 and 2-6	It appears some of the groundwater plumes are not sufficiently bounded by monitoring wells. Does the Navy consider this a data gap for the remedial design process?	The Navy will verify the adequacy of the monitoring well network in the RD; however, the Navy believes that the current well monitoring network is adequate to evaluate remedial alternatives. As shown on Figures 4-10 through 4-20, the Navy plans to install additional wells to monitor the performance of the groundwater and NAPL alternatives. In addition, at some locations, the Navy is taking early action to better delineate certain plumes. For example, as part of a recent treatability study, the Navy has improved the delineation of VOC plumes located within the planned multi-use district because these areas pose a potential risk to humans and may require in-situ treatment (which will necessitate more precise delineation in the RD).
6	--	Table 4-7	EPA appreciates the Navy's use this table listing actions to be addressed during the remedial design. In the Parcel E Final FS, Proposed Plan and ROD, these actions should continue to be refined and carried forwarded as appropriate.	The Navy will continue to refine the list of actions for the RD, and will incorporate elements of this table, as appropriate, into the Proposed Plan and ROD.

Table 1. Responses to Comments from U.S. Environmental Protection Agency (EPA)
Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by EPA Project Manager (Craig Cooper), dated November 18, 2011 *(continued)*				
7	--	--	How does the Navy intend to address the comments on the Draft Final Parcel E FS from ARC-Ecology dated November 18, 2011?	See the responses to Arc Ecology's comments, provided in Table 5 of this appendix.
8	--	--	With respect the Draft Radiological Addendum to the FS for Parcel E, EPA has had concerns with Navy's responses to EPA comments 1, 7, 16, and 33. However, EPA will review the Navy's Draft Final Radiological Addendum for the Parcel E FS that just arrived today (November 18, 2011).	Comment acknowledged. The Navy will respond to EPA comments on the Draft Final Radiological Addendum for Parcel E.
Additional Comment provided by EPA Manager (John Chesnutt), dated April 30, 2012				
9	--	--	Response to General Comment 3: The response partially addresses the comment. It is understood that proposed Parcel UC-3 will be separated from Parcel E at the Proposed Plan stage and that this new parcel will receive a separate ROD. However, it is not clear from the Draft Final Parcel E FS Report which portions of each alternative apply to IR Site 52 and to Parcel UC-3. For example, both parcels are land-locked, but for all alternatives other than No Action, shoreline protection is a component. Similarly, Parcel UC-3 does not appear to have steam lines, so portions of Alternatives S-2, S-3, and S-4 may not be applicable. The Parcel E FS should be revised to clarify what remedy components apply to IR-52 and Parcel UC-3 and to facilitate separation of proposed Parcel UC-3 from Parcel E. Please revise the Parcel E FS to clearly present the remedy components that apply to Parcel UC-3 and to IR-52.	The Navy wishes to clarify that Table 4-2 in the Draft Final FS Report identified which components of the soil remedial alternatives (institutional controls, excavation and disposal of contaminated soil, covers, shoreline protection, and soil vapor extraction) apply to different areas within Parcel E (referred to as redevelopment blocks). Table 4-2 was revised to identify which redevelopment blocks will require fuel and steam line closures. In addition, the Navy wishes to clarify that Table 4-5 in the Draft Final FS Report identified which components of the groundwater remedial alternatives (institutional controls, monitoring, containment, ISB, ZVI injection, monitored natural attenuation, and air sparging) apply to different groundwater plumes within Parcel E.

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by DTSC Project Manager (Ryan Miya), dated August 23, 2011				
1	--	Section 2.2.4 and Figure 2-2	Navy's response to DTSC comment #4, Section 2.2.4 – Topography and Surface Water Drainage. Thank you for adding the feature to Figure 2-2 and referencing in Section 2.2.4. In addition, please briefly explain why there appears to be two locations that are identified for Outfall 33.	Outfall 33 consists of a single location at the termination of the existing storm line. Figure 2-2 was revised to remove the incorrect second location and to show the single location of Outfall 33 (at the termination of the existing storm line).
2	--	Section 4.2.2.5 and Figure 4-1	Navy's response to DTSC comment #13, Section 4.2.2.5 and Figure 4-1. Thank you for correcting the shared boundary text. However, the locations of Berth 29 and former tank S-505 do not appear to have been noted in Figure 4-1 as the response states. In addition, please clarify that IR-03 is also the location of the former oil reclamation ponds for clarification and consistency between the text and figure.	Figure 4-1 was revised to identify Berth 29 and former tank S-505. Figure 4-1 was also revised to note that IR-03[2] is the former oil reclamation ponds.
Comments provided by DTSC Geological Services Unit (GSU) Engineering Geologist (Gerard Aarons), dated August 17, 2011				
3	--	General	The GSU has reviewed Table 2. Responses to Comments from Department of Toxic Substances Control (DTSC) Draft Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2009. The Navy has adequately responded to my comments and recommendations or given adequate reasons why changes to the document were not warranted. I recommend approving the Draft Final Feasibility Study Report for Parcel E Hunters Point Shipyard San Francisco, California, dated July 2011.	Comment acknowledged.

[2] Acronyms and abbreviations are defined at the end of this appendix (following Table 6).

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by DFG Office of Spill Prevention and Response (OSPR) Staff Toxicologist (Charlie Huang), Environmental Scientist (Tami Nakahara), and Associate Toxicologist ("Allen" C.L. Tsao), dated August 22, 2011				
4	--	General	For the administrative record purposes, this is the first time that DFG-OSPR is commenting on the FS report for Parcel E. The Navy did not send the Draft version of the subject document to DFG-OSPR for regulatory review. The Draft FS was published in July, 2009, but DFG- OSPR was not aware of this document until we were carbon copied on the Department of Toxic Substances Control's (DTSC's) comments. Subsequently, the Navy mailed the Draft version in September, 2009. DTSC's Project Manager recommended that DFG-OSPR provide comments on the Draft Final FS. This comment serves to remind the Navy of DFG-OSPR's continued interest in natural resource issues (i.e. contaminants and biological impacts) related to the project.	At the time the Draft FS Report was published (in July 2009), the Navy was not aware of the DFG-OSPR's expectation to review all CERCLA documents for Parcel E. The Navy has since recognized that expectation and ensured that DFG-OSPR receives all future CERCLA documents for Parcel E.
5	--	General	DFG-OSPR is in general concurrence with the comments provided by Dr. Ryan Miya of DTSC on September 30, 2009. DFG-OSPR has additional comments on the above document beyond those expressed by DTSC.	Comment acknowledged.
6	--	General	Figures 4-2 to 4-9. DFG-OSPR checked the Figure 6-1 of Final Revised Remedial Investigation (RI) Report for Parcel E (Barajas & Associates, 2008), as part of this review. The proposed excavations (Figures 4-2 to 4-9) encompass the sampling locations of other constituents which DFG- OSPR considers elevated and of potential ecological concern in Parcel E. This comment is intended for the DTSC Project Manager.	Comment acknowledged.

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by DFG OSPR Staff (Charlie Huang, Tami Nakahara and "Allen" C.L. Tsao), dated August 22, 2011 *(continued)*				
7	ES-3	Executive Summary	Page ES-3, Section Parcel E History and Environmental Setting. a. The Navy states, "*The following special-status bird species were observed at HPS during previous surveys: peregrine falcon (Falco peregrinus), a state endangered species; double-crested cormorant (Phalacrocorax auritus), a state species of special concern; and loggerhead shrike (Lanius ludovicianus), a state species of special concern.*" The Peregrine Falcon has been Federally and State delisted, but is still a State fully protected species. Other than collection for scientific research purposes for the recovery of the species, Fully Protected Species may not be "taken" or possessed at any time and DFG is not authorized to issue a permit for their "take", including trapping. Please correct the status of this species in the text.	a. The executive summary and Sections 2.2.5 and 3.2.2 were revised to correct the status of the peregrine falcon as a protected species. Please refer to Attachment 1 to these responses to comments for the Navy's evaluation of the additional potential ARARs identified by DFG-OSPR, including California Fish and Game Code § 3511, which pertains to fully protected bird species (such as the peregrine falcon).
			b. There are other special-status birds that may be present at Parcel E. These species include Federally- and State-endangered, and State fully protected California Clapper Rail and California Least Tern; State- threatened and State fully protected California Black Rail; State fully protected Brown Pelican, Golden Eagle, Southern Bald Eagle, and White-tailed Kite; Federally-threatened and State species of special concern Western Snowy Plover; State species of special concern Northern Harrier and Alameda Song Sparrow; and State watch list species Osprey. In addition, according to the 2011 Final RI/FS for Parcel E-2 (page 2-20), Burrowing Owl, a State species of special concern, has been observed at HPS. HPS is also along the Pacific Flyway, which is a stop-over for wintering and migrating birds protected by the Federal Migratory Bird Treaty Act and various Fish and Game Codes. Therefore, please include a discussion in the text of these other special-status bird species that may be present at Parcel E.	b. The Navy presented the previous ecological assessments, including an assessment of special-status species potentially present at Parcel E, in the Revised RI Report for Parcel E (Barajas and Associates, 2008). The Revised RI Report was reviewed and approved by EPA, DTSC, and the Water Board in accordance with the Federal Facility Agreement. Considering the previously approved work, the Navy does not believe that sufficient technical basis exists to support DFG-OSPR's request to revise the subject text. Although the Navy is not subject to CEQA, CEQA is not considered to be a CERCLA ARAR, and the Navy is in no way relying upon CEQA determinations in its decisions, the Navy also notes that their previous CERCLA findings are consistent with an independent study performed in support of the SFRA's recent EIR for the Phase II development of HPS (SFRA, 2010a).

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

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Comments provided by DFG OSPR Staff (Charlie Huang, Tami Nakahara and "Allen" C.L. Tsao), dated August 22, 2011 *(continued)*				
7 *(cont.)*	ES-3	Executive Summary	c. The Navy states, "No special-status plants, mammals, reptiles, amphibians, or invertebrates are expected to be present within the terrestrial habitat at Parcel E." This statement is incorrect. Various special-status species have the potential to be present within or adjacent to the habitats at Parcel E (i.e., beach areas, intertidal wetland areas, upland areas). These species include special-status plants such as Federally-endangered and State rare California seablite (*Suaeda californica*); State rare bristly sedge (*Carex comosa*), Diablo helianthella (*Helianthella castanea*), seaside tarplant (*Hemizonia congesta ssp. congesta*), and rose leptosiphon (*Leptosiphon rosaceus*). Special-status mammals and reptiles include Federally- and State-endangered and State fully protected salt marsh harvest mouse (SMHM) and San Francisco garter snake; and State species of special concern salt marsh wandering shrew. The 2008 Final Revised RI Report for Parcel E states signs of western harvest mouse have been observed at Parcel E (page 3-21). Western harvest mouse and SMHM look similar and are difficult to distinguish even when in hand. Page 2-12 of this FS also states harbor seals and sea lions have been observed in areas adjacent to Parcel E. These species are protected by the Federal Marine Mammal Protection Act and have the potential to utilize the beach areas at Parcel E. In addition, there is the potential for special-status fish to be present in and adjacent to intertidal wetland areas at Parcel E, such as Federally- and State-threatened Central Valley spring run chinook salmon, Federally- and State-endangered Sacramento River winter run chinook salmon, and Federally-threatened central California coast steelhead and Central Valley steelhead. Therefore, please correct the text to state, "*Special-status plants, mammals, reptiles, amphibians, fish, or invertebrates may be present within the terrestrial, beach, and intertidal wetland habitats at Parcel E.*"	c. The subject statement is consistent with previous ecological assessments performed by the Navy, as presented in the Revised RI Report (Barajas and Associates, 2008). In addition, DFG-OSPR's assertion regarding the potential presence of the salt marsh harvest mouse is inconsistent with text on page 3-22 of the Revised RI Report that states "*Based on information gathered during the Parcel E Validation Study, it does not appear that the salt marsh harvest mouse occurs at Parcel E at HPS.*" The Revised RI Report was reviewed and approved by EPA, DTSC, and the Water Board in accordance with the Federal Facility Agreement. Considering the previously approved work, the Navy does not believe that sufficient technical basis exists to support DFG-OSPR's request to revise the subject text. Although the Navy is not subject to CEQA, CEQA is not considered to be a CERCLA ARAR, and the Navy is in no way relying upon CEQA determinations in its decisions, the Navy also notes that their previous findings are consistent with an independent study performed in support of the SFRA's recent EIR for the Phase II development of HPS (SFRA, 2010a).

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8	ES-12 to ES-15	Executive Summary	Pages ES-12 to ES-15, Section Development of Remedial Alternatives. Special-status species and habitats at Parcel E have the potential to be impacted by contaminants of ecological concern on site as well as by remedial activities (i.e., surveying and sampling activities; pre- implementation bench-scale and pilot-scale studies on remedial technologies; vegetation removal; excavation; grading; installation of covers, slurry or sheet-pile walls, and shoreline protection; etc.). These impacts include but are not limited to temporary or permanent loss of habitat from remedial activities (including loss of wetlands), disturbance to nesting birds, take of species, or other impacts. Therefore, the Navy will need to conduct biological surveys for these sites, before remedial activities begin, and according to appropriate survey guidelines (i.e., nesting surveys, Burrowing Owl protocol surveys [California Burrowing Owl Consortium, 1993; DFG, 1995], rare plant protocol surveys [DFG, 2009]). In addition, the Navy will need to consult with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and DFG-OSPR on appropriate avoidance, minimization, and mitigation measures to implement for potentially impacted Federal and State special-status species and habitats. The Navy will also need to consult with the regulatory agencies that have jurisdiction over wetlands (i.e., U.S. Army Corps of Engineers, Regional Water Quality Control Board) regarding appropriate mitigation for impacts to wetlands at Parcel E. The cost of these surveys, protective measures, and mitigation should be included in the cost estimates for the remedial alternatives.	Please refer to the response to comment 7 above regarding adequacy of previous site-specific ecological assessments to identify the plant and animal species potentially present at Parcel E. The proposed remedial alternatives would comply with the substantive provisions of pertinent ARARs, including those location-specific ARARs regarding the protection of biological resources (summarized in Section 3.2.2 and detailed in Appendix B of the FS Report). Starting in 2006, the Navy has collaborated with the BCT, CCSF, and other project stakeholders to develop a mitigation approach for wetlands that would be eliminated by cleanup actions at Parcels B, E, and E-2. The Navy prepared draft and draft final versions of a WMMP for HPS that were reviewed by the BCT, CCSF, and other project stakeholders, including DFG-OSPR (TtECI, 2006; Shaw, 2009a). The Navy responded to all comments received on the draft and draft final versions of the WMMP and incorporated input from various reviewers, as appropriate, into the final version of the WMMP that was published in December 2009 (Shaw, 2009b). As described in Section 3.2.3.1 of the FS Report: *"The Navy will mitigate the loss of the wetlands at Parcel E using on-site compensatory mitigation to be implemented in conjunction with the remedy for Parcel E-2 (Shaw, 2009). The final details of the plan for wetland mitigation will be included in the remedial design for Parcel E-2."* Cost estimates for wetlands mitigation and monitoring were provided in the RI/FS Report for Parcel E-2. In addition, the Navy wishes to clarify that the administrative/procedural requirements for preparing biological assessment and biological opinion documents (which would evaluate avoidance, minimization, and mitigation measures) are not ARARs for the on-site CERCLA response action being evaluated in the FS Report.

Table 2.	Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011			
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9	2-11	Section 2.2.5	Page 2-11, Section 2.2.5 Ecology. The Navy states," The Navy conducted a thorough biological assessment of the potential occurrence of species protected under the Endangered Species Act at Parcel E (Tetra Tech FW, Inc. 2004)." This biological assessment (BA) was conducted over seven years ago. In general, DFG considers BAs or biological surveys valid for a couple of years. In addition, the 2004 BA only analyzed the potential effects of the proposed site characterization and removal activities associated with radiological contamination and potential polychlorinated biphenyls (PCBs) in four areas at Parcel E: metal debris reef, metal slag area, IR Site 02 Northwest and Central, and PCB hot spots. The 2004 BA did not analyze the potential effects of the remedial activities at the IR sites being considered in the current Parcel E Draft Final FS. Therefore an updated BA will need to be conducted for the new remedial activities that will be implemented at Parcel E and submitted to USFWS, NMFS, and DFG-OSPR for review. The Navy will need to obtain a Biological Opinion from USFWS and/or NMFS for potential impacts to Federally- listed species and approval from DFG-OPSR for proposed avoidance, minimization and mitigation measures for State-listed species.	As described in the response to comment 7 above, the Navy presented the previous ecological assessments, including an assessment of special-status species potentially present at Parcel E, in the Revised RI Report for Parcel E (Barajas and Associates, 2008). These previous assessments included the existing ruderal and intertidal habitat at Parcel E (see Figure 3-3 from the Revised RI Report). The Revised RI Report was reviewed and approved by EPA, DTSC, and the Water Board in accordance with the Federal Facility Agreement. Considering the previously approved work, the Navy does not believe that sufficient technical basis exists to support DFG-OSPR's request to perform a supplemental ecological or biological assessment. Although the Navy is not subject to CEQA, CEQA is not considered to be a CERCLA ARAR, and the Navy is in no way relying upon CEQA determinations in its decisions, the Navy also notes that their previous findings are consistent with an independent study performed in support of the SFRA's EIR (SFRA, 2010a). In addition, the administrative/procedural requirements for preparing biological assessment and biological opinion documents are not ARARs for the on-site CERCLA response action being evaluated in the FS Report. The Navy believes that the information contained in the Revised RI Report is adequate to support the findings provided in the FS Report.

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
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10	2-41 to 2-42	Section 2.5.2.1	Pages 2-41 to 2-42, Section 2.5.2.1 Baseline Environmental Risk Assessment (BERA) for Soil. a. The Navy states, "*In summary, no significant unacceptable risk to ecological receptors was indicated at Parcel E. The maximum HQs [Hazard Quotients] based on PSCs derived using the low TRV were 2.16 (for kestrels exposed to PCBs in soil) and 2.67 (for the house mouse exposed to lead in soil).*" 1. In 2007, DFG-OSPR concurred with DTSC-Human and Ecological Risk Division (HERD) on the Draft Final RI that based on the level of ecological hazard to terrestrial receptors, remedial actions based only on ecological hazard concern is not warranted for Parcel E. We also agree with DTSC-HERD's comment that "future changes in use, such as the proposed establishment of a nearby wetland would require re-evaluation of the terrestrial ecological hazard [emphasis added]." (p. L-52, Specific Comment 38 of DTSC, Barajas & Associates, 2008). 2. According to the Final Parcel E RI (Barajas & Associates, 2008), the adjacent nearby Parcel E-2 was a landfill. However, in 2009, the Navy proposed to use Parcel E-2 for construction of tidal and freshwater seasonal wetland to mitigate impacts and wetland losses elsewhere at HPS (Shaw, 2009). This is a significant departure from the condition presented in 2007, and therefore, in accordance with our conditional concurrence comment, DFG-OSPR requires that the terrestrial ecological hazard be re- evaluated in the FS for Parcel E.	As described in the response to comment 8, the Navy has collaborated with the BCT, CCSF, and other project stakeholders to develop a mitigation approach for wetlands that would be eliminated by cleanup actions at Parcels B, E, and E-2. Beginning in 2006, the Navy has been consistent in presenting its plans to restore wetlands at Parcel E-2, as documented in the draft and draft final versions of a WMMP (TtECI, 2006; Shaw, 2009a) and the draft and draft final versions of the RI/FS Report for Parcel E-2 (ERRG and Shaw 2007 and 2009). Therefore, the Navy does not agree with DFG-OSPR's assertion that the Navy's current plans are significantly different than those presented prior to 2009. Further, the Navy does not believe that sufficient technical basis exists to support DFG-OSPR's request for an updated ecological risk assessment at Parcel E.

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10 *(cont.)*	2-41 to 2-42	Section 2.5.2.1	b. The Navy states, "*Because the house mouse does not warrant protection as a species, and no other small mammals have been observed during trapping at the site, this level of risk is acceptable. The low HQ for the kestrel does not indicate population-level risk of a magnitude that warrants remediation.*" 1. DFG-OSPR does not concur with the above statement from the Navy. Exceedance of low toxicity reference value (TRV) below a high-TRV indicates exceedance of threshold above which adverse effects may occur; therefore, it warrants further investigation. DFG- OSPR infers from the document that the Navy does not intend to perform a remedial action if the ecological hazard does not exceed the high TRV (assuming human health contaminant is not a driver). We disagree with the Navy's approach. The emphasis should be placed on risk management decision-making when ecological risks are greater than no effect, but less than a deleterious effect level (i.e., the range of hazard presented between the No Observed Adverse Effects Level [NOAEL)] and Lowest Observed Adverse Effects Level [LOAEL]). 2. Thus, DFG-OSPR recommends estimating the extent of potential remediation and associated costs presented by a NOAEL-based cleanup level compared to LOAEL-based cleanup level. The LOAEL-based cleanup level should be based on a critical effect level (e.g., for a reproductive, physiologic, developmental, or growth endpoint), not a midrange adverse effect level represented by the high-TRV.	The subject statement is consistent with the conclusion from Section 5.2.9 of the Final Revised RI Report for Parcel E (Barajas and Associates, 2008). The Navy believes that the Final Revised RI Report for Parcel E properly evaluated potential ecological risk and wishes to clarify that the associated risk management decision made in the Revised RI Report (that risk to wildlife is not significant and does not warrant response action based only on ecological concerns) was reviewed and concurred upon by EPA, DTSC, and the Water Board in accordance with the Federal Facility Agreement. However, the Navy wishes to clarify that, because chemicals in soil present a potential unacceptable risk to human health, remedial action is proposed throughout the future open space areas at Parcel E. The proposed remedial alternatives in these areas, which are detailed in Section 4 of the FS Report, will protect humans from potential unacceptable exposures. The Navy does not believe that sufficient technical basis exists to support DFG-OSPR's request for an updated ecological risk assessment at Parcel E, or a reevaluation of associated risk management decisions based on different ecological criteria (NOAEL or LOAEL).

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10 *(cont.)*	2-41 to 2-42	Section 2.5.2.1	3. Please note that in the Final Parcel E ERA, the Navy has indicated that the house mouse represents the omnivorous mammalian guild (p. J-8, Tetra Tech, 2008), so for the Navy to say that "*the house mouse does not warrant protection as a species*" is to say that the entire omnivorous mammalian guild (e.g., deer mouse, ornate shrew) does not warrant protection. This would be in direct contradiction of the ecological assessment endpoint chosen during the problem formulation stage. Thus, please remove the above statement in Section 2.5.2.1. 4. The Navy notes that "*no other small mammals have been observed during trapping at the site.*" Given that part of the site reuse is designated as an open space and that the nearby adjacent Parcel E-2 is becoming a tidal and freshwater seasonal wetland, DFG- OSPR requires that the original list of surrogate species include other terrestrial receptors that represent the insect-eating birds and mammals, the herbivorous birds and mammals, and the omnivorous birds and mammals (e.g., the Marsh Wren, the ornate shrew, the California vole, the salt marsh wandering shrew [SMWS], and the Western Meadowlark). 5. In light of the changes in the ecological condition of the site and the nearby site Parcel E-2, the Navy must re-evaluate the ERA to include the additional trophic receptors.	*(see above)*

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10 *(cont.)*	2-41 to 2-42	Section 2.5.2.1	6. To illustrate the importance of the re-evaluation, DFG-OSPR used the Navy calculated Exposure Point Concentration for lead of 525.63 mg/kg and analyzed the contaminant hazard to the SMWS, the western harvest mouse (WHM), the Loggerhead Shrike, and the Western Meadowlark by using the same site-specific uptake factors that the Navy used for Parcel E (TtEMI and LFR, 2000). For mammals, the SMWS has a low-TRV-based hazard quotient of 14.2; the WHM a low-TRV-based hazard quotient of 6.5. For birds, both the Loggerhead Shrike and the Western Meadowlark not only exceeded the low-TRV but both birds exceed the high-TRV for lead (the Loggerhead Shrike has high-TRV HQ of 2.0 and the Western Meadowlark has high-TRV HQ of 1.8 after incorporating site-use). Because lead has exceeded the LOAEL and mid-level effect benchmark, lead poses an unacceptable level of hazard to these receptors, and thus the remedial action must address the hazard of lead to those species. DFG-OSPR requires that the Navy re-evaluate the ecological risk of all contaminants to all additional ecological receptors listed above.	Please refer to the previous portions of this response regarding the Navy's position that insufficient technical basis exists to support DFG-OSPR's request for an updated ecological risk assessment at Parcel E.
11	3-4	Section 3.1.1.2	Page 3-4, Section 3.1.1.2 Soil Remedial Action Objectives (RAOs) for the Protection of the Environment. The Navy states, "*The BERA concluded that risk to wildlife is not considered significant and does not warrant response actions based only on ecological concerns; therefore, no ecological RAO for soil is proposed. However, ecological benchmarks (Table 3-1) will be considered during any response action undertaken to address risk Identified in the HHRA.*" The soil RAOs have not been demonstrated to be protective of ecological receptors. The Navy must include relevant trophic guild receptors because of the proposed establishment of nearby wetlands. Please see Specific Comment 4.	Please refer to the response to comment 10 regarding the Navy's position that insufficient technical basis exists to support DFG-OSPR's request for an updated ecological risk assessment at Parcel E, or a reevaluation of associated risk management decisions based on different ecological criteria (NOAEL or LOAEL). Accordingly, the soil RAOs are adequate to address the potentially unacceptable risks at Parcel E, and the proposed remedial alternatives in these areas, which are detailed in Section 4 of the FS Report, will protect humans from potential unacceptable exposures.

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12	3-16; B-45 to B-54	Section 3.2.2; Section B3	Page 3-16, Section 3.2.2 Potential Location-Specific Applicable or Relevant and Appropriate Requirements (ARARs); pages B-45 to B-54, Section B3. Location-Specific ARARs.	
			a. The Navy has identified the substantive portions of California Fish and Game Code (F&GC) Sections 2080 and 2081 as ARARs regarding the protection of the American Peregrine Falcon as a State endangered species. The American Peregrine Falcon has been delisted by the State. However, there are other State threatened and endangered species that may be present at Parcel E such as the California Clapper Rail, California Least Tern, California Black Rail, SMHM, San Francisco garter snake, Central Valley spring run chinook salmon, and Sacramento River winter run chinook salmon. Therefore, the substantive portions of F&GC Sections 2080 and 2081 are still considered ARARs for Parcel E.	As discussed in the response to comment 7, the executive summary and Sections 2.2.5 and 3.2.2 were revised to correct the status of the peregrine falcon. The Navy believes that the information presented in the Revised RI Report for Parcel E (Barajas and Associates, 2008) is adequate to demonstrate that none of the cited endangered species are present at Parcel E. Therefore, California Fish and Game Code § 2080 and § 2081 are no longer ARARs for the proposed remedial alternatives at Parcel E.
			b. The only DFG ARARs the Navy has identified for Parcel E are F&GC Sections 2080 and 2081. Other DFG ARARs that should be included as ARARs for Parcel E and listed in the text of this FS are F&GC Sections 5650, 3005, 1908, 3503, 3511, 4700, and 5050, and Title 14 California Code of Regulations Section 460 (please see attached table). Since the Navy has accepted the Federal Migratory Bird Treaty Act as an ARAR, DFG-OSPR will not include submission of F&GC Sections 3503.5 and 3513 as ARARs for Parcel E.	The draft and draft final versions of the FS Report evaluated potential ARARs identified by DFG-OSPR in correspondence to DTSC (DTSC, 2009). Specifically, Table B-4 provided adequate information to demonstrate why California Fish and Game Code § 3005 and § 1908 are not ARARs for the proposed remedial alternatives at Parcel E. Please refer to Attachment 1 to these responses to comments for the Navy's evaluation of the additional potential ARARs identified by DFG-OSPR. Appendix B in the Final FS Report was updated to incorporate this additional information.

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12 *(cont.)*	3-16	Section 3.2.2	c. The Navy states F&GC Section 3005 is not an ARAR. However, DFG- OSPR and the Navy have not come to an agreement whether this statute is an ARAR. Please include the following agree to disagree language from the letter dated December 3, 2009 from DFG-OSPR counsel to Navy counsel (Johnson, 2009): *"The DON [Department of the Navy] has determined that F&GC Section 3005(a) is not a state ARAR because it is not applicable or relevant and appropriate. DFG-OSPR asserts that F&GC section 3005(a) is a state ARAR because it is relevant and appropriate. Whereas, the DON and DFG-OSPR have not agreed upon whether F&GC section 3005(a) is an ARAR, this Feasibility Study documents each party's position on the statute but does not attempt to resolve the issue."*	The Navy acknowledges the cited "agree–to-disagree" language but does not agree with the applicability of such language to Parcel E. The Navy's position is that the "agree-to-disagree" language is only to be used on sites where the Navy and the State of California (including DFG-OSPR) are able to reach agreement regarding ecological cleanup levels. Based on the comments provided by DFG-OSPR on the Draft Final FS Report, it does not appear that such an agreement exists. Accordingly, the "agree-to-disagree" language was not incorporated into the Final FS Report. If agreement on ecological cleanup levels is reached by the time the ROD is issued, the "agree-to-disagree" language may be included consistent with the Navy counsel's April 29, 2010, letter to CDFG counsel (Navy, 2010).
13	3-27 to 3-55; 4-1 to 4-44	Section 3.3; Section 4	Pages 3-27 to 3-55, Section 3.3 Analysis of General Response Actions and Process Options; pages 4-1 to 4-44, Section 4 Development and Description of Remedial Alternatives; Appendix D Evaluation of Shoreline Protection Options.	
			a. Remedial activities being considered at Parcel E may result in temporary and permanent impacts to wetlands. Impacts to wetlands are regulated by various Federal and State agencies. DFG follows the USFWS wetland definition which utilizes hydric soils, wetland hydrology, and hydrophytic vegetation criteria and requires the presence of at least one of these criteria (rather than all three) in order to classify an area as a wetland. Based on this definition, DFG-OSPR considers beach/intertidal areas to be wetlands in addition to the coastal salt marsh and emergent wetland present at Parcel E.	The wetlands delineation at Parcel E (along with sites at Parcels B and E-2) was documented in the "Final Parcel E Nonstandard Data Gaps Investigation, Wetlands Delineation and Functions and Values Assessment, Parcels B and E" (TtEMI, 2003), which was presented as Appendix D of the Final RI/FS Report for Parcel E-2 (ERRG and Shaw, 2011). Section 2 of that document states that USACE guidance (USACE, 1987) was used to perform the field investigation; however, Section 3 of that document states: *"The extent of the wetlands delineation at HPS covered all potential areas even when only one of the wetlands parameters was observed…No areas at HPS were excluded from potential wetland area delineation because they only possessed one or two wetlands parameters."* As a result, the existing wetlands delineation adequately identifies that wetlands acreage subject to mitigation, reflective of the more conservative USFWS criteria.

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13 *(cont.)*	3-27 to 3-55; 4-1 to 4-44	Section 3.3; Section 4	Remedial activities being considered at Parcel E such as the installation of covers, shoreline protection, slurry or sheet-pile walls, groundwater flow diversion structures, or extraction wells; implementation of thermally enhanced liquid-phase extraction and thermally enhanced dual-phase extraction; excavation; and backfill may cause temporary or permanent impacts to wetlands. These impacts may include loss of habitat, alteration of hydrology, loss of wetland function, and impacts to sensitive species. Therefore, the Navy will need to consult with the regulatory agencies on avoidance, minimization, and mitigation measures for impacts to wetlands (including restoration or creation of wetlands, monitoring, and maintenance). Costs for these activities should be factored into the cost estimates for the remedial alternatives.	Please refer to the response to comment 8 regarding the Navy's planning efforts for wetlands mitigation at HPS.
		b.	Covers, shoreline protection, and backfilled excavations will need to be installed and graded to match existing wetland elevations in order to maintain wetland hydrology. This requirement will need to be included in the remedial design and work plan (WP) documents.	Please refer to the response to comment 8 regarding the Navy's planning efforts for wetlands mitigation at HPS.
		c.	Shoreline protection technologies such as armoring (i.e., riprap, large armor units, gabions, articulating concrete mats, or engineered concrete structures) may alter wetland hydrology and destroy wetland habitat. Please explain how the Navy will avoid, minimize, and mitigate these types of impacts to the wetlands if these remedial alternatives are implemented.	Sections 3.3.2.1.7 and 4.2.2.3 briefly describes the shoreline protection options for Parcel E and reference a more detailed evaluation provided in Appendix D. Appendix D evaluates the pertinent regulatory requirements associated with protecting the Parcel E shoreline as part of the remedial action and adequately describes the necessary measures to avoid, minimize, and mitigate impacts to wetlands.
		d.	Any wetland vegetation removed as part of a remedial activity will need to be restored. Please include wetland restoration as part of the remedial alternatives being considered in wetland areas. Details of the wetland restoration plan such as a list of plant species, restoration methodology, success criteria, monitoring, and maintenance will need to be included in the remedial design and WP documents.	Please refer to the response to comment 8 regarding the Navy's planning efforts for wetlands mitigation at HPS.

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by DFG OSPR Staff (Charlie Huang, Tami Nakahara and "Allen" C.L. Tsao), dated August 22, 2011 *(continued)*				
14	3-39 to 3-40	Section 3.3.2.1.7	Pages 3-39 to 3-40, Section 3.3.2.1.7 Containment, Subsection Covers.	
			a. 2nd bulleted item. The Navy states, "*Other examples of covers could include ...a minimum 2 feet of clean imported soil.*" Please clarify whether soil covers will be used only in upland areas or in intertidal areas as well. Burrowing animals such as gophers can burrow to approximately 6 feet below ground surface (Salmon and Baldwin, 2009) and ground squirrels can burrow to approximately 4.5 feet below ground surface (Hampton, 2006). In intertidal areas, fat innkeeper worms, ghost shrimp, and certain species of clams can burrow 3 feet or more below ground surface. Coupled with erosion from natural processes such as wind, rain, and tidal action, breaching of the soil cover is a possibility. Therefore, covers will need to be more than 2 feet in depth and/or incorporate biotic barriers to prevent burrowing animals from reaching contaminated soils and bringing the contaminants to the surface. Please explain why a biotic barrier was not included in the design of the cover options and how the Navy will ensure that the cover will not be damaged by burrowing animals and will be maintained in perpetuity. DFG-OSPR does not recommend the use of pesticides due to their ability to bioaccumulate and kill non-target species. Cost estimates for the additional soil coverage, biotic barriers, and management of burrowing animals should be included for the remedial alternatives.	The conceptual designs for the proposed covers are described in Section 4.2.2.1 of the FS Report. These designs differ slightly from those proposed for the intertidal shoreline zone (described in Section 4.2.2.3 and Appendix D of the FS Report) and include at least 2 feet of clean fill. The conceptual design for the covers includes the necessary maintenance and monitoring activities to ensure the integrity of the cover and comply with the pertinent ARARs (described in Section 3.2.3.1 and Appendix B of the FS Report). The covers will be subject to post-closure inspections, maintenance, and monitoring necessary to prevent potential unacceptable exposure to humans and comply with pertinent ARARs. The planned maintenance activities will be detailed in the post-closure operation and maintenance plan (to be prepared in conjunction with the RD). Based on this information, the Navy does not believe that sufficient technical basis exists to support DFG-OSPR's request for changes to incorporate biotic barriers into the conceptual designs for the soil covers.

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by DFG OSPR Staff (Charlie Huang, Tami Nakahara and "Allen" C.L. Tsao), dated August 22, 2011 *(continued)*				
14 *(cont.)*	3-39 to 3-40	Section 3.3.2.1.7	b. 3rd bulleted item. The Navy states two engineered cover options were retained for evaluation (a reinforced geosynthetic clay liner [GCL] and high-density polyethylene [HDPE] geomembrane) and both options would include an underlying soil foundation layer and overlying soil vegetative cover. GCLs and HDPEs may deter but will not prevent upland burrowing animals from breaching them. Therefore, in upland areas, the GCL and HDPE options will need to include soil covers that are more than 2 feet in depth and/or incorporate biotic barriers. Cost estimates for the additional soil coverage, biotic barriers, and management of burrowing animals should be included for the remedial alternatives.	Please refer to the response on the previous page regarding the Navy's position that insufficient technical basis exists to support DFG-OSPR's request for changes to the conceptual designs for the soil covers.
			c. 5th bulleted item. The Navy states, "*Maintenance includes inspections and repairs for covers that are left in place during future land use.*" Please explain who will be responsible for the cost and maintenance of the covers and how it will be determined if there is a breach in the cover. How will these covers be repaired if damaged?	The Navy will perform post-closure inspections, maintenance, and monitoring necessary to comply with pertinent federal and state requirements, as identified in Section 3.2.3.1 and Appendix B of the FS Report. The planned maintenance activities will be detailed in the post-closure operation and maintenance plan (to be prepared in conjunction with the RD).
			d. Please explain how soil covers and engineered alternative caps will be feasible to use in intertidal areas and wetlands where they are susceptible to erosion from wind, rain, waves, currents, tidal action, and bioturbation from benthic organisms. Please provide examples of other intertidal or wetland sites that have successfully implemented this type of remedy.	The conceptual designs for the proposed covers in the intertidal shoreline zone are described in Section 4.2.2.3 and Appendix D of the FS Report. These designs include appropriate components (such as rock armoring) to resist erosion that are consistent with guidelines established by the USACE (USACE, 2008).

Table 2. Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by DFG OSPR Staff (Charlie Huang, Tami Nakahara and "Allen" C.L. Tsao), dated August 22, 2011 *(continued)*				
15	3-54	Section 3.3.2.3.7	Page 3-54, Section 3.3.2.3.7 Containment, subsection covers. The Navy states cover designs for nonaqueous-phase liquid include a minimum of 2 feet of clean imported soil or other engineered cover design. Please see Specific Comments 8a-d.	Please refer to the response to comment 14 (parts a through d).
16	5-9	Section 5.1.4	Page 5-9, Section 5.1.4. Detailed Analysis of Alternatives S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection. DFG-OSPR is willing to consider Alternative S-4, i.e., Excavation and Off- Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection. However, DFG-OSPR recommends the soil cover be at least four feet. This is due to the possible presence of burrowing animals, such as ground squirrel, raccoon, opossum, and striped skunk. For example, ground squirrels may burrow to 138 cm below ground surface (Hampton, 2006).	Please refer to the response to comment 14 regarding the Navy's position that insufficient technical basis exists to support DFG-OSPR's request for changes to the conceptual designs for the soil covers.
17	5-14	Section 5.3	Page 5-14, Section 5.3. Detailed Analysis of Groundwater Alternatives. DFG-OSPR defers to the California Regional Water Quality Control Board, San Francisco Region regarding acceptability of groundwater remedial alternatives.	Comment acknowledged.
18	--	--	DFG-OSPR has reviewed the subject FS report for Parcel E. If Alternative S-4 is selected, we recommend the soil cover be at least four feet in depth. In addition, DFG-OSPR is concerned about wetland losses due to remedial activities and requests that mitigation for these losses be addressed.	Please refer to the response to comment 14 regarding the Navy's position that insufficient technical basis exists to support DFG-OSPR's request for changes to the conceptual designs for the soil covers. Please refer to the response to comment 8 regarding the Navy's planning efforts for wetlands mitigation at HPS.

Table 2.	Responses to Comments from California Department of Toxic Substances Control (DTSC), Department of Fish and Game (DFG), and Department of Public Heath (CDPH) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011			
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by CDPH Environmental Management Branch (EMB) Senior Health Physicist (Larry Morgan), dated August 15, 2011				
19	1-3	Section 1.1	Page 1-3, Section 1.1, "Purpose and Scope", last paragraph states, "*This FS Report Addresses only CERCLA-regulated chemicals that are not radioactive. As a result, a radiological Addendum to the FS Report is being prepared to evaluate the Nature and Extent of radiological contamination and risk to human health and the environment, as well as to develop alternatives to address the radiologically impacted sites identified in the Historical Radiological Assessment (HRA).*" CDPH-EMB noted this statement and EMB will anticipate reviewing another technical manual addressing the radiological issues for Parcel E-2.	Comment acknowledged. The Navy recently submitted the Draft Final Radiological Addendum to the FS Report for Parcel E. This document, which was submitted on November 17, 2011, included responses to comments from CDPH on the Draft Radiological Addendum to the FS Report for Parcel E (ERRG and RSRS, 2010).
20	3-1	Section 3	Page 3-1, Section 3, "Remedial Action Objectives", "Applicable or Relevant and Appropriate Requirements", "General Response Actions", and "Process Options" does not include any radiological remedial action objectives. EMB is assuming the Navy will propose remedial action objectives in a separate document.	The Draft Final Radiological Addendum to the FS Report for Parcel E, which was submitted on November 17, 2011, includes radiological RAOs.
21	3-13	Section 3.2.1	Page 3-13, Section 3 (3.2.1), "Potential Chemical Specific ARARS" does not include California State Code 17 Title 30256 as a state Chemical Specific ARAR. Please explain the reasons for not including this radiological ARAR as a State ARAR.	The Draft Final Radiological Addendum to the FS Report for Parcel E, which was submitted on November 17, 2011, identifies and evaluates potential radiological ARARs, including Title 17 CCR § 30256.
22	3-34	Section 3.3.2.1.2	Page 3-34, Section 3.3.2.1.2, "Additional Activity Restrictions Related at IR-02 and IR-03", states areas requiring institutional controls at IR Site 02 and 03 would include three components, 1 Engineer Cover, Demarcation Layer and institutional controls to permit land use controls. For IR Sites 2 and 3, the transferee will be required to apply for a license or license exemption or license since institutional controls will be required at IR Site 2 and 3 from the Radiological Health Branch (California Department of Public Health).	The Draft Final Radiological Addendum to the FS Report for Parcel E, which was submitted on November 17, 2011, includes information on the potential applicability of a radiological license or license exemption.

Table 3. Responses to Comments from Regional Water Quality Control Board (Water Board) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011				
1a	--	App. G	**Response to Water Board General Comment #1** – Thank you for the information regarding the sheet-pile wall's anticipated lifespan/effectiveness of the time of its installation in 1998. This information is relevant and should be incorporated into the Section 2.0 text and/or Table 2-4.	The information on the anticipated effectiveness of the existing sheet-pile wall was added to Table 2-4. In addition, the text in Section 3.3.2.3.7 was revised to clarify that the existing sheet-pile wall would not serve as an effective barrier for use in the remedial action.
1b	--	App. G	**Response to Water Board General Comment #13** – I have not yet received a copy of the subject report.	The subject report was forward to the Water Board[3] (via e-mail) on November 11, 2011.
1c	--	App. G	**Response to Water Board Specific Comment #29** – Revisit this RTC and update it to reflect agreements made (if any) during the working meetings.	The subject response was updated to clarify that the Navy is working on a new project to better delineate hot spots at Parcel E.
2a	ES-1	Executive Summary	**Parcel E History and Environmental Setting – Radiological Addendum, p. ES-1** – Clarify in the executive summary that the *FS* only addresses non-radioactive chemicals and that an addendum will be prepared to evaluate remedial alternatives to address risk from radiological contaminants.	The requested clarification (consistent with the statement included in Section 1.1) was added to the executive summary.
2b	ES-2	Executive Summary	**Parcel E History and Environmental Setting – Figure References for IR-45, IR-47, IR-50 and IR-51; p. ES-2** – In the last sentence of the first paragraph on p. ES-2, confirm that the portions of the listed IR sites on Parcel E are illustrated on Figures 2-1 and 2-2.	Figure 2-1 identifies the steam lines (IR-45, in green), fuel lines (IR-47, in red), and transformers (IR-51, in Building 527 on south pier). Figure 2-2 identifies the storm drain and sanitary sewer lines (IR-50).
2c	ES-2	Executive Summary	**Parcel E History and Environmental Setting – Reason for Sanitary Sewer and Storm Drain Removal; p. ES-2** – In the last sentence on the page briefly state why the Navy is removing the lines.	The subject sentence was revised as follows: "*…the Navy is in the process of removing the existing sanitary sewer and storm drain lines across HPS under a basewide removal action (Navy, 2006a) to address potential radioactive contamination*." An identical edit was also made in Section 2.2.4.

[3] Acronyms and abbreviations are defined at the end of this appendix (following Table 6).

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
2d	ES-10 and ES-11	Executive Summary	**Feasibility Study – General Response Actions, Remedial Technologies, and Process Options - Groundwater; p. ES-10 and ES-11** – In reviewing the remedial action objectives for soil and groundwater and comparing against the general response actions, it is not clear how dermal exposure of construction workers to contaminated A-aquifer groundwater will be controlled. Clarify this in the executive summary and in Section 3.0.	Dermal exposure of construction workers to contaminated A-aquifer groundwater will be controlled by the proposed institutional controls. Section 3.3.2.1.2 identifies numerous restricted activities that would be properly controlled through numerous legal and administrative mechanisms. Page ES-10 was revised to clarify that institutional controls for groundwater would mitigate potential unacceptable exposure to chemicals in soil gas or groundwater. An identical edit was made in Section 3.3.1.
2e	ES-11	Executive Summary	**Feasibility Study – General Response Actions, Remedial Technologies, and Process Options; p. ES-11** – In the last sentence of this section, the text states that there are five general response actions. However, there are six in the preceding sections (institutional controls, engineering controls, monitoring, removal, treatment, and containment).	The subject sentence was revised to correctly refer to six general response actions.
2f	ES-13	Executive Summary	**Feasibility Study – Development of Remedial Alternatives – Groundwater Alternatives; p. ES-13** – In the last sentence of the bullet for Alternative GW-4A, insert "treatment" after "in-situ."	The subject sentence was revised accordingly. An identical edit was made to Section 4.3.4.
2g	--	Figure ES-4	**Figure ES-4 (Updated RI Plume Delineations for VOCs)** – The note in this figure represented with one asterisk (*) states that benzene plumes in open space land use areas will not be evaluated in the *FS* because the vapor intrusion pathway is incomplete. This note then states that "three plumes will not require evaluation in the groundwater remedial alternatives"; however, the asterisk is only used to identify two plumes in the figure (IR-02 Northwest and IR-03).	The subject note in Figure ES-4 (and Figure 2-5) was revised to use the word "these" instead of "three."

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
3a	1-3	Section 1.1	**Section 1.1 (Purpose and Scope), last paragraph of p. 1-3** – Section 1.1 states that a radiological addendum to the *FS* is being prepared to evaluate the nature and extent of radiological contamination and risk to human health and the environment; however, this work was performed and described in the Radiological Addendum to the Revised Final RI. Clarify the purpose of the radiological addendum to the *FS*.	This statement refers correctly to the Navy's decision to prepare a radiological addendum to the current CERCLA document for Parcel E (the FS Report), so that both documents could be developed concurrently, thereby resulting in an integrated approach for addressing CERCLA-regulated chemicals at Parcel E. The Navy took a similar approach at HPS Parcels B, C, and D. Although the radiological addendum describes the nature and extent of radionuclides at Parcel E, it also screens, develops, and evaluates remedial alternatives necessary to address radioactive contamination at Parcel E.
3b	1-4	Section 1.1	**Section 1.1 (Purpose and Scope), second sentence of p. 1-4** – Provide a definition "radiologically impacted" so that the reader understands that this means there is potential for radiological impact rather than actual, confirmed radiological contamination.	The following sentence was added to the subject paragraph in Section 1.1: *"As defined in the HRA, radiologically impacted areas have the potential for radioactive contamination based on historical information or are known to contain or have contained radioactive contamination."*
3c	--	Figure 1-1	**Figure 1-1 (Site Vicinity Map)** – Confirm whether the over-water structures are part of Parcel E, not Parcel F. Extend this comment throughout the document.	Note "c" on Figure 1-2 correctly describes the status of the piers and berths: *"Piers and berths are considered part of offshore Parcel F but are identified in this document for completeness (because they were not discussed in the FS Report for Parcel F)."*
3d	--	Table 3-10	**Table 3-10 (Detailed Evaluation of GRAs and Process Options for Groundwater - Containment), p. 3 of 3** – In the row for containment, insert a sentence indicating that the current condition of the existing sheet-pile wall is uncertain (see Comment #1a). Extend this comment to Table 3-11.	Tables 3-10 and 3-11 were revised to eliminate reference to the existing sheet-pile wall at IR-03 because, as described in the response to comment 1a, the text in Section 3.3.2.3.7 was revised to clarify that the existing sheet-pile wall would not serve as an effective barrier for use in the remedial action.
4a	2-18	Section 2.2.7.4	**Section 2.2.7.4 (Tidal Effects, p. 2-18)** – Since "tidal mixing" is briefly defined, also briefly define "tidal influence."	Section 2.2.7.4 was revised to add the requested clarification.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
4b	2-18	Section 2.2.8	**Section 2.2.8 (Groundwater Beneficial Use Evaluation, p. 2-18)** – In the fourth sentence, replace "determined, in a response to a request by the Navy" with "staff concurred with the Navy's determination." This change will clarify that it was a Navy determination with a Water Board staff concurrence, rather than a formal action before our Board. Extend this comment to Appendix B (Applicable or Relevant and Appropriate Requirements).	Section 2.2.8 was revised as requested. The existing text in Appendix B does not require revision because it properly describes that this was a Navy determination with concurrence from Water Board staff.
4c	2-25	Section 2.3.2.2	**Section 2.3.2.2 (Metal Debris Reef in IR-02 Southeast, third paragraph of section, p. 2-25)** – I believe that the fourth sentence intended to convey that, because only 2 samples out of 193 samples exceeded the specified RROs, no widespread radiological contamination is present at the Metal Debris Reef. Revise the sentence, as appropriate.	The subject sentence was revised as follows: "*The two samples that failed to meet the specified RROs <u>were collected at the bottom of the excavation and were surrounded by other samples that met the specified RROs, thereby confirming</u> that no widespread radiological contamination is present at the Metal Debris Reef.*"
4d	2-32	Section 2.3.3.4 and Figures 2-6 and 2-7	**Section 2.3.3.4 (Groundwater Plume Delineation Update, TPH, p. 2-32), Figure 2-6 (Updated RI Plume Delineations for Total TPH and PCBs) and Figure 2-7 (Non- Aqueous Phase Distribution at IR-03)** – Given the proximity of IR-03 NAPL and impacted groundwater to the Bay and the uncertainty of the condition of the interim measures (existing sheet-pile wall and concrete along the IR-03 shoreline), Water Board staff looks forward to selection and implementation of the permanent remedy in a timely manner.	The Navy agrees with the Water Board's request to select and implement the permanent remedy for IR-03 in a timely manner. In conjunction with the ongoing effort to finalize this FS Report, the Navy is also performing additional characterization and a bench-scale treatability study at IR-03. The Navy will use the additional data in the RD and will incorporate the necessary flexibility into the Final FS, Proposed Plan and ROD to account for future data.
4e	--	Figure 2-8	**Figure 2-8 (Screening- and Trigger-Level Groundwater Evaluation for Aquatic Life at Parcel E)** – A line indicating distance from the shoreline is defined in the legend, but is not used on the figure.	Figure 2-8 was revised to remove reference to the line corresponding to a 250-foot distance from the shoreline and to add the tidally influenced zone to the figure (this zone is more pertinent to the analysis).
4f	--	Tables 2-6 through 2-9	**Tables 2-6 through 2-9 (Groundwater Analytical Results 2005-2009)** – Include appropriate definitions of abbreviations and laboratory flags (i.e., NA, U, and J) with each table.	Tables 2-6 through 2-9 were revised to define the abbreviations and laboratory flags.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
5a	3-9	Section 3.1.3.2	**Section 3.1.3.2 (Groundwater Remedial Goals for Protection of Human Health, second bullet), p. 3-9** – Section 3.1.3.2 states that the RBCs for the B-aquifer COCs were based on the domestic use scenario of A-aquifer groundwater. Correct this to refer to the domestic use scenario of B-aquifer groundwater.	The subject bullet item was revised as requested.
5b	3-40	Section 3.3.2.1.7	**Section 3.3.2.1.7 (Containment, Covers, first and fifth bullets), p. 3-40** – Seawalls located in the southeast portion of Parcel E are mentioned for the first time in Section 3.3.2.1.7. Define the location of these seawalls on a figure.	Figure 1-2 was revised to identify the location of the seawalls in the southeast portion of Parcel E. The subject bullet items in Section 3.3.2.1.7 were revised to include a parenthetical notation directing the reader to Figure 1-2.
5c	3-52	Section 3.3.2.3.6	**Section 3.3.2.3.6 (Treatment), p. 3-52** – Containment and excavation are both listed as groundwater treatment technologies. Provide a rationale their inclusion as such.	The subject sentence was revised to delete reference to containment and excavation because they are already discussed in Sections 3.3.2.3.5 and 3.3.2.3.7.
6a	4-5	Section 4.2.2.1	**Section 4.2.2.1 (Alternative S-2, Covers, New Covers, last sentence), p. 4-5** – Section 4.2.2.1 states that covers will not be necessary at IR-52 because Tier 1 and Tier 2 excavations will bring the remaining incremental risks to within the acceptable risk management range. However, Alternative S-2 does not include soil excavations. Update the text to provide the appropriate justification for not including a cover at IR-52 under Alternative S-2.	The Final FS Report was revised to better describe the approach for IR-52. Specifically: • The RAOs in Section 3.1.1 were revised to clarify that industrial remedial goals are the basis for demonstrating protectiveness of the soil remedies at IR-52. • Section 4.2.2 was revised to indicate that Alternative S-2 would include localized covers at 3 areas where chemical concentrations exceed industrial remedial goals, and would also include institutional controls to restrict residential use at IR-52. • Sections 4.2.3 and 4.2.4 were revised to indicate that Alternatives S-3 and S-4 will remove the Tier 1 hot spots at IR-52 that drive the unacceptable risk relative to the industrial remedial goals and, following this removal, institutional controls will be adequate to protect human health without reliance on maintaining a cover in this area.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
6b	4-12	Section 4.2.4	**Section 4.2.4 (Alternative S-4: Excavation and Off-Site Disposal of Tier 1 and Tier 2 Locations, Followed by Covers, Soil Vapor Extraction, Institutional Controls, and Shoreline Protection), p. 4-12** – Correct the text that states "Tier 2 locations are distinct from the Tier 2 locations" to "Tier 2 locations are distinct from the Tier 1 locations."	The subject sentence was corrected as requested.
6c	--	Section 4	**Text References to Other Sections of the FS** – Address the following: **i. Section 4.3.2.1 (Alternative GW-2, Institutional Controls), p. 4-16** – The reference to Section 4.2.2.3 should be 4.3.2.3, and the reference to Section 3.3.2.2.2 should be 3.3.2.1.2. **ii. Section 4.4.2 (Alternative N-2: Source Containment, Monitoring, and Institutional Controls), p. 4-31** – The reference to Section 3.3.2.121 should be Section 3.3.2.1.2. **iii. Section 4.4.2.4 (Alternative N-2, Radiological Controls), p. 4-32** – The reference to Section 4.2.3.1 should be Section 4.2.2.4. Extend this comment to Sections 4.4.3.6, 4.4.4.7, 4.4.5.6, 4.4.6.8, and 4.4.7.5, as appropriate.	i. Section 4.3.2.1 was revised to correct the erroneous references; however, the Navy revised the third sentence in Section 4.3.2.1 to reflect more specific input from the CCSF (see the response to CCSF specific comment 10). ii. Section 4.4.2 was revised to correct the erroneous reference. iii. Sections 4.4.2.4, 4.4.3.6, 4.4.4.7, 4.4.5.6, 4.4.6.8, and 4.4.7.5 were revised to correct the erroneous references.
6d	4-20	Section 4.3.3.1	**Section 4.3.3.1 (Alternative GW-3, Groundwater Containment), p. 4-20** – Check the following: **i.** ***Receptors*** - In the first paragraph, revise the text to state that groundwater containment is implemented to control migration of contamination to downgradient "surface water" receptors, not "groundwater" receptors. **ii.** ***Function of Slurry Wall*** - In the second paragraph, briefly describe how the lengthening of the flow path following slurry wall construction will prevent/reduce potential discharge of groundwater contamination.	Section 4.3.3.1 was revised to include the requested clarifications.
6e	4-40	Section 4.4.5.7	**Section 4.4.5.7 (Alternative N-4B, Considerations), p. 4-40** – Section 4.4.5.7 refers to Alternative N-4A where it should refer to N-4B. Please correct the text to read "The considerations for Alternative N-4B are the same as those for Alternative N-4A."	Section 4.4.5.7 was revised to correct the cited error.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
6f	--	Section 4.4.6.1	**Section 4.4.6.1 (Alternative N-5, Source Removal by Excavation)** – Address the following: **i.** ***All NAPL (p. 4-40)*** – The first paragraph states that the excavation to groundwater (approximately 9 feet bgs) will remove "all NAPL". Add the phrase "in the unsaturated zone" to this statement since NAPL is also present below the water table. **ii.** ***Existing Sheet-Pile Wall (p. 4-41)*** – Per the RTC to my General Comment #1, depending on the condition of the existing sheet-pile wall, the wall may partly address the difficulties associated with saturated soil and surface water inundation. The language should reflect this uncertainty regarding the wall's condition. Extend this comment to Section 4.4.7.1.	Sections 4.4.6.1 and 4.4.7.1 were revised to reflect the requested clarifications.
6g	--	Figure 4-16	**Figure 4-16 (Preliminary Optimization Strategy for Removal of NAPL at IR-03)** – The word "contingency" is misspelled in the lower, rightmost box.	Figure 4-16 was revised to correct the spelling error.
7a	5-8	Section 5.1.3.1	**Section 5.1.3.1 (Overall Protection of Human Health and the Environment: Alternative S-3), p. 5-8** – In the second full sentence on this page, confirm whether excavations may be backfilled with asphalt.	Section 5.1.3.1 was revised to include the requested clarification.
7b	5-14	Section 5.2.8	**Section 5.2.8 (Comparison of Soil Remedial Alternatives, Overall Rating), p. 5-14) –** Section 5.2.8 does not accurately or adequately address the reasons some alternatives were ranked higher than others. For example, the statement "Alternative S-3 is rated lower mainly because it would be less protective than Alternative S-4 by not removing contaminated soil" implies that soil is not removed as part of Alternative S-3, but soil is removed in both alternatives. Revise this section, as appropriate.	Section 5.2.8 was revised to better explain the relative rankings of each soil alternative.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
7c	5-29	Section 5.4.8	**Section 5.4.8 (Comparison of Groundwater Remedial Alternatives, Overall Rating), p. 5-29** – Reconcile the apparent inconsistency between Section 5.4.8 and Section 5.4.3. Section 5.4.8 states that Alternatives GW-4A and GW-4B were deemed more effective in the long-term than Alternative GW-3, but all three of these alternatives received the same 'Very Good' rating for long-term effectiveness, and differences in long-term effectiveness are not discussed in Section 5.4.3.	Sections 5.4.3 and 5.4.8 were revised to eliminate the noted inconsistency.
8a	A-12 and A-13	Section A3.1.1	**Section A3.1.1 (Aquatic Evaluation Results – Arsenic Screening Evaluation and Trigger-Level Evaluation), p. A-12 and A-13** – For the bulleted discussion related to the wells from which multiple samples exceeded the A-aquifer aquatic evaluation criterion, please place the well ID at the beginning of the bullet. This will significantly improve readability and aid with cross-referencing the discussion with the figure. Also, in the paragraph identifying for which wells that arsenic is a COPEC, it would also improve readability if the wells are listed in the same order as presented in the preceding discussion; this also applies to the listing of the wells under the Trigger-Level Evaluation. Extend this comment throughout Appendix A.	Section A3.1.1, and other pertinent sections of Appendix A, were revised as requested.
8b	A-16	Section A3.1.3	**Section A3.1.3 (Aquatic Evaluation Results – Copper Screening Evaluation), last bullet on p. A-16** – Review this paragraph to check whether well IR02MW300A (fourth sentence) warrants its own bullet.	Section A3.1.3 was revised to make the discussion of well IR02MW300A a separate bullet item.

Table 3. Responses to Comments from Regional Water Quality Control Board (Water Board) on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
8c	A-17 and A-18	Section A3.1.4 and Figure A3-4	**Section A3.1.4 (Aquatic Evaluation Results – Lead Screening Evaluation), p. A-17 and A-18 and Figure A3-4** – Address the following: **i.** ***Lead Screening Evaluation – Well IR02MW127B, p. A-17*** – Per the data presented on Figure A3-4, there are no subsequent sampling events for this well, which renders the conclusion incorrect. **ii.** ***Lead Screening Evaluation, p. A-18*** – The introductory paragraph for wells with exceedances from multiple samples is missing.	Section A3.1.4 was revised to correct the noted errors.
			iii. ***Lead Screening Evaluation, p. A-19*** – Is the reason for the lack of samples from these IR-03 wells the presence of LNAPL? If so, consider stating this in this section.	Section A3.1.4 was revised to clarify that samples have not been collected at well IR03MW226A because of the presence of NAPL. NAPL is not present at the other two wells noted in this section (IR03MW218A1 and IR03MWO-1), and the Navy has proposed adding these wells to the long-term monitoring network at IR-03 (see Appendix C).
8d	A-27	Section A3.1.8 and Figure A3-8	**Section A3.1.8 (Aquatic Evaluation Results – Zinc Screening Evaluation), p. A-27 and Figure A3-8** – On the figure, post the replacement well (IR02MW301A) data and check the color code of the well ID symbol.	As described on page A-27 (last bullet item) and detailed in Attachment A2, zinc was not detected in five samples collected from well IR02MW301A between May 2007 and April 2008. Accordingly, Figure A3-8 correctly depicts the conditions for well IR02MW301A (data are only presented for wells that have one or more exceedances of the aquatic evaluation criterion).
8e	A-32	Section A3.4.3	**Section A3.4.3 (Aquatic Evaluation Results – Aroclor-1254 Screening Evaluation), p. A-32** – The formatting appears to have an unnecessary hard return.	Section A3.4.3 was revised to correct this formatting error.
8f	A-34	Section A3.4.4	**Section A3.4.4 (Aquatic Evaluation Results – Aroclor-1260 Screening Evaluation), p. A-34** – The discussion relating to well IR02MW146A concludes that, based on an initial four non-detects followed by a detection, the contaminant is not persistent. This could also be interpreted to indicate migration. Provide an adequate technical rationale to support the interpretation.	Section A3.4.4 was revised to indicate that the data at IR02MW146A are inconclusive but indicate the potential for Aroclor-1260 at this location to migrate to the bay at concentrations exceeding the aquatic evaluation criterion.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
9a	B-17	Section B2.1.3	**Section B2.1.3 (ARARs Conclusions for Groundwater), p. B-17** – For the first bullet regarding potential ARARs pertaining to specific scenarios, I recommend adding the page number for the reference to the Point of Compliance heading since that presentation occurs much later in the document (p. B-32).	Section B2.1.3 was revised to include the requested clarification.
9b	B-26	Section B2.2.3.1	**Section B2.2.3.1 (Federal ARARs – Federal Groundwater Classification – A-Aquifer Drinking Water Source Evaluation), p. B-26** – After the line titled "Depth to groundwater" provide a document citation regarding the well seal of at least 20 feet. After the line titled "Existence of institutional controls …," similarly provide the reference to City and County of San Francisco regulations regarding the prohibition regarding domestic use wells. Extend these comments throughout the appendix.	Section B2.2.3.1 was revised to include the requested references. Please note that the text describing existing institutional controls was revised based on input from the CCSF (see response to CCSF comment 19 and 20).
9c	B-48	Section B3.2.1.1	**Section B3.2.1.1 (Detailed Discussion of Location-Specific ARARs – Cultural Resources ARARs - Federal ARARs – National Historic Preservation Act of 1966, as Amended), p. B-48** – For Item 4, include the estimated location of the potential shellmound sites on a figure or, if this is not possible, add a sentence clarifying the fact.	Appendix B was revised to include a figure identifying the potential shellmound location near Parcel E.
10a	--	Section D2.2	**Section D2.2 (Ecology)** – We support the California Department of Fish and Game's (CDFG) Specific Comments 1c and 3 (pp 3-4 of CDFG's comments letter dated August 22, 2011) regarding the potential presence of special-status species within the beach and intertidal wetland habitats at Parcel E.	Please refer to the response to DFG-OSPR comments on the Draft Final FS Report.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
10b	--	Section D4	**Section D4 (Evaluation of Retained Shoreline Protection Options)** – The Water Board's responsibilities and roles in protecting the Beneficial Uses of waters of the state are specified in the Porter Cologne Act, the federal Clean Water Act under Section 401, and the San Francisco Bay Basin Water Quality Control Plan (Basin Plan). The Beneficial Uses of the Parcel E shoreline (which is part of the South Bay Basin Hydrologic Planning Area) include Preservation of Rare and Endangered Species (RARE) and Wildlife Habitat (WILD). Therefore, the Water Board has an interest in maximizing the habitat functions of the shoreline area. Please add the following (or similar) language to the bulleted list of considerations in evaluating the potential effectiveness of each shoreline option (p. D-11): "Maximize the habitat and wetland functions of the shoreline areas while complying with established RAOs."	Section D4 was revised to include "ecological function of the shoreline" as an additional evaluation factor to consider the ecological benefit of shoreline protection options relative to the existing site conditions. As described in Section D2, the most significant ecological function of the shoreline is seasonal use for wintering and migrating wildlife; however, this current ecological function is moderated because of the toxicity of soil and sediment in the shoreline zone. The Navy's proposed shoreline options focus on protecting humans and wildlife from existing contamination, thereby improving the ecological function of the shoreline. As described in Section D5, the shoreline protection options would comply with the substantive provisions of pertinent federal and state ARARs and the proposed wetlands restoration at Parcel E-2 would satisfy the compensatory mitigation requirements.
10c	--	Section D4.4	**Section D4.4 (Hybrid Shoreline Stabilization: Natural Shoreline Materials with Underlying Rock Armor)** – This approach appears to be the Navy's proposed option for the more gradually sloped and wide portions of the shoreline. We appreciate that this option includes natural materials, however there is no discussion of whether vegetation is expected to establish and grow within the material overlaying the rock armor. Please clarify whether the "natural shoreline material" refers to a plantable medium (soil, as referred to in the text of Section D4.4) or coarse sand (as depicted in Figure D-3). Please clarify whether/how the conceptual design incorporates slopes and elevations that promote the establishment of appropriate native vegetation, either through natural recruitment or planting efforts. We understand that specific seeding and planting plans would be part of the remedial design. However, whether a shoreline option allows for native vegetation is an important consideration given the potential for the area to support wildlife including special-status species.	The current conceptual design consists of coarse sand placed on top of the armor rock (as described briefly in Section D4.4.1). Section D4.5 was revised to include the following concluding statement (which is consistent with Section 4.2.2.3): "*Refinements to conceptual designs may be prompted by additional site information or stakeholder input and may include changes to the alignment of or construction materials used in the shoreline protection option. However, the refined design must continue to satisfy the RAOs identified in Section D2.6.*" The Navy acknowledges that future refinements may incorporate different soil types and vegetation along the shoreline to enhance site aesthetics and improve ecological function. The Navy will consider such refinements during the RD, but prefers to retain the current conceptual design in the FS Report because (1) native vegetation is not required to protect humans and wildlife, and (2) options relying on vegetative growth have uncertain effectiveness in intertidal environments.

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Comment #	Page #	Section	Comment	Response
Comments provided by Water Board (Ross Steenson and Tina Low), dated November 9, 2011 *(continued)*				
10c *(cont.)*	--	Section D4.4	Based on available information, we assume that a shoreline option that supports appropriate native vegetation would maximize the ecological function of the area. If a sandy/rocky environment is better suited to increasing ecological value at this site, please provide a supporting discussion.	Specifically, the presence of the underlying rock armor may limit vegetative growth in the overlying soil layer, and the rock armor might need to be replaced with a different type of material that is better suited for vegetative growth. The CCSF has identified articulating concrete mats as one alternative material; however, as described in the response to CCSF specific comment 9, the Navy believes that more information is needed to verify the ability of this material to serve as a robust containment structure that is effective in the long-term. In the absence of such information, the Navy believes that the current conceptual design is an appropriate and adequately conservative option to compare against the NCP criteria.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health (DPH), Environmental Health Section on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011				
General Comments				
1	--	--	Vapor Intrusion remedial goals need to be established and soil gas samples collected to analyze the vapor intrusion pathway. We appreciate the Navy's acknowledgement of this issue in its response to comments and the corresponding changes to the document. We look forward to working with the Navy to address this issue sooner rather than later. There are still a few instances where the document contains old wording that contradict these plans for soil gas surveys and planned actions for analysis of the results.	The Navy is preparing a work plan for the second phase of the soil vapor investigation that will include Parcel E. The draft work plan will be submitted to the BCT[4], CCSF, and other project stakeholders for review. Please refer to the responses to comments 11 and 13, which request specific clarifications regarding future actions to address the vapor intrusion pathway.
2	--	--	We appreciate the inclusion of Figure 4-9 and accompanying description of proposed excavations in IR-52 Railroad Right of Way. We also appreciate the removal of the open space restriction for this area which was not necessary or logical. Please add at the appropriate location in the document the following sentence excerpted from the E-2 RI/FS, or a similar sentence, to address the ability to request a change in land-use and the fact that the chosen remedies for residential vs. other uses are the same and therefore a change in use is an expected and feasible change that is allowed and anticipated. We want it to be clear to all readers, as the Proposed Plan and Record of Decision are written that a change in use to residential does not require a change in any of these decision documents. A change in use will require submittal of a request to remove the residential use restriction and possibly the submittal of data and/or analysis of data depending on the extent of the request. The excerpted language from Section 1.8 of the Parcel E-2 RI/FS is: "*The proposed remedial alternatives will allow for potential residential use in this area if it is demonstrated that soil contaminants do not exceed levels established elsewhere at HPS for residential reuse or if any of the contaminants that exceed those established levels are addressed by the remedial alternatives*."	The Final FS Report was revised to better describe the approach for IR-52. Specifically: • The RAOs in Section 3.1.1 were revised to clarify that industrial remedial goals are the basis for demonstrating protectiveness of the soil remedies at IR-52. Future industrial use of IR-52 is consistent with the February 2012 zoning map from the CCSF. • Section 4.2.2 was revised to indicate that Alternative S-2 would include localized covers at 3 areas in IR-52 where chemical concentrations exceed industrial remedial goals, and would also include institutional controls to restrict residential use at IR-52. • Sections 4.2.3 and 4.2.4 were revised to indicate that Alternatives S-3 and S-4 will remove the Tier 1 hot spots at IR-52 that drive the unacceptable risk relative to the industrial remedial goals and, following this removal, institutional controls will be adequate to protect human health without reliance on maintaining a cover in this area.

[4] Acronyms and abbreviations are defined at the end of this appendix (following Table 6).

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Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
General Comments				
3	--	--	We disagree with the Navy's evaluation of long term costs for implementing the Soil and Groundwater Management Plans, Annual Inspection and Reporting for implementation of land use and activity restrictions and other long term obligations. If the Navy chooses to retain this obligation, which is expected to last in perpetuity, then we think they have underestimated the cost especially if current OMB interest rates are used in the calculation. If the Navy wishes to transfer this obligation to SFRA as the future property owner then they are going to need to include a transfer of a realistic amount of money for the SFRA to implement these obligations because the SFRA has no funding for this activity and the regulatory agencies have made it clear that they do not wish SFRA to pass this obligation on to other future property owners. The Regulatory Agencies' request is for annual inspection and reporting obligations to be retained by a government agency. As you are well aware, government agencies can not accept unfunded mandates.	The Navy has made slight modifications to the estimated long-term costs for implementing institutional controls at Parcel E. The Navy does not believe that further refinement or discussion is necessary to finalize the FS Report because the FS cost estimates are not intended as a planning mechanism for future CERCLA obligations, but are focused on supporting the evaluation of each remedial alternative relative to the NCP criterion for cost. The Navy will work with the CCSF and other stakeholders to ensure that long-term monitoring and institutional controls are properly implemented after the remedial action is completed at Parcel E. As described in Section 5 of the FS Report and consistent with EPA guidance: *"Capital and O&M cost estimates are order-of-magnitude-level estimates and have an expected accuracy of minus 30 to plus 50 percent (EPA, 2000b)."* The cost estimate tables provided in Appendix E show that the total costs for developing and implementing institutional controls are roughly $350,000. This value is less than 1 percent of the least expensive combination of remedial alternatives ($44.7 million for Alternatives S-2, GW-2, and N-2). Therefore, further refinement of the estimated costs for developing and implementing institutional controls would not affect the prescribed accuracy based on EPA guidance (+50/-30 percent) (EPA, 2000).

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Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
General Comments				
4	--	--	There is a fundamental flaw in the terms, description and language used when discussing Institutional Controls and land use and activity restrictions. In addition to making the documents difficult to read, as the error is carried through to subsequent documents and ultimately to documents that are describing long term obligations (e.g. LUC RD, Operation and Maintenance Agreements, Risk Management Plans, CRUPs, etc), it is making it difficult to understand the details of the obligations. Rather than trying to write another set of comments that lists all the instances of the problem and propose changes that the Navy might reject without fixing the fundamental problem, we propose setting up a meeting to discuss the issue. We think we can explain the issue adequately and that the Navy can propose a solution that will fix the problem and meet all Navy requirements. The error is essentially a problem of not accurately defining your terms and/or using one term to describe a category of requirements but then trying to use the same term to describe a distinct subset of those requirements and then losing the distinct and important meaning of the subset and/or the broader category. For this document, the problem occurs in the sections of the document that discuss Institutional Controls which includes the Executive Summary (including tables), Sections 3.2.3, throughout Section 3.3, detailed language in Section 3.3.2.1.2, Tables 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, throughout Section 4.0 and Section 5.0.	A meeting was held on November 16, 2011, with the CCSF DPH and the Navy to discuss this issue. At that meeting, the Navy stated its position that the requested changes were not practical to implement. The technical rationale for the Navy's position is described in the paragraphs below. In addition, the Navy wishes to clarify that the existing language has been reviewed and approved by legal counsel from the Navy, EPA, and DTSC. Therefore, if the CCSF believes that revisions are critical, then the specific requests should be directed to legal counsel from the Navy, EPA, and DTSC. The document was not updated as suggested because DoD (2001) guidance provides a specific definition of "land use controls" that is broader than "institutional controls." Specifically, DoD guidance includes both institutional controls and engineering controls under the more broadly defined term "land use controls." Therefore, these two terms cannot be used interchangeably when addressing or discussing institutional controls. The Navy acknowledges the potential confusion regarding this definition and has attempted to minimize use of the term "land use controls" in this context, and to rely instead on the more precise terms "institutional controls" and "engineering controls." However, the Navy does not agree with the CCSF's suggestion to separately define institutional controls and land use controls because it is not consistent with DoD guidance and would result in significant inconsistencies between CERCLA documents for HPS and other Navy installations.

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Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
General Comments				
4 *(cont.)*	--	--	*(see comment above)*	Institutional controls are defined in Section 3.3.2.1.2 of the Draft Final FS Report as, "*legal and administrative mechanisms used to implement land use restrictions that are used to limit the exposure of future landowner(s) or user(s) of the property to hazardous substances present on the property, and to ensure the integrity of the remedial action.*" This definition clearly indicates that the legal and administrative mechanisms (such as covenants, deed restrictions, etc.) are directly linked to the land use and activity restrictions needed to protect human health and the environment. Consistent with DoD guidance, the Navy will continue to use the term "institutional controls" to describe the portion of the CERCLA remedy where certain legal mechanisms will be used to enforce land use and activity restrictions. The Navy does not agree that further discussion is needed in the FS Report. However, the Navy will (1) minimize use of the term "Land Use Controls" to minimize confusion and (2) work with CCSF during development of the RD to adequately describe the mechanism by which institutional controls will be enforced.
5.	--	--	In our opinion, remediation of the NAPL source area at Site IR-03 should be given special consideration given the high levels of impact and the proximity of the impacts to the Bay. In our opinion, the oil ponds at Site IR-03 are likely the most significant remaining contaminated area at HPS and represent the largest on-going threat to the Bay. It is our opinion that the NAPL source area presents a significant long-term threat to the Bay, unlike the majority of remaining contaminated areas at HPS, which generally contain lower level residual contaminants and/or are located further away from the Bay margin. Based on this special consideration of this area, we offer the following comments regarding the evaluation of remediation alternatives, and we request that the Navy provide additional analysis to address these concerns:	While the Navy acknowledges the significance of the remaining contamination at IR-03, the Navy does not agree that sufficient information exists to warrant evaluation of an additional excavation alternative for the Final FS Report. The site characterization information for IR-03, as presented in the Draft Final FS Report, is identical to the information that was available for the Revised RI Report and Draft FS Report. Therefore, the Navy believes that the request for a change to the Draft Final FS Report is not supported by new information. The Navy proposes to (1) continue to perform additional characterization as part of interim treatability studies, and (2) proceed with the FS Report by evaluating each remedial alternative in accordance with the NCP criteria and EPA guidance.

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Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
General Comments				
5 *(cont.)*	--	--	1. We recommend evaluation of an alternative that bridges the gap between Alternatives N-5 and N-6 with respect to the depth of excavation. It appears that Alternative N-5 includes excavation to the water table (9 feet bgs) and Alternative N-6 includes excavation to 35 feet bgs. A review of site investigation data suggests that the NAPL source area exists primarily in the top 10 feet of the groundwater zone, suggesting that an excavation to this depth (approximately 19 feet bgs) only would capture most or all of the NAPL source area, without the intensity of the dewatering and other considerations (e.g., shoring) listed for the excavation to 35 feet bgs. There is mention in the document of NAPL detected as deep as 25 feet bgs, however this appears to be a single measurement and not likely indicative of conditions throughout the Oil Ponds. If needed, a deeper excavation in a limited portion of the site could be performed, without deepening the entire excavation area.	The Navy believes that the Draft Final FS Report provides an appropriate range of remedial alternatives for IR-03. Further, the Navy believes that, while some uncertainty exists regarding the nature and extent of NAPL at IR-03, adequate information is available to support the FS evaluation. The Navy wishes to finalize the FS Report in the most expeditious manner possible to move forward with the cleanup process at IR-03. The Navy believes that the remaining uncertainty regarding the nature and extent of NAPL at IR-03 can be resolved prior to the RD, and that appropriate language can be developed in the Final FS Report, Proposed Plan and ROD that will provide adequate flexibility in accounting for future data.
			2. We recommend a greater level of evaluation of Alternative N-6. In the document, this alternative appears to be rated relatively poorly primarily due to the concerns about implementability. While we concur with these concerns if using a sheet pile wall as the primary mechanism for side wall stability during excavation, it is our opinion that other technologies exist, albeit at a potentially greater cost. Currently, the cost of Alternatives N-5 and N-6 are essentially identical at approximately $22M. We recommend that the Navy prepare a design concept for N-6 that is safe and feasible and present the associated costs. It may turn out that the cost for N-6 is too high to justify implementation of the alternative, but at least it would allow for a direct comparison of costs to determine whether the added costs are worth the benefits of a fully remediated site.	The Navy believes that Alternative N-6 was properly developed and evaluated relative to the NCP requirements and EPA RI/FS guidance (EPA, 1988). Regarding the comparison of Alternatives N-5 and N-6, the Navy does not agree with the reviewer's assertion that Alternative N-6 should be rated higher based on an increased long-term effectiveness and comparable cost relative to Alternative N-5. As detailed in Section 5.6 and summarized in Tables 5-6 and 5-7, the improved long-term effectiveness of Alternative N-6 is offset by decreased performance relative to (1) reduction of mobility, toxicity, or volume through treatment (because the excavation and off-site disposal would not involve treatment); (2) short-term effectiveness (because of the significantly larger excavation effort); and (3) implementability (also because of the significantly larger excavation effort).

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Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
General Comments				
5 *(cont.)*	--	--	If the costs for treatment vs. complete removal of this ongoing source to the Bay are identical then it would seem to favor complete removal because the contamination will be gone from the site.	The Navy's ongoing treatability study will gather more information to support the requested evaluation, but it is not available at this time. In the absence of this information, the Navy believes that the current evaluation of thermally enhanced extraction of NAPL provides an adequate comparison to the proposed excavation alternatives. As described in Section 3.3.2.3.5 of the Draft Final FS Report, thermally enhanced extraction of NAPL can be optimized using a phased approach that varies the heating temperature to enhance NAPL extraction, but the optimization process will require data from bench-scale and pilot-scale treatability studies. As described in Section 4.4, Alternatives N-3, N-4A, N-4B, and N-5 each include a relatively conservative approach to thermally enhanced extraction of NAPL involving electrical resistive heating applied throughout the entire 2-acre IR-03 boundary. The Navy believes that this approach is adequately conservative for the purposes of the FS Report. In addition, the Final FS Report was revised to clarify that, under Alternatives N-3, N-4A, N-4B, and N-5, the NAPL source may be addressed using a combination of removal and treatment technologies that were retained following a detailed evaluation (most notably, excavation and off-site disposal, solidification/stabilization, and thermally-enhanced extraction with off-site disposal).
			3. We recommend a more detailed evaluation of the differences between thermal (low-heating), thermal with steaming (high-heating), and excavation, in terms of the expected residual concentrations. The document appears to acknowledge that excavation has a more favorable long-term effectiveness, presumably because it fully removes the contaminated materials while thermal treatment would leave some residuals. We suggest an evaluation of whether there are portions of the NAPL hydrocarbon range that are so heavy that they may not be effectively remediated even under high-heat thermal treatment. In addition, the document appears to rate low-heat thermal and high-heat thermal as having a similar effectiveness of remediation. We suggest reviewing this evaluation, because intuitively it seems that low-heat thermal would leave behind more residual than high-heat thermal.	
			4. With respect to evaluating the implementability and effectiveness of both the excavation and thermal technologies, a description of the means and methods used to "close" the ponds in 1974 would be useful, if that information is available in Navy records. In particular, we suggest adding a description of and the quantity of any debris placed in the ponds during closure and evaluating the impact of that debris on the technologies.	The Navy has presented all available information for IR-03 in the Draft Final FS Report.

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Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
General Comments				
5 *(cont.)*	--	--	5. It is our strong preference that the Oil Ponds be remediated as much as possible. Given the millions of dollars that have been spent at HPS for removing soil that was barely radiologically indistinguishable from background, it seems logical that the funds to remove a large and significant source of ongoing contamination should be obligated by Congress so that future generations do not have to continue to manage this potential threat to the Bay. We will be happy to assist the Navy in efforts to obtain the necessary funding for this work. 6. Lastly, given that Site IR-03 is immediately adjacent to the Bay, if excavation is performed, we would prefer that the area excavated is left open to the Bay either as open water or as a shallow mudflat. This may also reduce the overall cost by reducing the volume of backfill required.	The Navy wishes to clarify that the performance objectives for the NAPL alternatives focus on preventing or minimizing migration of NAPL (or associated constituents in groundwater) to San Francisco Bay (see RAOs in Section 3.1.4). Further, the Water Board's guidance for closing low-risk fuel sites (as cited in Section 3.3.2.3.5) emphasizes NAPL removal to the maximum extent practicable. No regulatory requirements would mandate physical removal of the NAPL if it is not considered practical. The Navy's evaluation of the existing remedial alternatives, which include complete removal under Alternative N-6, relative to the NCP criteria is adequate to identify the preferred alternative in the Proposed Plan. As previously stated, the Navy wishes to finalize the FS Report in the most expeditious manner possible and believes that the remaining uncertainty regarding the nature and extent of NAPL at IR-03 can be resolved prior to the RD, and that appropriate language can be developed in the Final FS Report, Proposed Plan and ROD that will provide adequate flexibility in accounting for future data.
6	--	Table ES-2	**Executive Summary, Table ES-2, Page 1 of 8, Institutional Controls, Administrative Mechanism, Comments**. We disagree with the statement that Administrative Mechanisms are "low cost". If the full cost of complying with Soil and Groundwater Management Plans and annual reporting obligations are properly evaluated for perpetuity, including the proper time value of money calculations, the actual cost is higher than shown in your estimates. This is especially true given the current OMB interest rates which are very low. Since the Navy often tries to pass these costs on to future property owners these become significant costs that have to be discussed and negotiated as part of the transfer of property.	Please refer to the response to general comment 3 regarding the Navy's position that the FS cost estimates are adequate to support the evaluation of each remedial alternative relative to the NCP criterion for cost. In addition, the Navy wishes to clarify that the OMB discount rates are used to calculate a present value for each remedial alternative that, as recommended in EPA guidance, is the appropriate basis for comparing remedial alternatives. EPA guidance defines present value as "*the amount needed to be set aside at the initial point in time (base year) to assure that funds will be available in the future as they are needed, assuming certain economic conditions*" (EPA, 2000). As shown in the cash flow analyses provided in Appendix E, the present value of long-term expenditures is reduced using the discount rates. Accordingly, the present values of remedial alternatives do not vary significantly when the long-term monitoring or maintenance activities are extended beyond the 30-year evaluation period recommended in EPA guidance.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health (DPH), Environmental Health Section on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
Specific Comments				
6	--	Table ES-2	*(see comment above)*	The Navy demonstrated this point in a sensitivity analysis for the remedial alternatives for Parcel E-2 (see Appendix S of the Final RI/FS Report for Parcel E-2 [ERRG and Shaw, 2011]). Specifically, the analysis for Alternatives 3A and 3B at Parcel E-2 revealed that the percent differences between a 30-year and 120-year post-closure maintenance period are less than 14 percent, or well within the accuracy prescribed in EPA guidance for FS cost estimates (+50/-30 percent) (EPA, 2000).
7	2-22	Section 2	**Section 2, page 2-22, last paragraph**: There is discussion of MPPEH found via remediation efforts but no date(s) are provided. It would be helpful to know if MPPEH was only found via the PCB hot spot removal effort or throughout the decades-long cleanup. Please provide a statement describing in detail when, where, and how the MPPEH was discovered. If this was documented in greater detail in a previous document, please reference the relevant document, too.	The subject section of the document summarizes the removal action performed at IR-02 Northwest and Central from May 2005 to April 2007 (see statement at the beginning of Section 2.3.2.1 on page 2-21). The MPPEH described in this section was identified during the removal action and not during any previous actions. The discussion of MPPEH is from a 2010 document (TtECI, 2010) that is referenced on page 2-23.
8	--	Table 3-12	**Section 3, Table 3-12 (page 1 of 5)**, one of the "narrative performance standards" for soil covers is the prevention of standing water. We are clarifying that it is our understanding that some standing water in shallow depressions on top of the cover will be acceptable as long as the ponding duration is not very long. Please note: The redevelopment of the site intends to include some small-scale variability in hydrology within the complex of swales, shallow depressions, and upland areas on Parcel E to use these areas as stormwater treatment wetlands.	The Final FS Report was revised to clarify that the prohibition on standing water does not apply to the soil covers in Parcel E, but only the low permeability covers proposed in IR-02 and IR-03. Specifically: • Table 3-12 was revised to eliminate the phrase "*and prevent standing water*" and the reference to Title 27 CCR § 21090(b)(1) on pages 1 and 2 (corresponding to the soil and asphalt/concrete covers). • Section 3.2.3.1 and corresponding portions of Appendix B were revised so the requirements of Title 27 CCR § 21090(b)(1) apply only to the low-permeability covers proposed at Parcel E. The Navy believes that this clarification will adequately address the CCSF's redevelopment plans for Parcel E.

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Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
Specific Comments				
9	4-5 to 4-6	Section 4.2.2.3; Figure D-3	**Section 4.2.2.3 (pages 4-5 to 4-6) and Figure D-3**: The Navy seems to have selected 75-pound rock riprap as the remedy for the steep/narrow shoreline areas and natural shoreline materials with underlying rock armor for the broader, more gently-sloped shoreline areas. a. Please consider whether other shoreline armoring options listed in Table 3-9, such as articulating concrete mats, would be feasible. Could articulating concrete mats achieve the same objectives as underlying rock armor? b. In areas where you must retain revetment, please maximize the use of "areas where soil and vegetation could be placed" within and along the revetment, per the "Comments" column on Table 3-9, page 3 of 3, for the shoreline armoring remedy. In light of the significant excavations that the Navy has already conducted along the Parcel E shoreline and the future excavations that are proposed in the IR-03 and IR-02 areas, we encourage the Navy to consider the following: c. Is it necessary to replace like with like when conducting hotspot excavations in shoreline areas? Are there rules that say you must replace like with like when it comes to shoreline options? Could the end result of some contaminant removal be the net decrease in the slope of the shoreline and/or the net decrease in resultant surface elevation such that a more natural looking shoreline will be created in conjunction with underlying rock armor or articulating concrete mats as necessary? Might these more natural shoreline options be as feasible to install as revetment?	The Navy wishes to clarify that the FS Report does not select any specific options within the proposed remedial alternatives, but rather presents conceptual designs to be evaluated relative to the NCP criteria. In addition, the Navy wishes to clarify that Sections D4.2.1 and D4.4.1 detail the conceptual designs for the options involving rock armor. Specifically, the conceptual designs specify (in accordance with established engineering guidance) that: • 75-pound rocks are necessary to effectively withstand the design wave height and planned slopes for steep and narrow shoreline areas. • 25-pound rocks (to be overlain by coarse sand) are necessary to effectively withstand the design wave height and planned slopes for gradually sloped and wide shoreline areas. As stated in Section 4.2.2.3 (bottom of page 4-6), the Navy will further evaluate the shoreline protection options during the RD. Section 4.2.2.3 further states that: *"Refinements to conceptual designs may be prompted by additional site information or stakeholder input, and may include changes to the alignment of or construction materials used in the shoreline protection option."* The Navy acknowledges the potential benefits of articulating concrete mats in facilitating vegetative growth and enhancing site aesthetics and will further evaluate this product during the RD. However, the Navy believes that more information is needed to verify the ability of articulating concrete mats to serve as a robust containment structure that is effective in the long-term. In the absence of such information, the Navy believes that rock armor is an appropriate and adequately conservative option to compare against the NCP criteria.

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Comment #	Page #	Section	Comment	Response
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
Specific Comments				
9 *(cont.)*	4-5 to 4-6	Section 4.2.2.3; Figure D-3	d. In areas where you have already excavated the shoreline (e.g. PCB hotspot) have you already removed enough contaminated soil and replaced the area with clean backfill to the point where there is no need for installation of the either shoreline option? (e.g. rock revetment or underlying rock armor) Is there enough clean fill on top of deep buried shoreline sediments that leaving a completely natural shoreline is a possibility? e. Is excavating for a more natural shoreline option (underlying rock armor or articulating concrete mats) less costly than rock revetment? Since cost is a consideration in the FS and the end result of a natural shoreline option is more natural shoreline which is favored by several government agencies and the City can those two factors put the weight of evidence in favor of the installation of more natural shoreline areas?	The Navy wishes to clarify that, as shown on Figures 4-2 through 4-5 in the Draft Final FS Report, relatively few hotspot excavations are identified in the intertidal shoreline zone at Parcel E. Accordingly, large-scale excavation is not necessary to meet the RAOs and protect human health and the environment. However, the request to consider reducing existing shoreline slopes was considered as part of the evaluation in Appendix D. As described in Section D4.1, the most cost-effective and readily implementable approaches for shoreline protection are those that contain shoreline sediment without significantly altering the existing topography. For example, hybrid stabilization of narrow and steep shoreline areas is not the most cost-effective and readily implementable option because the existing slopes require extensive modification to ensure their long-term stability, thereby increasing excavation and off-site disposal of both shoreline sediment and onshore soil (the removal of which is not necessary to meet the RAOs and protect human health and the environment).
10	4-9; 4-15	Section 4.2.2.7; 4.3.2.1	**Page 4-9, Section 4.2.2.7 Engineering Controls and Monitoring, Engineering Controls, fourth sentence and Page 4-15, 4.3.2.1 Institutional Controls, third sentence**. The remedial alternatives section incorrectly states that land use restrictions would include "prohibitions on construction." To better accord with section 3.3.2.1.2, and specifically to the section entitled "Activity Restrictions Relating to Soil and Associated VOC Vapors at Specific Locations within Parcel E" on page 3-33, which correctly describes the institutional controls and activity restrictions, we recommend making the following changes to the text. The fourth sentence under the heading "Engineering Controls" in section 4.2.2.7 should be revised to read: "In addition, as described in Section 3.3.2.1.2, institutional controls would generally require that the construction of new buildings or reuse of existing buildings in an ARIC for VOC vapors include vapor barriers or other vapor control systems to prevent exposure	Sections 4.2.2.7 and 4.3.2.1 were revised as requested.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health (DPH), Environmental Health Section on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
Specific Comments				
10 *(cont.)*	4-9; 4-15	Section 4.2.2.7; 4.3.2.1	of residents to VOC vapors." Similarly, the third sentence of section 4.3.2.1 should be revised to read: "Land use restrictions would include the requirement that construction of new buildings or reuse of existing buildings in an ARIC for VOC vapors would incorporate vapor barriers or other vapor control systems to prevent the exposure of residents to VOC vapors." By the way, this third sentence of Section 4.3.2.1 currently refers to Section 4.2.2.3 Shoreline Protection which does not seem to be a logical reference. If you accept our suggested revisions this problem will be corrected.	*(see above)*
11	4-9	Section 4.2.2.7	**Page 4-9, Section 4.2.2.7 Engineering Controls and Monitoring, Engineering Controls, fourth sentence and Page 4-15, 4.3.2.1 Institutional Controls, third sentence.** The reference to "VOC plumes" is incorrect. The reference should be to Areas Requiring Institutional Controls for VOCs which will be determined after the soil gas levels are tested and if any of the gridded one acre areas are found to contain soil gas above the soil gas action levels.	Section 4.2.2.7 was revised as requested.
12	4-12	Section 4.2.4	**Page 4-12, Section 4.2.4, first paragraph, last sentence** There seems to be something wrong with the sentence that states "Tier 2 locations are distinct from the Tier 2 locations…"	The subject sentence was revised to state: "*Tier 2 locations are distinct from the Tier 1 locations…*"
13	4-15 and 4-16	Section 4.3.2.1	**Pages 4-15 and 4-16, 4.3.2.1 Institutional Controls and RTCs to Specific Comment 24** You do not, as stated in the RTCs, "…clarify that the ARIC for soil vapors will be adjusted based on the findings of an upcoming survey." There are several sentences in this section that contradict you plans for an upcoming survey or at least need to be modified to more clearly align with the planned upcoming parcel- wide soil gas survey. For instance:	Section 4.3.2.1 was revised to delete reference to implementation of institutional controls across redevelopment blocks and to clarify that the ARIC for soil vapors will be adjusted based on the findings of an upcoming survey.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health (DPH), Environmental Health Section on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011				
Comment #	**Page #**	**Section**	**Comment**	**Response**
Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated October 20, 2011 *(continued)*				
Specific Comments				
13	4-15 and 4-16	Section 4.3.2.1	• First sentence "would be implemented across redevelopment blocks". This phrase needs to be deleted. You do not plan to implement restrictions across redevelopment blocks. You plan to grid the site into one acre grids and determine which of those grids require an ARIC for VOCs based on the results of a soil gas survey. • Fourth sentence please delete this sentence which states "Institutional controls would be enforced on an entire block even if only a portion of that block posed an unacceptable risk…" You are not implementing the VOC ARIC for entire redevelopment blocks. You are planning to use one acre grids.	*(see above)*
			• The words "institutional controls" are not being used properly in this section. Please refer to the request for a meeting to discuss this issue.	Please refer to the response to general comment 4 regarding the Navy's rationale for retaining use of the term "institutional controls."
14	--	Figure 4-1	**Section 4, Figure 4-1** The legend for Shoreline Areas refers to Appendix C and we believe it should refer to Appendix D.	Figure 4-1 was revised to correctly refer to Appendix D.
15	--	Figure 4-11	**Section 4, Figure 4-11**: The sheetpile wall is indicated in this figure, installed outboard of the NAPL area. In several places in the text reference is made to this sheet pile wall. It is unclear if the Navy is going to rely on this steel wall as a function of a remedy. If so, the condition of this wall needs to be described so a lifetime can be estimated. Please provide a description of its condition and whether or not it will remain in place as part of a remedy or will be removed and disposed of.	The Navy has not evaluated the condition and lifespan of the sheet-pile wall since it was installed in 1998. Testing performed in July 1998 indicated that without cathodic protection the wall would provide adequate containment for 3 years (IT Corporation, 1999). Accordingly, the Navy will not rely on the existing sheet-pile wall as a component of the final remedy. Section 3.3.2.3.7 was revised to clarify this determination.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health (DPH), Environmental Health Section on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Additional Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated May 7, 2012				
16	--	--	**Response to General Comment 3:** Your response to this comment is related to our comments on Institutional Controls (see response to RTC on comment 4 below). The Navy is using Institutional Controls to mean all legal and administrative mechanisms to implement land use restrictions and ensure the integrity of the remedy. We understand legal mechanisms to include the development and implementation of all provisions of the CRUP and deed restrictions, which are anticipated to incorporate land use and activity restrictions. We understand administrative mechanisms to include land use plans and soil and groundwater management procedures and policies. Given the Navy's broad definition of institutional controls, we continue to disagree that all of those tasks can be performed for a net present value of $350,000 for as long as the restrictions remain in place – especially using current OMB discount rates. By our calculations, the Navy has underestimated the cost by several orders of magnitude. However, we acknowledge that an increase by several orders of magnitude in the cost estimate for this one task would cause a small percentage change in the overall cost (which you estimate to be at least $45 million and probably more) and, therefore, would result in an overall cost still within the prescribed requirement of +50/-30 percent.	The Navy wishes to clarify several points based on statements made by CCSF in this additional comment: • As generically defined in Section 3.3.2.1.2 of the Draft Final FS Report, "*Institutional controls are legal and administrative mechanisms used to implement land use restrictions that are used to limit the exposure of future landowner(s) or user(s) of the property to hazardous substances present on the property, and to ensure the integrity of the remedial action.*" The statement by CCSF that institutional controls include "*all legal and administrative mechanisms to implement land use restrictions and ensure the integrity of the remedy*" is not consistent with this generic definition. • As stated in Section 3.3.2.1.2 of the Draft Final FS Report, land use and activity restrictions will be incorporated into two separate legal instruments as provided in the Navy/DTSC MOA: (1) restrictive covenants included in one or more Quitclaim Deeds from the Navy to the property recipient; and (2) restrictive covenants included in one or more "Covenant to Restrict Use of Property" entered into by the Navy and DTSC as provided in the Navy/DTSC MOA and consistent with the substantive provisions of Title 22 CCR § 67391.1. • The Navy does not intend to rely upon administrative mechanisms to implement land use and activity restrictions at HPS because the Navy believes that the restrictive covenants will be sufficient to enforce the specified land use and activity restrictions. Tables 3-6, 3-7, and 3-8 were revised to clearly identify this approach, which is consistent with the approach used at other HPS parcels.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health (DPH), Environmental Health Section on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Additional Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated May 7, 2012 *(continued)*				
17	--	--	Response to General Comment 4: Thank you for meeting with us on November 16, 2011. We appreciate that the Navy is willing to work with us during the development of the RD and has agreed to meet with us soon to discuss the CRUP and RMP. These documents will contain important provisions related to long term obligations that need clear definitions to assure that the Navy remedy will be implemented properly. As you describe, you are defining Institutional Controls to mean "legal and administrative mechanisms used to implement land use restrictions that are used to limit the exposure of future landowner(s) and user(s) of the property to hazardous substances present on the property, and to ensure the integrity of the remedial action." We understand this definition to refer to these mechanisms: legal mechanisms, specifically the CRUP and deed restrictions, which are anticipated to incorporate land use and activity restrictions; and administrative mechanisms, specifically land use plans and soil and groundwater management procedures and policies. Moving forward with the Navy's definition, there are a few changes that we think are necessary in the wording in some tables of this draft final Feasibility Study. We have been careful to not make any changes to definitions or meaning of the wording so that there should be no concerns with the inconsistencies between CERCLA documents and previous precedents with other Navy installations. We have attached a markup of the requested changes to the tables. The changes that we are requesting to the attached tables will help make all the tables consistent and logical in the presentation of the Institutional Control concepts and thereby reduce confusion. Specifically, Tables 3-6, 3-7 and 3-8 correctly define (using the Navy's own definitions) the General Response Action, Remedial Technology Type and Process Options. Tables 3-9, 3-10 and 3-11 do not have the same parallel structure in those same columns – please make the attached changes to fix the problem.	As stated in the response to additional comment 16, Tables 3-6, 3-7, and 3-8 were revised to eliminate administrative mechanisms, such as soil and groundwater management procedures and policies, as potential options for CERCLA institutional controls because the Navy believes that the restrictive covenants will be sufficient to enforce the specified land use and activity restrictions. Tables 3-9, 3-10, and 3-11 were revised to be consistent with the definitions and initial screening presented in Tables 3-6, 3-7, and 3-8.

Table 4. Responses to Comments from City and County of San Francisco (CCSF) Department of Public Health (DPH), Environmental Health Section on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Additional Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated May 7, 2012 *(continued)*				
18	--	--	**Response to Arc Ecology Comment 2A and Sierra Club Comment 2:** While there are times that we are in agreement with the Navy on issues discussed in these comments, it is not usual for us to use the phrase "we concur with the Navy position". Concurrence is usually a term used by regulatory oversight agencies and the City is not a regulatory oversight agency of the Navy. We request that when you reference City comments that you state what the City said in reference to the topic being discussed. In reviewing our comments, we made statements and asked questions about the shoreline area remedies (the main topic of the ArcEcology & Sierra Club comments) and encouraged the evaluation of natural shoreline and the use of articulated concrete mats in as many areas as possible. We did not comment on the compatibility of this DF FS with the redevelopment plan amendments. Please remove this second sentence or state that we did not comment on this particular issue. While we do not disagree with the apparent general compatibility of the DF FS and the 2010 Redevelopment Plan Amendments (and this is why we did not comment on this issue in our comments), if you want us to make affirmative statements on this issue of compatibility, we would need to study the details of the DF FS in relation to the 2010 Redevelopment Plan Amendments and verify the details. Please let us know if you would like us to undertake this type of detailed review.	The responses to Arc Ecology Comment 2A and Sierra Club Comment 2 were revised to delete the subject statements.
19	B-26	App. B	**On Page B-26 it states:** "*The City and County of San Francisco currently has institutional controls that prohibit the installation of domestic use wells within the city limits.*" The statement above is incorrect. Please reword it to say: "*The City and County of San Francisco requires that permits be obtained from the Department of Public Health prior to installation of any domestic use groundwater wells within the city*	The subject text was revised as requested, with the exception of the phrase "*institutional controls*" being replaced with "*regulatory controls*"

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Comment #	**Page #**	**Section**	**Comment**	**Response**
Additional Comments provided by the CCSF DPH Environmental Engineer (Amy Brownell), dated May 7, 2012 *(continued)*				
19 *(cont.)*	B-26	App. B	*limits. Groundwater wells in use for irrigation currently exist on the west side of the City. The City's Public Utilities Commission has proposed a project to install groundwater extraction wells in the City's westside basin and to use the water to supplement the City's public drinking water supply by up to 2 mgd. There are currently no groundwater extraction wells in use on the City's east side for domestic water purposes. The City Public Utilities Commission has no proposal to install any groundwater extraction wells on the east side of the City.*"	*(see above)*
20	B-26, B-27, and B-28	App. B	Appendix B, Pages B-26, B-27 and B-28 contain the following sentences in two different places: "*Existence of institutional controls on well construction and aquifer use. Storm drain and sanitary sewer lines are present throughout Parcel E. Although these lines will be removed by the Navy, their present condition is similar to the density of sewer lines likely to be installed by the city during redevelopment of HPS. As a result, installation of domestic wells would be prohibited in many portions of the aquifer at Parcel E.*" We disagree with the last two sentences. It is unknown at this time the precise density of sewer lines will be installed in Parcel E. For some open space areas of Parcel E likely there will not be any sewer lines installed. Thus the last part of your second sentence is incorrect and, therefore, you cannot draw the conclusion you reach in your third sentence. As stated in our comment on permits for wells on Page B-26, at this time there are no plans for domestic use well permits on the east side of the City. We ask that you delete these paragraphs about future sewers in relation to domestic use wells.	The subject text was revised to delete the cited sentences regarding future sewer lines.

Table 5. Responses to Comments from Arc Ecology on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by Saul Bloom, dated November 18, 2011				
General Comments				
1	--	--	Arc Ecology, under contract with San Francisco International Airport, is pleased to submit the following comments on the Navy's Draft Feasibility Study for Parcel E of the Hunters Point Shipyard. These comments were developed by Roger Leventhal of Far West Engineering and Dr. Peter Baye with input and commentary included from Arthur Feinstein of the Sierra Club. Please Note: These comments are specific to the Feasibility Study's relationship to the proposed Hunters Point Shipyard South Shore Wetlands project Arc Ecology's has undertaken under contract with SFO and are to be seen as complementary to our commentary on the general CERCLA issues associated with the Parcel E Feasibility Study submitted separately by Dr. Michael McGowan. The Sierra Club and Audubon Society are expected to submit their own comment letters based on this analysis. Arc Ecology has a number of comments which will be described in more detail below. They are summarized here for convenience.	Comment acknowledged.
2A	--	--	**The alternatives presented in the Parcel E Draft Feasibility Study are inconsistent with the project approved and required property reuse plan outlined in the Draft November 11, 2009 Candlestick Point Hunters Point Shipyard Environmental Impact Report certified by the San Francisco Planning and Redevelopment Commissions June 2, 2010.** The alternatives considered in the FS are inconsistent with the mitigation and site reuse requirements established under the CEQA process conducted by the City of San Francisco and described within the Candlestick Point Hunters Point Shipyard Environmental Impact Report (EIR) certified by the San Francisco Planning and Redevelopment Commissions on June 3, 2010 and accepted by the San Francisco Board of Supervisors in July 2010.	CEQA[5] does not apply to the Navy's cleanup decisions under CERCLA, and there is no legal requirement for the Navy to conform to CEQA. Nonetheless, the Navy has reviewed the SFRA's Final EIR (SFRA, 2010a) and has several observations concerning the reviewer's comment that are discussed in the following paragraphs. The Navy does not agree with the reviewer's assertion that the remedial alternatives presented in the Draft Final FS Report are inconsistent with the development alternatives presented in the SFRA's Final EIR (SFRA, 2010a). Each of the development alternatives evaluated in the SFRA's Final EIR, except for Alternative 1 (which evaluated no new development), included a parks and open space area along the Parcel E shoreline. Upon completion of the CCSF's review process, the SFRA amended its HPS Redevelopment Plan (SFRA, 2010b) to reflect the selected development alternative. The proposed remedial alternatives

[5] Acronyms and abbreviations are defined at the end of this appendix (following Table 6).

Table 5. Responses to Comments from Arc Ecology on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by Saul Bloom, dated November 18, 2011 *(continued)*				
General Comments				
2A *(cont.)*	--	--	*(see comment above)*	presented in the Draft Final FS Report are compatible with the future reuses identified in the 2010 HPS Redevelopment Plan.
2B	--	--	**The alternatives presented in the Parcel E Draft Feasibility Study are inconsistent with the court approved settlement agreement between the Lennar Corporation and the City of San Francisco and the Golden Gate Audubon Society and Sierra Club which now constitutes the preferred reuse alternative for a portion of Parcel E.** The design concepts described below have been incorporated into the City/ Lennar Parcel E reuse plan. The concept calls for a system of: • naturalistic stormwater treatment swales, • a living shoreline beach, and • lagoon system BRAC conformance would seem to require modifications of the FS consistent with these reuse objectives. Assessing means by which alternative designs can be adapted to meet redevelopment focused ARARs is a fundamental task of feasibility study. We believe that the alternatives considered in the FS can be easily modified and improved based on the analysis presented within this letter and thereby become compatible with the mitigation and site reuse requirements described within the EIR and aligned with other redevelopment specific ARARs, such as shoreline access, esthetics, recreation, wildlife habitat, and stormwater treatment for water quality.	The Navy does not agree with the reviewer's assertion that the remedial alternatives presented in the Draft Final FS Report are inconsistent with the court-approved settlement agreement, which identified design concepts for portions of Parcel E that were to be implemented by the CCSF's developer (i.e., Lennar Corporation). Although the Navy's CERCLA cleanup decisions are not subject to CEQA, CEQA is not a CERCLA ARAR, and the Navy is not a party to or legally bound by the settlement agreement, the Navy has made extensive efforts to consider and address the SFRA's amended HPS Redevelopment Plan in the FS Report. On March 15, 2011, Navy staff attended a meeting hosted by CCSF and Lennar Corporation that included a presentation from Mr. Roger Leventhal and Dr. Peter Baye (Arc Ecology, 2011). Mr. Leventhal and Dr. Baye, under contract to Arc Ecology, presented a preliminary design concept to the parties in attendance, which included representatives from the BCT, CCSF, and other project stakeholders. Mr. Leventhal and Dr. Baye discussed their preliminary design concept relative to the Navy's preliminary concepts for protecting the Parcel E shoreline, as presented to the BCT, CCSF, and other project stakeholders in January 2011 (Navy, 2011). On page 8 of the Arc Ecology presentation, it was stated by the presenters that "*our plan works with (and we believe enhances) Navy proposals.*"

Table 5. Responses to Comments from Arc Ecology on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by Saul Bloom, dated November 18, 2011 *(continued)*				
General Comments				
2C	--	--	**Adoptions of the proposed mitigation will significantly improve BRAC and Reuse Plan conformance.** We therefore strongly recommend that the Navy adopt compatible modifications of the FS preferred alternatives to incorporate conceptual designs for the parkland grasslands and stormwater treatment swales in uplands of Parcel E, and broad constructed sand beach platforms with barrier beach and shallow lagoons ("living shorelines" on top of the proposed armored designs) to produce a final preferred alternative for Parcel E. This adaptation of the proposed alternative would reconcile otherwise significant conflicts among the armored shoreline designs and basic redevelopment requirements for habitat, water quality, open space, esthetics, and recreational uses of Hunters Point to create a true environmental legacy at Hunters Pt.	As stated in the response to general comment 2A, the proposed remedial alternatives presented in the Draft Final FS Report are compatible with the future reuses identified in the SFRA's amended HPS Redevelopment Plan (SFRA, 2010b).
3	--	--	**Comments on the Proposed Containment Cap Alternatives for Parcel E** Our comments fall within two major subject areas: • Comments on the proposed containment cap alternatives and the need to more explicitly recognize containment cap design modifications that would allow the City of SF and Lennar to meet their CEQA obligations for Parcel E reuse, and • Comments on the proposed shoreline modifications which fail to consider alternative shoreline designs that allow for a living shoreline and habitat that meet Navy requirements.	See below for the Navy's responses to general comments 3A and 3B.

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Comments provided by Saul Bloom, dated November 18, 2011 *(continued)*				
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3A	--	--	**The proposed Parcel E containment caps** 1. Alternatives contained in the Draft Final Parcel E FS are too vaguely described and do not acknowledge the future site reuse requirements of the City of San Francisco and Lennar under CEQA (project EIR dated 11-12-09). a. The FS should reiterate all applicable CERCLA and Redevelopment ARARs that may be constrained by, or benefit from, containment cap alternative designs. b. The FS should identify feasible means by which the alternatives may be amended in order to satisfy the CERCLA and Redevelopment ARARS and also identify how the current alternatives fail to meet them. c. This is a basic task of a feasibility study. These ARAR reuse requirements under CEQA include but are not limited to the following: i. Construction of approximately 80 acres of natural native grasslands habitat on Parcels E and E2 combined (approximately 45 acres on Parcel E) ii. Development of raptor foraging habitat iii. Increase in tree/shrub cover with a goal of planting approximately 10,000 new trees across the project site outside of the new grasslands habitat iv. Meeting SF PUC requirements for natural stormwater drainage and treatment d. The Draft Final FS does not acknowledge or provide for the grading and drainage requirements of the proposed native eco-parks located on top of the containment cap.	The Navy believes that the remedial alternatives in the Draft Final FS Report are adequately developed to support an informed risk management decision using the NCP evaluation criteria. As stated in the response to general comment 2A, the proposed remedial alternatives are compatible with the future reuses identified in the SFRA's amended HPS Redevelopment Plan (SFRA, 2010b). In addition, Section 3.3.2.1.7 of the Draft Final FS states that the Navy will continue to work closely with SFRA and other stakeholders to align the remedial alternatives for Parcel E with SFRA's redevelopment project to the maximum extent practical. The Navy has identified and evaluated all potential federal and state ARARs for the remedial alternatives at Parcel E in accordance with CERCLA and the NCP (see Section 3.2 and Appendix B in the Draft Final FS Report). Arc Ecology has not identified specific requirements that it believes are ARARs other than CEQA. CEQA is not an ARAR for CERCLA actions because: • CEQA is applicable to state discretionary decision-making but not to actions of the federal government. • CERCLA performs the same function as, and is functionally equivalent to, the state's requirements under CEQA. Specifically, EPA and the Navy have determined that the requirements of CEQA are no more stringent than the requirements for environmental review under CERCLA. Pursuant to the provisions of CERCLA, the NCP, and other federal environmental impact evaluation requirements, selecting a remedial action with feasible mitigation measures and provision for public review is designed to ensure that the proposed action provides for short- and long-term protection of the environment and public health. Hence, CERCLA performs the same function as, and is functionally equivalent to, the state's requirements under CEQA.

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3A *(cont.)*	--	--	e. To meet CEQA and SF PUC requirements for natural stormwater treatment requirements, the proposed containment cap will need to support a system of naturalistic (compatible with parkland esthetics and stormwater treatment requirements) grassland and seasonal wetland treatment swales draining to the Bay. f. Arc Ecology has proposed a concept design for native grasslands that integrate with ***and strengthen*** the proposed containment cap while providing a network of grassland stormwater treatment swales with intermixed small, shallow winter-ephemeral pools that provide important wildlife habitat and stormwater treatment functions required for CEQA mitigation. g. Lennar and the Sierra Club and Golden Gate Audubon have reached an agreement that would fund the development of such a system. The swale design is compatible with, and enhances, impermeable clay liner (cap) designs (see 3, below). h. The proposed small (approximately 2-3 feet diameter), shallow temporary winter wet pools (approximately 6-12 inches deep for weeks following storm events) are placed within the natural swale drainage network and provide engineered stability points that inhibit incision into the underlying containment cap, and improve trapping of fine sediment and contaminants, and other stormwater treatment functions. i. Failure to plan for drainage channel incision by inclusion of engineered "stability nick points" like the proposed shallow pools would likely result in uncontrolled incision and erosion into the containment cap.	As described on the previous page, CEQA is not an ARAR for CERCLA actions. The Navy does not agree with the reviewer's assertion that the proposed remedial alternatives in the Draft Final FS do not comply with ARARs. Section 5 of the Draft Final FS Report states that the proposed remedial alternatives would comply with potential ARARs identified in Appendix B. Please refer to the response to CCSF specific comment 8 regarding minor clarifications to the Final FS Report that were necessary to align the proposed containment alternatives with CCSF's plans to construct stormwater management systems. As stated in the response on the previous page, Section 3.3.2.1.7 of the Draft Final FS states that the Navy will continue to work closely with SFRA and other stakeholders to align the remedial alternatives for Parcel E with SFRA's redevelopment project to the maximum extent practical. However, as stated in the response on the previous page, CEQA is not an ARAR for CERCLA actions. The Navy wishes to clarify that, as described in Section 4 of the Draft Final FS Report, the proposed remedial alternatives do not identify an impermeable clay liner. As shown on Figure 4-1, a soil cover without a liner is proposed across over 50 acres in Parcel E. Liners are proposed in two relatively small areas in IR-02 Northwest and IR-03. The Navy believes that the remedial alternatives in the Draft Final FS Report are adequately developed to support an informed risk management decision using the NCP evaluation criteria. The conceptual designs presented in the FS Report will be further refined in the RD and, as previously stated, will accommodate CCSF's plans to construct stormwater management systems.

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3A *(cont.)*	--	--	j. The Draft Final FS should acknowledge the CEQA requirements for the construction of grasslands and the incorporation of a natural stormwater treatment system by specifically incorporating the concept design approach developed by Arc Ecology into the Draft Final FS. k. The assemblage of native perennial grass and sedge meadows proposed by Arc-Ecology would increase stability of the proposed Parcel E fine-grained containment cap. The grass roots would provide root strength to the cap soils and significantly reduce the potential for incision or erosion into the underlying soils. The native grassland/sedge meadow would also minimize maintenance requirements, fertilizer use, and maximize wildlife habitat and compatible recreation benefits. The use of appropriate native grasses and their role in enhancing the containment cap should be adopted in the final FS.	Please refer to the response on the previous page.

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3A *(cont.)*	--	--	l. We believe that the Arc Ecology conceptual design is fully compatible with clay liners of "engineered alternative caps " that the FS determined was "Retained for areas with elevated concentrations of mobile chemicals that are not paved or do not require paving to achieve planned land uses. Effective; easy to moderate implementability." (table ES-2, p. 49 pdf, etc.). i. The level of detail in the FS regarding the scope of engineered alternative caps and surface drainage of finished landscapes in the context of park lands essential for other ARARs (CEQA mitigations for grassland habitats, raptors, parklands, stormwater treatment wetland swales, etc.) is insufficient to demonstrate an adequate extent of compatibility or "implementability". ii. We believe that engineering design variables, such as type, thickness, and compaction of clay liners in relation to constructed topographic relief and drainage, would, with further study, demonstrate the compatibility of the Arc Ecology conceptual design. iii. We recommend that the FS explicitly acknowledge the Arc concept design currently agreed to by Audubon, Sierra Club and Lennar. This concept design will be further developed to ensure design compatibility with the FS requirements and stormwater treatment and other ARARs.	As previously stated in this response: • As described in Section 4 of the Draft Final FS Report, the proposed remedial alternatives do not identify an impermeable clay liner. As shown on Figure 4-1, a soil cover without a liner is proposed across over 50 acres in Parcel E. Liners are proposed in two relatively small areas in IR-02 Northwest and IR-03. • Section 3.3.2.1.7 of the Draft Final FS states that the Navy will continue to work closely with SFRA and other stakeholders to align the remedial alternatives for Parcel E with SFRA's redevelopment project to the maximum extent practical. However, as stated in the response on the previous page, CEQA is not an ARAR for CERCLA actions. • The proposed remedial alternatives are compatible with the future reuses identified in the SFRA's amended HPS Redevelopment Plan (SFRA, 2010b). • Section 5 of the Draft Final FS Report states that the proposed remedial alternatives would comply with potential ARARs identified in Appendix B. The Navy identified and evaluated potential ARARs for the remedial alternatives at Parcel E in accordance with CERCLA and the NCP. • The proposed remedial alternatives are adequately developed to support an informed risk management decision using the NCP evaluation criteria. The conceptual designs presented in the FS Report will be further refined in the RD and will accommodate CCSF's plans to construct stormwater management systems.

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3B	--	--	**<u>Comments on the Proposed Shoreline Revetment Alternatives</u>** a. We agree that it would be infeasible for any one alternative proposal reviewed in the FS as a "stand-alone option" (App D and table 3-6) to satisfy both engineering stability and multiple ARAR requirements for Bay Plan and CEQA criteria (shoreline esthetics, recreation, wildlife, ecological functions, etc.). b. The FS falls short, however, in identifying viable variations of the feasible preferred shoreline "hybrid" protection alternative (natural shoreline materials with underlying armor, rip-rap shoreline armoring) that would maximize both protection and future shoreline values compatible with the Bay Plan (BCDC) and redevelopment objectives and ARARs. c. The basic design assumptions of the armor and geotextile liner with natural materials cap would be compatible with a wide range of shoreline treatments that would further reduce incident wave height (wave energy dissipation), erosion potential, sea level rise adaptation. d. The constraints of "stand alone" soft shoreline alternatives such as beach nourishment (sand fill) and aquatic vegetation (eliminated as 'stand alone' options, Table 3-6) are overcome if such measures are combined with the "hybrid" protection alternative and, in fact, such an augmented alternative, as proposed by Arc Ecology, et.al., will provide increased shoreline protection.	The Navy evaluated an appropriate range of shoreline protection technologies and process options in Appendix D of the Draft Final FS Report. This evaluation concluded that the most viable shoreline protection options for the Parcel E shoreline are armoring (rock revetment) and hybrid stabilization using natural shoreline materials with underlying rock armor. Section 4.2.2.3 of the Draft Final FS Report identifies a conceptual design for implementing these two options along different sections of the Parcel E shoreline. As stated in the response to general comment 2A, the proposed remedial alternatives presented in the Draft Final FS Report are compatible with the future reuses identified in the SFRA's amended HPS Redevelopment Plan (SFRA, 2010b). The Navy does not agree with the reviewer's assertion that the proposed shoreline armoring does not comply with ARARs. Potential ARARs for shoreline construction were identified in Appendix B and then analyzed in Appendix D. As stated in Section D5.3 of Appendix D, the proposed shoreline protection for Parcel E complies with the substantive provisions of the pertinent ARARs, including the federal Clean Water Act § 404 and the state McAteer-Petris Act and San Francisco Bay Plan. The Navy believes that the recommended hybrid stabilization option will be protective of human health and the environment and does not need to be supplemented with either beach nourishment or aquatic vegetation, as suggested by the reviewer. However, the Navy acknowledges that such additional measures could be implemented by the CCSF during redevelopment in a manner that is consistent with the Navy's performance objectives.

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3B *(cont.)*	--	--	e. The shoreline alternatives described do not meet the requirements of the City of San Francisco and Lennar under CEQA (project EIR dated 11-12-09) for a "living" shoreline. i. The FS shoreline analysis (Appendix D) is limited to wave energy and the erosion potential of the existing shoreline and nearshore, and the armoring of existing shoreline profiles, but it fails to model and evaluate feasible alternatives that incorporate shoreline profile sand nourishment <u>in combination with</u> armoring designs. ii. The "naked" armoring alternatives, by themselves, conflict with multiple ARARs (under multiple agency jurisdiction) for shoreline access, esthetics, recreation, wildlife, water quality, and planned parkland uses. f. Arc-Ecology has developed and presented a shoreline design for locations on Parcel E that meet the Navy's criteria for lower shoreline gradients suitable for the "hybrid shoreline stabilization" alternative. i. The Arc design provides reliable protection to the shoreline while providing a unique habitat type and stormwater treatment within a back-barrier lagoon system. ii. The proposed design is additive in that it will work with and improve the shoreline protection provided by the Navy's proposed underlying rock armor system. iii. We believe that the rock underlayer is not necessary to provide for erosion protection to the system in the context of our proposed back-barrier lagoon/living beach system.	Please refer to the responses on the previous page regarding the Navy's disagreement with the reviewer's assertions that the proposed shoreline armoring does not comply with ARARs. The Navy believes it has provided adequate information to refute these assertions. Also, please refer to the responses on the previous page regarding the Navy's position that it is not necessary to evaluate sand nourishment in combination with armoring. Based on the presentation held on March 15, 2011, the Navy understands that Arc Ecology's preliminary design concept for the proposed back-barrier lagoon system uses an offshore reef to dissipate wave energy. The hybrid stabilization option using an offshore reef was not carried forward to the detailed evaluation of remedial alternatives primarily because of it would not reliably control erosion and prevent exposure to contaminated sediments; this option would also limit shoreline recreation and pose significant implementation challenges (see Appendix D in Final FS Report). However, the Navy encourages the CCSF to evaluate the offshore reef as a non-CERCLA post-transfer project and coordinate with appropriate regulatory agencies. In addition, Section 4.2.2.3 of the FS Report states that the conceptual design may be refined in the RD based on additional site information or stakeholder input, but it must continue to satisfy the RAOs (identified in Section 3.1.2 of the FS Report). The Navy believes that this discussion is adequate acknowledgement of the CCSF's proposed redevelopment of the Parcel E shoreline.

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3B *(cont.)*	--	--	iv. Nevertheless, even if the Navy insists that a back-barrier lagoon/living beach system is not adequate by itself for protecting the shoreline the FS should acknowledge that a back-barrier lagoon system would be compatible with other remedies since a back-barrier lagoon system will not detract from the protective elements of other remedies. In fact, the back-barrier lagoon/living beach system will, as stated above, reinforce the protections provided by the Navy's "hybrid shoreline stabilization" alternative. g. Since the City and Lennar have agreed to pay for back-barrier lagoon/living shoreline system, thus removing that cost from the Navy's remediation budget, h. We urge the Navy to incorporate the back-barrier lagoon/living beach system into the "hybrid shoreline stabilization" alternative and adopt that alternative in the final Proposed Action. i. The living shoreline design would offset some of the hard armor costs since the reduced wave run-up and wave energy at the landward edge of a sandy wide shelf and a shell-gravel barrier beach is significantly less than the significant wave height calculated for "existing" open water and steep nearshore. ii. Incorporating the living shoreline would therefore result in lower costs and better results with altered assumptions of designs compatible with redevelopment and ARARs in CEQA.	Although the Navy has determined that a back-barrier lagoon system is not required to comply with CERCLA or CERCLA ARARs, the Navy believes that CCSF could implement a back-barrier lagoon system during redevelopment in a manner that does not conflict with the Navy's proposed shoreline protection measures. The Navy believes that the offshore reef would not reliably control erosion and prevent exposure to contaminated sediments, and would also limit shoreline recreation and pose significant implementation challenges (see Appendix D in Final FS Report). For these reasons, the Navy decided to not carry forward this option to the detailed evaluation of remedial alternatives. In addition, as stated in the response to general comments 2B and 3A, CEQA is not an ARAR for CERCLA actions.

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1	3-19	3.2.3.1	Page 3-19 Shoreline Protection: — The FS statement that "construction of shoreline protection would require dredging of the shoreline" is only correct for the construction of "naked" rock revetment systems without amendment by addition of sand beach platforms or berms. • The inclusion of sand beach shoreline platforms and berms (including barrier beach shoreline profiles) constructed on top of the existing ground surface would not require dredging for construction, and would reduce the incident wave energy affecting the revetment.	The subject statement is correct because, as described in Section 3.3.2.1.7 and Appendix D, (1) excavation is necessary to ensure that shoreline sections protected with hybrid stabilization are gradually sloped; (2) excavation will remove contaminated sediment that poses a potential risk to humans and wildlife; and (3) excavation and associated backfilling will minimize the volume of fill placed within the intertidal shoreline zone, in accordance with Part IV of the San Francisco Bay Plan (whereas fill placed directly on the existing ground surface would increase the net fill volume and result in a net loss of bay).
2	3-20	3.2.3.1	Page 3-20: "Navy plans to mitigate for the loss of wetlands at Parcel E using on-site compensatory mitigation to be implemented in conjunction with the remedy for Parcel E-2 (Shaw, 2009)". • The proposed Shaw wetlands are inadequate mitigation for the loss of wetlands on Parcel E. • The proposed Shaw freshwater wetland is a steep-sided pond behind a high berm set-back isolated from shore-fringing tidal wetlands. On the landscape, it will appear as a drawdown stock pond or reservoir, and its ecological and esthetic functions will be impaired by excessively steep and uniform slopes. • The final Shaw plan following response to comments still places the compensatory mitigation salt marsh in the form of a fringing marsh along a shoreline within a local wave climate that has been shown to be too erosional for unprotected salt marsh – in fact, the marsh, itself, is mitigation for the rock revetment designed to address the local wave energy climate.	The Navy does not agree with the reviewer's assertion that the proposed wetlands mitigation on Parcel E-2 is not adequate. Over the past 5 years, the Navy has worked collaboratively with the BCT, CCSF, and other project stakeholders to develop a mitigation approach that addresses the unavoidable wetlands loss at Parcels B, E, and E-2. The results of this effort were published in the Final WMMP (Shaw, 2009b) and summarized in the Final RI/FS Report for Parcel E-2 (ERRG and Shaw, 2011). Draft and draft final versions of both documents were reviewed by the BCT, CCSF, and other project stakeholders, including Arc Ecology. The Navy responded to all comments received on the draft and draft final versions of both documents and incorporated input from various reviewers, as appropriate, into the final versions. The Navy believes that this effort is adequate to support the Navy's evaluation of remedial alternatives for Parcels E and E-2. The wetlands design will be refined, as appropriate, during the RD for Parcel E-2; however, the Navy does not agree with the reviewer's assertion that the wave climate offshore of the proposed tidal marsh is "too erosional" and believes that the current conceptual design will be effective in the long-term.

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2 *(cont.)*	3-20	3.2.3.1	• Therefore, we believe that the tidal marsh design should anticipate the need for a wave barrier at this location, based on the Battelle analysis. If marsh erosion is treated with "adaptive management" after-the-fact for what is in fact predictable erosion, the result will be more rock placed in salt marsh, which defeats the basic purpose of the mitigation. • Note that the proposed Arc-Ecology beach and lagoon system would be ideally located at Parcel E2 where it could provide for a natural self-sustaining habitat while protecting the sediment and landfill at Parcel E2. • Note that there is an existing beach at this location that has been stable under several years of the local wind-wave energies at the Site and therefore provides a local reference site to guide future site habitat designs that could be used by the Navy consultants. This should be utilized in the next FS iteration.	The Navy does not agree with the reviewer's assertion that the wave climate offshore of the proposed tidal marsh requires a wave barrier and believes that the current conceptual design will be effective in the long-term.
3	3-41	3.3.2.1.7	Page 3-41: The FS does not evaluate the proposed Arc Ecology plan for a back-barrier lagoon system. • Lennar, in conjunction with the Sierra Club and Audubon have reached an agreement to fund the implementation of such a system and has presented Navy staff and consultants with conceptual plans for such a system that would significantly increase wave energy attenuation (reduce wave erosion potential on engineered shoreline armoring) while satisfying multiple CEQA mitigation requirements (ARARs) that are otherwise unmet in the FS.	Please refer to the responses to general comments 2B and 3B. In addition, as stated in the response to general comment 3A, the Navy's CERCLA cleanup decisions are not subject to CEQA.

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3 *(cont.)*	3-41	3.3.2.1.7	• Without the Arc Ecology "soft" shoreline amendment of the proposed boulder armoring of the shoreline, the proposed alternatives fail to meet multiple CEQA mitigation requirements (i.e., they conflict with ARARs) and therefore make the proposed designs infeasible. Since the Arc Ecology shoreline designs are additive to the FS proposed alternative, and are funded, their feasibility should be assessed in final alternatives.	*(see above)*
4	3-41	3.3.2.1.7	We believe the Arc Ecology proposal fits in with the general "hybrid shoreline stabilization" alternative that was described as "…an effective containment system…"., we recommend this alternative description be revised to more explicitly describe the Arc Ecology proposal. The location of the proposed Arc Ecology natural beach system (not the Shaw mitigation site-see appendix A for location) is at an area already determined by the Navy to be gradual and wide and therefore acceptable for hybrid beach solutions.	Please refer to the responses to general comments 2B and 3B.
5	3-41	3.3.2.1.7	Page 3-41: The Draft FS acknowledges that the rock armoring would prevent safe public access to the shoreline. • The FS should clarify the specific significant adverse impacts of boulder revetments in a public park land use context: boulder armored shorelines are likely to create public nuisances of safety hazards and esthetics, eliminate water quality functions and wildlife functions of sand beaches, and create other nuisances such as habitat for Norway rats. These impacts cause significant conflicts with multiple ARARs in multiple jurisdictions. The statement that "the Navy will continue to work closely with SFRA and other stakeholders to align remedial alternatives…to the extent possible" is too weak and vague to provide meaningful feasibility analysis, and is largely symbolic or token language rather than feasibility assessment.	The Navy does not agree with the reviewer's assertion that the rock revetment will cause "significant adverse impacts." The Navy believes that it has correctly evaluated the rock revetment option in Appendix D. Specifically, the disadvantages of rock revetment (limiting pedestrian access and shoreline recreation and having limited aesthetic value) are outweighed by the fact that it would provide a robust containment system that is readily implementable and is the most cost-effective of the three shoreline protection options. As noted in the response to general comment 3A, CEQA is not a CERCLA ARAR and the Navy's CERCLA cleanup decisions are not subject to CEQA. Nonetheless, the Navy has coordinated its investigations and this FS with the SFRA in order to adequately consider the redevelopment plan and future land use.

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5 *(cont.)*	3-41	3.3.2.1.7	• The sentence should be rewritten to require the Navy to perform additional technical feasibility analysis to develop alternative designs that harmonize shoreline erosion and containment requirements and multiple ARARs in consultation with qualified experts in the analysis and design of engineered estuarine beach systems. • The feasibility assessment objective should be to develop a shoreline alternative that meets ARAR objectives including public access and habitat to the extent feasible.	Potential ARARs for shoreline construction were identified in Appendix B and then analyzed in Appendix D. As stated in Section D5.3 of Appendix D, the proposed shoreline protection for Parcel E complies with the substantive provisions of the pertinent ARARs, including the federal Clean Water Act § 404 and the state McAteer-Petris Act and San Francisco Bay Plan.
6	--	--	Note that there are natural analogues for estuarine fringing and barrier beach systems in San Francisco Bay, including existing and historical examples right at the Hunters Point site. • Recent Navy shoreline enhancement projects based on coarse sand beach nourishment have developed and are successfully combating site wind-wave conditions <u>without</u> erosion into underlying sediments. • These projects provide on-site evidence that validates the presumption of the feasibility of estuarine beach construction and should be used to guide subsequent design efforts.	The Navy believes that the recommended hybrid stabilization option will be protective of human health and the environment and does not need to be supplemented with either beach nourishment, as suggested by the reviewer. However, the Navy acknowledges that such additional measures could be implemented by the CCSF during redevelopment in a manner that is consistent with the Navy's performance objectives.
7	Table 3-6	3	Section 3, Table 3-6: The shoreline stabilization (nonstructural) section includes statements that sand fills and shoreline nourishment are unable to withstand the site's wave energy environment. • This is inconsistent with on-site evidence of successful placement by the Navy of coarse beach sand and formation of erosion-buffering beaches on top of engineered rock armored shorelines on the south-facing shore of Hunters Point.	As described in Section D3.3 of Appendix D, shoreline nourishment typically involves constructing a wider shoreline and more substantial dune to (1) act as a protective buffer between upland structures and the water and (2) provide a sediment source that would aid in dissipating wave energy if sediment eroded during a storm and moved offshore. The Navy's past shoreline restoration efforts have not involved constructing a wider shoreline or substantial dune. Rather, as stated in Section D3.2 of Appendix D, restoration efforts have consisted of natural shoreline materials with an underlying rock armor.

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Specific Comments				
7 *(cont.)*	Table 3-6	3	• Thus these statements appear to be out of date with existing conditions that include Navy-constructed beaches. These statements should be corrected. We believe that a review of multiple bay beach reference sites (including the Hunters Point site) would demonstrate that natural beach systems within San Francisco Bay are able to form and persist in the long term in more exposed, severe wind-wave energy climates than those of Hunters Point. See comments below under review of Appendix D for more details.	The Navy believes that it has correctly evaluated the shoreline nourishment technology in Appendix D. Specifically, the shoreline nourishment technology was not retained for further analysis because (1) it would not meet the RAOs (identified in Section D2.6 of Appendix D) and (2) the Parcel E shoreline is narrow and no area would be adequate to create a wider shoreline without substantial excavation.
8	4-5 to 4-6	4.2.2.3	Page 4-5 to 4-6: The proposed hybrid design contains many of the same elements as the Arc Ecology proposal but does not include the proposed coastal lagoon and back barrier beach concept. • Note that the underlying rock armor is not required for the beach and lagoon system. However, the proposed Arc Ecology lagoon and gravel beach design can work with an underlying armoring system because it is an additive system. However, under the Arc Ecology scenario the costs associated with the excavation and grading to achieve an underlying rock are not required. • The Navy's design could be an underlying armor "base" for the soft shoreline design proposed by Arc Ecology, consisting of a beach platform sand fill that creates a more gently shelving wave-dissipating nearshore and shoreline, eliminating or reducing the constraints of existing slopes, and adds the additional storm wave "buffering" capacity of a resilient shell-gravel barrier beach rolling over a sand platform.	Please refer to the responses to general comments 2B and 3B.
9	--	--	The Navy "need" for rip-rap is perfectly compatible with any other natural sediment and vegetation placed on top of it; armor is always available as an ultimate (unseen hard) barrier to erosion and the living shoreline is on top of this barrier.	Please refer to the responses to general comments 2B and 3B.

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Specific Comments				
10	--	App. B	Appendix B does not directly evaluate the proposed Arc Ecology coastal lagoon and gravel back barrier beach design. This should be evaluated during the final document preparation.	Please refer to the responses to general comments 2B and 3B.
11	D-12	App. D	Appendix D (page D-12).Note that a significant wave height of 2.3 feet (developed by the Battelle study) is relatively small and is a function both of local water depth and wave fetch. • The study does not provide a context for significant wave height in relation to existing coarse clastic shorelines (persistent old sand and gravel beaches) in San Francisco Bay. • Sand, gravel and shell beaches have existed with dynamic stability in more exposed settings than Hunters Point (larger significant wave height of long fetch across wide and deepwater reaches of San Francisco Bay such as Angel Island, Red Rock Island, East Marin Island, Radio Beach, Brisbane Spit). • By the flawed analysis of the FS report, stable bay beaches would not exist anywhere around the bay as they do at many locations with wave fetches and significant wave heights greater than 2.3 feet. Many of the **stable** reference beach sites, surveyed for design of a natural beach project designed by the Arc-Ecology consulting team, have much longer wind fetches and hence greater significant wave heights then at the Hunters Point site. Appendix D does not contain an informed analysis of natural beach systems as a stable shoreline stabilization alternative and should be updated by experts in these types of systems.	The Navy does not agree with the reviewer's assertion that the shoreline protection analysis is "flawed." The Navy believes that the existing information, which includes measurements of wave height offshore of Parcel E during winter storms, is adequate to evaluate the shoreline protection options in the FS Report in accordance with the NCP. As stated in Section 4.2.2.3 of the FS Report, the conceptual shoreline protection design may be refined in the RD based on additional site information or stakeholder input, but it must continue to satisfy the RAOs (identified in Section 3.1.2 of the FS Report).

Table 5. Responses to Comments from Arc Ecology on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by Saul Bloom, dated November 18, 2011 *(continued)*				
Specific Comments				
12	--	--	The design of natural beach systems is a function of the grain size and slope in relation to wave energy. Coarse beach sediments can be designed to resist much higher wave energies then wave energy levels found in SF Bay. The FS failed to analyze the feasibility of coarse-grained (gravel, shell, coarse sand) beaches to provide supplemental wave energy buffering functions to armored shoreline protection. There are many Pacific coast precedents of resilient engineered bay beaches that are adapted to greater significant wave heights than those estimated for Hunters Point. • For example, the State of Oregon built a natural cobble beach system at Cape Lookout on the Pacific Coast in 2005 in a direct coastal environment which successfully worked during the large winter storms of 2006 with significant wave heights of 8.2 meters (approx. 27 feet) without any significant erosion. This project was designed by the State Coastal geomorphologist Jonathan Allan and Professor Paul Komar of Oregon State, one of the leading coastal engineers in the profession. • Professor Mark Lorang of the University of Montana has built several miles of natural beach system at Flathead Lake in Montana, a deep glacial lake with significant wave height greater than the Hunters Point site and his beaches have been very stable and have successfully protected miles of eroding shoreline with more success than rock riprapped shore created by typical engineering firms. Professor Lorang served as a technical peer reviewed for the soft-engineering estuarine beach design developed for the Aramburu Island shoreline enhancement in Richardson Bay, Tiburon completed in September 2011. This demonstration project built a naturalistic beach at locations with wave fetches (and thus wave heights) in excess of the South Basin site.	Sections D4.2.1 and D4.4.1 specify conceptual designs for the options involving rock armor. Specifically, the conceptual designs specify (in accordance with established engineering guidance) that 75- and 25-pound rocks are necessary to effectively withstand the design wave height and planned shoreline slopes. The 75- and 25-pound rocks identified are much larger than the coarse-grained material identified by the reviewer. The Navy believes that this engineering design approach will ensure that the shoreline protection features meet the established RAOs and are effective in the long-term. The Navy does not believe that observations from other coastal locations are an adequate basis to develop shoreline protection that meets the established RAOs and is effective in the long-term. In particular, the reviewer's implication that coastal beach conditions are appropriate design bases for Parcel E ignores the fact that the shoreline protection is part of a larger containment alternative that is proposed to protect humans and wildlife from exposure to hazardous substances. The site conditions at Parcel E require development of a robust shoreline protection approach to prevent potential exposure to hazardous substances, and erosion rates that may be considered acceptable at coastal beaches are not likely to be acceptable at Parcel E.

Table 6. Responses to Comments from Golden Gate Audubon Society and Sierra Club on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by the Sierra Club (Arthur Feinstein) and Golden Gate Audubon Society (Mike Lynes), dated November 30, 2011				
General Comments				
1	--	--	We are submitting comments on the Hunters Point Draft Final Parcel E Draft Feasibility Study on behalf of the San Francisco Bay Chapter of the Sierra Club and the Golden Gate Audubon Society. Our organizations have long been involved in the protection of the environment and the community in the Bayview-Hunters Point area. We believe that the draft Feasibility Study must be improved before it is finalized.	Comment acknowledged.
2	--	--	As an initial matter, we are concerned that the draft Feasibility Study is inconsistent with site features mandated by the ARRA, the final Environmental Impact Report (FEIR) for the project, and the 2010 Settlement Agreement between the City of San Francisco and Sierra Club/Golden Gate Audubon. Specifically, the Settlement Agreement called for (1) a naturalistic storm water swale system, (2) a living shoreline beach, and (3) a lagoon system. These inconsistencies can be rectified by amending the Feasibility Study's alternatives to incorporate the project modifications as identified in the Arc Ecology letter dated September 17, 2011. These modifications include a naturalistic storm water treatment system, a living shoreline, and a lagoon following the designs submitted by Arc Ecology.	The Navy does not agree with the reviewer's assertions. Each of the development alternatives evaluated in the SFRA's[6] Final EIR (SFRA, 2010a), except for Alternative 1 (which evaluated no new development), included a parks and open space area along the Parcel E shoreline. Upon completion of the CCSF's review process, the SFRA amended its HPS Redevelopment Plan (SFRA, 2010b) to reflect the selected development alternative. The proposed remedial alternatives presented in the Draft Final FS Report are compatible with the future reuses identified in the 2010 HPS Redevelopment Plan. Although the Navy's CERCLA cleanup decisions are not subject to CEQA, CEQA is not a CERCLA ARAR, and the Navy is not a party to or legally bound by the settlement agreement, the Navy has made extensive efforts to consider and address the SFRA's amended HPS Redevelopment Plan in the FS Report. The Navy does not agree with the reviewer's assertion that the remedial alternatives presented in the Draft Final FS Report are inconsistent with the amended HPS Redevelopment Plan.

[6] Acronyms and abbreviations are defined at the end of this appendix (following Table 6).

Table 6. Responses to Comments from Golden Gate Audubon Society and Sierra Club on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by the Sierra Club (Arthur Feinstein) and Golden Gate Audubon Society (Mike Lynes), dated November 30, 2011 *(continued)*				
General Comments				
2 *(cont.)*	--	--	*(see above)*	On March 15, 2011, Navy staff attended a meeting hosted by CCSF and Lennar that included a presentation from Mr. Roger Leventhal and Dr. Peter Baye (Arc Ecology, 2011). Mr. Leventhal and Dr. Baye, under contract to Arc Ecology, presented a preliminary design concept to the parties in attendance, which included representatives from the BCT, CCSF, and other project stakeholders. Mr. Leventhal and Dr. Baye discussed their preliminary design concept relative to the Navy's preliminary concepts for protecting the Parcel E shoreline, as presented to the BCT, CCSF, and other project stakeholders in January 2011 (Navy, 2011). On page 8 of the Arc Ecology presentation, it was stated by the presenters that "*our plan works with (and we believe enhances) Navy proposals.*" Based on this information, the Navy believes that it has worked collaboratively with interested stakeholders to ensure that the proposed remedial alternatives for Parcel E are compatible with future development plans.

Table 6. Responses to Comments from Golden Gate Audubon Society and Sierra Club on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by the Sierra Club (Arthur Feinstein) and Golden Gate Audubon Society (Mike Lynes), dated November 30, 2011 *(continued)*				
General Comments				
3	--	--	We are also concerned with the Feasibility Study's discussion of the Parcel E containment cap(s). First, we found the discussion to be too vague to fully assess whether the alternatives would comply with all applicable requirements, including those laid out in the FEIR, as well as those required by state and federal laws. The Feasibility Study would be improved with an expanded discussion of the specific requirements that the caps must meet and addressing how each of those requirements is fulfilled.	The Navy believes that the remedial alternatives in the Draft Final FS Report are adequately developed to support an informed risk management decision using the NCP evaluation criteria. As stated in the response to comment 2, the proposed remedial alternatives are compatible with the future reuses identified in the SFRA's amended HPS Redevelopment Plan (SFRA, 2010b). Section 5 of the Draft Final FS Report states that the proposed remedial alternatives would comply with potential ARARs identified in Appendix B. The Navy identified and evaluated potential ARARs for the remedial alternatives at Parcel E in accordance with CERCLA and the NCP.
4	--	--	The Feasibility Study fails to identify that some of the specific requirements described as mitigations in the FEIR are also requirements of the Settlement Agreement. Specifically, the FS alternatives should discuss (1) the construction of approximately 80 acres of native grasslands on Parcels E and E2 combined, (2) the development of raptor foraging habitat and the creation of a storm water treatment system or bioswale. Given the terms of the Settlement Agreement, the FS should include an alternative that analyses Arc Ecology's submitted designs that were designed to address these FEIR and settlement requirements.	As described in the response to comment 2, the Navy's CERCLA cleanup decisions are not subject to CEQA, CEQA is not a CERCLA ARAR, and the Navy is not a party to or legally bound by the settlement agreement.

Table 6. Responses to Comments from Golden Gate Audubon Society and Sierra Club on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by the Sierra Club (Arthur Feinstein) and Golden Gate Audubon Society (Mike Lynes), dated November 30, 2011 *(continued)*				
General Comments				
5	--	--	We are particularly concerned about the lack of discussion of native grasslands and a storm water drainage system because the cap will have to be designed to accommodate for these project characteristics. Failure to account for these design features during the alternative assessment, design and implementation phases will result in the incomplete or ineffective implementation of the native grassland, seasonal wetland, and bioswale features. We direct your attention to the comments provided by Arc Ecology on these points for a more technical discussion of how these naturalistic design features are fully compatible with and would even improve the clay cap. (*See* Comments from Arc Ecology, at p. 3-4)	Section 3.3.2.1.7 of the Draft Final FS states that the Navy will continue to work closely with SFRA and other stakeholders to align the remedial alternatives for Parcel E with SFRA's redevelopment project to the maximum extent practical. However, as stated in the responses to comment 2, the Navy's CERCLA cleanup decisions are not subject to CEQA, CEQA is not a CERCLA ARAR, and the Navy is not a party to or legally bound by the settlement agreement. The Navy believes that the remedial alternatives in the Draft Final FS Report are adequately developed to support an informed risk management decision using the NCP evaluation criteria. The conceptual designs presented in the FS Report will be further refined in the RD and, as previously stated, will accommodate CCSF's plans to construct stormwater management systems.
6	--	--	The Project FEIR requires that a "living shoreline" be designed in conjunction with the shoreline armoring and other requirements. The feasibility analysis should include consideration of sand nourishment in conjunction with armoring and other management schemes. We believe that just armoring the shoreline conflicts with the ARRA reuse plans and the FEIR for the project. Specifically, armoring will restrict public access to the shoreline and will not significantly benefit wildlife.	The Navy evaluated an appropriate range of shoreline protection technologies and process options in Appendix D of the Draft Final FS Report. This evaluation concluded that the most viable shoreline protection options for the Parcel E shoreline are armoring (rock revetment) and hybrid stabilization using natural shoreline materials with underlying rock armor. Section 4.2.2.3 of the Draft Final FS Report identifies a conceptual design for implementing these two options along different sections of the Parcel E shoreline. As stated in the response to comment 2, the proposed remedial alternatives presented in the Draft Final FS Report are compatible with the future reuses identified in the SFRA's amended HPS Redevelopment Plan (SFRA, 2010b). The Navy believes that the recommended hybrid stabilization option will be protective of human health and the environment and does not need to be supplemented with sand nourishment, as suggested by the reviewer.

Table 6. Responses to Comments from Golden Gate Audubon Society and Sierra Club on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by the Sierra Club (Arthur Feinstein) and Golden Gate Audubon Society (Mike Lynes), dated November 30, 2011 *(continued)*				
General Comments				
6	--	--	*(see comment above)*	However, the Navy acknowledges that such additional measures could be implemented by the CCSF during redevelopment in a manner that is consistent with the Navy's performance objectives. The Navy believes that it has correctly evaluated the rock revetment option in Appendix D. Specifically, the disadvantages of rock revetment (limiting pedestrian access and shoreline recreation and having limited aesthetic value) are outweighed by the fact that it would provide a robust containment system that is readily implementable and is the most cost-effective of the three shoreline protection options.
7	--	--	Of most concern to us is the Feasibility Study's failure to discuss the "backbarrier lagoon" feature proposed by Arc Ecology, Sierra Club, and Golden Gate Audubon and agreed to and funded by Lennar through the Settlement Agreement. Specifically, we believe that the backbarrier lagoon will provide increased shoreline protection, as well as a vibrant natural environment that will benefit the community, water quality, and wildlife. We believe that this lagoon system should be included as a preferred alternative in the Final FS. In any event, the Feasibility Study should at least be revised to discuss the feasibility of the lagoon and proposed by Arc Ecology.	Based on the presentation on March 15, 2011, the Navy understands that Arc Ecology's preliminary design concept for the proposed back-barrier lagoon system uses an offshore reef to dissipate wave energy. The hybrid stabilization option using an offshore reef was not carried forward to the detailed evaluation of remedial alternatives primarily because of it would not reliably control erosion and prevent exposure to contaminated sediments; this option would also limit shoreline recreation and pose significant implementation challenges (see Appendix D in Final FS Report). However, the Navy encourages the CCSF to evaluate the offshore reef as a non-CERCLA post-transfer project and coordinate with appropriate regulatory agencies. In addition, Section 4.2.2.3 of the FS Report states that the conceptual design may be refined in the RD based on additional site information or stakeholder input, but it must continue to satisfy the RAOs (identified in Section 3.1.2 of the FS Report). The Navy believes that this discussion adequately acknowledges the CCSF's proposed redevelopment of the Parcel E shoreline.

Table 6. Responses to Comments from Golden Gate Audubon Society and Sierra Club on the Draft Final Parcel E Feasibility Study (FS) Report, Hunters Point Shipyard (HPS), July 2011

Comment #	Page #	Section	Comment	Response
Comments provided by the Sierra Club (Arthur Feinstein) and Golden Gate Audubon Society (Mike Lynes), dated November 30, 2011 *(continued)*				
General Comments				
8	--	--	The proposal to mitigate wetland losses with the Shaw wetlands is inadequate. According to Arc Ecology's analysis, the Shaw wetland site will not endure the local wave energy environment. It is our goal to ensure that viable wetlands are created as mitigation for the project and that they will endure local conditions in the longer term in order to preserve their benefits for the community and wildlife. The proposed backbarrier lagoon will accomplish this goal and thanks to the Settlement Agreement, funds for its construction have already been provided.	The Navy does not agree with the reviewer's assertion that the proposed wetlands mitigation for Parcel E-2 is not adequate. Over the past 5 years, the Navy has worked collaboratively with the BCT, CCSF, and other project stakeholders to develop a mitigation approach that addresses the unavoidable wetlands loss at Parcels B, E, and E-2. The results of this effort were published in the Final WMMP (Shaw, 2009b) and summarized in the Final RI/FS Report for Parcel E-2 (ERRG and Shaw, 2011). Draft and draft final versions of both documents were reviewed by the BCT, CCSF, and other project stakeholders, including Arc Ecology. The Navy responded to all comments received on the draft and draft final versions of both documents and incorporated input from various reviewers, as appropriate, into the final versions. The Navy believes that this effort is adequate to support the Navy's evaluation of remedial alternatives for Parcels E and E-2. The wetlands design will be refined, as appropriate, during the RD for Parcel E-2; however, the Navy does not agree with the Arc Ecology's assertion that the wave climate offshore of the proposed tidal marsh requires a wave barrier and believes that the current conceptual design will be effective in the long-term.

ACRONYMS AND ABBREVIATIONS

§	section
ARARs	applicable or relevant and appropriate requirements
ARIC	area requiring institutional controls
BRAC	Base Realignment and Closure
BCT	BRAC Cleanup Team
bgs	below ground surface
CCR	California Code of Regulations
CCSF	City and County of San Francisco
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQA	California Environmental Quality Act
COCs	chemicals of concern
DFG-OSPR	California Department of Fish and Game, Office of Spill Prevention and Response
DoD	U.S. Department of Defense
DTSC	California Department of Toxic Substances Control
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
HHRA	human health risk assessment
HPS	Hunters Point Shipyard
HRA	Historical Radiological Assessment
IR	Installation Restoration
ISB	in-situ bioremediation
LOAEL	lowest observed adverse effect level
MOA	memorandum of agreement
MPPEH	material potentially presenting an explosive hazard
NAPL	nonaqueous-phase liquid
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOAEL	no observed adverse effect level
O&M	operation and maintenance
OMB	Office of Management and Budget
PCB	polychlorinated biphenyl
RAOs	remedial action objectives
RBC	risk-based concentration
RD	remedial design
RI	Remedial Investigation
ROD	Record of Decision

RROs	radiological remedial objectives
RSRS	Radiological Survey and Remedial Services, LLC
Shaw	Shaw Environmental, Inc.
SFRA	San Francisco Redevelopment Agency
TCE	trichloroethene
TPH	total petroleum hydrocarbons
TtECI	Tetra Tech EC, Inc.
TtEMI	Tetra Tech EM Inc.
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
Water Board	California Regional Water Quality Control Board, San Francisco Bay Region
WMMP	wetlands mitigation and monitoring plan
ZVI	zero-valent iron

REFERENCES

Arc Ecology, 2011. "Stormwater Treatment and Habitat Creation through Reconstruction of SF Natural Wetland Landscapes at Hunters Point Parcel E/E2." Technical presentation by Mr. Roger Levanthal and Dr. Peter Baye. March 15.

Barajas & Associates, Inc., 2008. "Final Revised Remedial Investigation Report for Parcel E, Hunters Point Shipyard, San Francisco, California." May 2.

Department of Toxic Substances Control, 2009. Letter regarding Identification of State Applicable or Relevant and Appropriate Requirements for the Draft Feasibility Study for Parcel E, Hunters Point Shipyard, San Francisco, California. From Ryan Miya, DTSC. To Keith Forman, Navy. March 5.

IT Corporation. 1999. "Final Post-Construction Report, Site IR-03 Waste Oil Reclamation Ponds Removal Action, Sheet Pile Containment Barrier, Cap and Soil Cover, Hunters Point Naval Shipyard, San Francisco, California." July.

Department of the Navy (Navy), 2006. "Final Action Memorandum for Time-Critical Removal Action of Radiological Materials in Soils, Debris, or Structures at Hunters Point Shipyard, San Francisco, California." April 21.

Navy, 2010. Letter regarding California Department of Fish and Game Laws and Regulations. From Rex Callaway and Michael Waters, Navy. To Wendy Johnson, CDFG. April 29.

Navy, 2011. "Update on Parcel E Feasibility Study Report." Technical presentation to the Hunters Point Shipyard BRAC Cleanup Team. January 27.

Engineering/Remediation Resources Group, Inc. (ERRG) and Radiological Survey and Remedial Services, LLC (RSRS), 2010. "Draft Radiological Addendum to the Feasibility Study Report for Parcel E, Hunters Point Shipyard, San Francisco, California." April.

ERRG and Shaw Environmental, Inc. (Shaw), 2007. "Draft Parcel E-2 Remedial Investigation/Feasibility Study Report, Hunters Point Shipyard, San Francisco, California." March 30.

ERRG and Shaw, 2009. "Draft Final Remedial Investigation/Feasibility Study Report for Parcel E-2, Hunters Point Shipyard, San Francisco, California." February 27.

ERRG and Shaw, 2011. "Final Remedial Investigation/Feasibility Study Report for Parcel E-2, Hunters Point Shipyard, San Francisco, California." May 5.

Shaw, 2009a. "Draft Final Wetlands Mitigation and Monitoring Plan, Parcels B, E, and E-2, Hunters Point Shipyard, San Francisco, California." January 28.

Shaw, 2009b. "Final Wetlands Mitigation and Monitoring Plan, Parcels B, E, and E-2, Hunters Point Shipyard, San Francisco, California." December 30.

San Francisco Redevelopment Agency (SFRA), 2010a. "Draft Environmental Impact Report, Candlestick Point-Hunters Point Phase II." Volumes I through VI. May 13.

SFRA, 2010b. "Hunters Point Shipyard Redevelopment Plan." August 3 (amendment to July 14, 1997, redevelopment plan).

Tetra Tech EC, Inc. (TtECI), 2006. "Draft Wetlands Mitigation and Monitoring Plan, Metal Debris Reef and Metal Slag Area, Parcels E and E-2, Hunters Point Shipyard, San Francisco, California." November 30.

TtECI, 2010. "Final Material Potentially Presenting an Explosive Hazard (MPPEH) Processing and Removal Completion Report, Hunters Point Shipyard, San Francisco, California." June 30.

Tetra Tech EM Inc. (TtEMI), 2003. "Final Parcel E Nonstandard Data Gaps Investigation, Wetlands Delineation and Functions and Values Assessment, Parcels B and E, Hunters Point Shipyard, San Francisco, California." August 14.

U.S. Army Corps of Engineers (USACE), 1987. "Corps of Engineers Wetland Delineation Manual, Final Report." Wetlands Research Program. Technical Report Y-87-1. January.

USACE, 2008. Engineer Manual 1110-2-1100, "Coastal Engineering Manual." August 1. Available Online at: <http://chl.erdc.usace.army.mil/cem>.

U.S. Department of Defense (DoD), 2001. Memorandum from Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security) regarding Policy on Land Use Controls Associated with Environmental Restoration Activities. January 17.

U.S. Environmental Protection Agency (EPA), 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final." Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01 and -02. EPA/540G-89/004. Available Online at: <http://www.epa.gov/superfund/policy/remedy/sfremedy/rifs/overview.htm>.

EPA, 2000. "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study." OSWER Directive 9355.0-75. EPA/540/R-00-002. July. Available Online at: <http://www.epa.gov/superfund/policy/remedy/costest.htm>.

Attachment 1. Supplemental Evaluation of Potential ARARs Identified by DFG-OSPR

Attachment 1. Potential State Location-Specific ARARs (Supplemental Evaluation)

Feasibility Study Report for Parcel E, Hunters Point Shipyard

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b]					
Bird nest or eggs	It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.	Bird nests or eggs on site.	Cal. Fish & Game Code § 3503 (Added by Statutes 1985, c. 1334, § 6)	Not an ARAR	Cal. Fish & Game Code § 3503 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate" because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well suited to the site based upon the pertinent provisions of §§ 300.400(g)(2)(i) and (iv) of the NCP[1]. CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment, including environmental receptors. In contrast, the purpose of this state requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites. In summary, the purposes of this state requirement and the actions that it regulates do not include responding to releases of hazardous substances.

[1] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential state ARAR. The factors are to be examined "where pertinent" with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b] *(continued)*					
Bird nest or eggs *(continued)*	*(see above)*	*(see above)*	*(see above)*	*(see above)*	Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process. The Navy's ERA process takes into account representative receptors for the site, and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. In addition, any species that are present and are federal and/or state endangered, threatened, or fully protected species will be addressed by ARARs related to those designations.[2]
Fully protected birds	Fully protected birds or parts thereof may not be taken or possessed at any time. The following are fully protected birds: American Peregrine Falcon, California Brown Pelican, California Black Rail, California Clapper Rail, California Condor, California Least Tern, Golden Eagle, Greater Sandhill Crane, Light-footed Clapper Rail, Southern Bald Eagle, Trumpeter Swan, White-tailed Kite, and Yuma Clapper Rail.	A fully protected species must be potentially affected.	Cal. Fish & Game Code § 3511	Relevant and appropriate	Cal. Fish & Game Code § 3511 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. The American peregrine falcon is present at the site, and is protected under Cal. Fish & Game Code § 3511. The substantive provisions of Cal. Fish & Game Code § 3511 meet the pertinent NCP criteria under 40 CFR § 300.400(g)(2)(viii) and are "relevant and appropriate" because the American peregrine falcon is present at the site and protection of this vulnerable resource allows it to be "used" in the sense that it continues to provide its unique value to the

[2] For a more detailed explanation of the positions set forth above, see letter dated June 16, 2009, from Navy counsels Rex Callaway and Michael Waters to CDFG counsel Wendy Johnson; letter dated December 3, 2009, from Ms. Johnson to Mr. Callaway and Mr. Waters; and letter dated April 29, 2010, from Mr. Callaway and Mr. Waters to Ms. Johnson.

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b] *(continued)*					
Fully protected birds *(continued)*	*(see above)*	*(see above)*	*(see above)*	*(see above)*	State of California. The Navy accepts Cal. Fish & Game Code § 3511 as a state ARAR subject to the following conditions. The State of California, through DFG-OSPR, concurs that this statute addresses prohibited conduct but does not provide for or prescribe affirmative measures to avoid a "taking." Notwithstanding the absence of specific affirmative measures in the statute, the Navy will implement reasonable measures to ensure adequate protection of ecological receptors during response action construction following issuance of a CERCLA decision document pursuant to the Navy's obligations under CERCLA to select removal or remedial actions that are protective of human health and the environment (see Section 121[b][1] of CERCLA). The Navy will coordinate with the State, through DFG-OSPR, prior to implementation of such reasonable measures. The Navy understands that the State of California reserves the right to conduct periodic site visits during removal or remedial activities to confirm implementation of avoidance measures. Substantive provisions of this requirement are potentially relevant and appropriate. The American peregrine falcon is present at the site, and the White-tailed kite is potentially present at the site. These species are protected under Cal. Fish & Game Code § 3511.

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b] *(continued)*					
Area used by fully protected mammals	Fully protected mammals may not be taken at any time. The following are fully protected mammals: Morro Bay kangaroo rat, Bighorn sheep (except Nelson bighorn sheep), Northern elephant seal, Guadalupe fur seal, Ring-tailed cat, Pacific right whale, Salt marsh harvest mouse, Southern sea otter, and Wolverine.	A fully protected species must be potentially affected.	Cal. Fish & Game Code § 4700	Not an ARAR	This requirement is not an ARAR because fully protected mammal species are not present at the site.
Fully protected reptiles or amphibians	Fully protected reptiles and amphibians or parts thereof may not be taken or possessed at any time. The following are fully protected reptiles or amphibians: Blunt-nosed leopard lizard, San Francisco garter snake, Santa Cruz long-toed salamander, Limestone salamander, and Black toad.	A fully protected species must be potentially affected.	Cal. Fish & Game Code § 5050	Not an ARAR	This requirement is not an ARAR because fully protected reptile or amphibian species are not present at the site.
Waters of the state	Prohibits the passage of enumerated substances or materials into waters of the state deleterious to fish, plant life, or birds.	Not authorized under Cal. Water Code § 13263 or a waiver issued pursuant to subdivision (a) of § 13269 of the Cal. Water Code.	Cal. Fish & Game Code § 5650(a), (b), and (c)	Relevant and appropriate	Cal. Fish & Game Code § 5650 is not applicable because the United States of America has not waived sovereign immunity for this state of California requirement. While no direct deposition of material is expected to enter into or affect waters of the states, the substantive portions of this standard will be complied with as an ARAR. Response actions along the Parcel E shoreline will be conducted in such a way as to ensure that materials dug up will not be released into the water column.

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b] *(continued)*					
Area with fisher, marten, river otter, desert kit fox, and red fox	Fisher, marten, river otter, desert kit fox, and red fox may not be taken at any time.	A fisher, marten, river otter, desert kit fox, or red fox must be potentially harmed.	Cal. Code Regs. tit. 14, § 460	Not an ARAR	Cal. Fish & Game Code § 3503 is not applicable because the United States of America has not waived sovereign immunity in the FESA for this State of California requirement. Pursuant to 40 CFR § 300.400(g)(2) of the NCP, the Navy has determined that this requirement is not "relevant and appropriate" because it does not address problems or situations sufficiently similar to the circumstances of the release or CERCLA response action and is not well suited to the site based upon the pertinent provisions of §§ 300.400(g)(2)(i) and (iv) of the NCP[3]. CERCLA response actions are intended to respond to releases of hazardous substances in order to protect human health and the environment, including environmental receptors. In contrast, the purpose of this state requirement is to regulate and set forth conditions for the "taking" of the species addressed by those requirements. Moreover, that purpose is achieved through the regulation of intentional conduct directed at the species as opposed to incidental "take" (or possession, etc.) of species in the course of lawful activity such as CERCLA remedial action. The focus on intentional conduct is not well-suited to the circumstances at CERCLA sites. In summary, the purposes of this state requirement and the actions that it regulates do not include responding to releases of hazardous substances.

[3] Note that there is no requirement in Subsection 300.400(g)(2) of the NCP that the Navy make specific findings for each of the eight factors listed in Subsection 300.400(g)(2)(i) through (viii) for each potential state ARAR. The factors are to be examined "where pertinent" with pertinence "depending, in part, on whether a requirement addresses a chemical, location, or action."

Location	Requirement	Prerequisite	Citation [a]	Preliminary ARAR Determination	Comments
California Department of Fish and Game (Cal. Fish & Game Code) [b] *(continued)*					
Area with fisher, marten, river otter, desert kit fox, and red fox *(continued)*	*(see above)*	*(see above)*	*(see above)*	*(see above)*	Therefore, it is not "relevant and appropriate" based upon the pertinent provisions of Subsections 300.400(g)(2)(i) and (iv) of the NCP. Although this requirement is not an ARAR, the Navy will coordinate with other natural resource trustees throughout the CERCLA remedial action process. The Navy's ERA process takes into account representative receptors for the site, and final remediation/cleanup goals will ensure that they are adequately protected from exposure to CERCLA hazardous substances that present unacceptable risk. In addition, any species that are present and are federal and/or state endangered, threatened, or fully protected species will be addressed by ARARs related to those designations.[4]

[4] For a more detailed explanation of the positions set forth above, see letter dated June 16, 2009, from Navy counsels Rex Callaway and Michael Waters to CDFG counsel Wendy Johnson; letter dated December 3, 2009, from Ms. Johnson to Mr. Callaway and Mr. Waters; and letter dated April 29, 2010, from Mr. Callaway and Mr. Waters to Ms. Johnson.

Notes:

a	Only the substantive provisions of the requirements cited in this table are potential ARARs.
b	Statutes and policies and their citations are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statues and policies does not indicate that the Navy accepts the entire statute or policy as a potential ARAR; specific potential ARARs follow each general heading; only substantive requirements of the specific citations are considered potential ARARs.
§	Section
§§	Sections
ARAR	Applicable or relevant and appropriate requirement
Bay Plan	San Francisco Bay Plan
Cal.	California
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
DFG	California Department of Fish and Game
ERA	ecological risk assessment
FESA	Federal Endangered Species Act
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OSPR	Office of Spill Prevention and Response
Regs.	Regulations
TBC	to be considered
tit.	Title