ATTACHMENT 3
REFERENCES

(Reference Documents Provided on CD Only)

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
1	**Parcel C**	Section 2.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.1, page 2-9. Draft Final Proposed Plan for Parcels C and UC-2, Hunters Point Shipyard, San Francisco, California. Department of the Navy. January 2009. Page 1.
2	**IR Sites**	Section 2.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.1.3, page 2-3. Draft Final Parcel B Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC Environmental Management, Inc., Levine-Fricke-Recon, Inc. (LFR), and Uribe & Associates (U&A). June 3, 1996. Sections 4.4 and 4.11, pages 4-28, 4-29, and 4-266. Draft Final Parcel C Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC, HLA, LFR, and U&A. March 13, 1997. Sections 4.2, 4.3, 4.4, 4.5, 4.11, 4.12, 4.13, and 4.14, pages 4-64, 4-88 to 4-96, 4-242 to 4-244, 4-330, 4-489, 4-519, 4-520, 4-571, and 4-589.
3	**Hydrostratigraphic units**	Section 2.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.8.1, pages 2-13 to 2-15.
4	**Drinking water**	Section 2.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.9, pages 2-17 to 2-21.
5	**Parcel C ecology**	Section 2.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.5, page 2-11.
6	**Samples**	Table 1	Draft Final Parcel B Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC Environmental Management, Inc. (PRC), Levine-Fricke-Recon, Inc. (LFR), and Uribe & Associates (U&A). June 3, 1996. Tables 4.4-1 to 4.4-8, and 4.11-1 to 4.11-20. Draft Final Parcel C Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC, LFR, and U&A. March 13, 1997. Executive Summary, pages ES-4 and ES-5 plus Tables 4.2-1 to 4.2-7, 4.3-1 to 4.3-20, 4.4-1 to 4.4-22, 4.5-1 to 4.5-11, 4.11-1 to 4.11-11, 4.12-1 to 4.12-16, 4.13-1 to 4.13-4, and 4.14-1 to 4.14-12.
7	**RMR results**	Table 1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.1.4.2, page 2-6. Final Sampling and Analysis Plan, Parcel C Soil Site Delineation. Tetra Tech and Washington Group International. January 18, 2001. Table-1.
8	**Impacted or non-impacted**	Table 1	Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939 – 2003, Hunters Point Shipyard, San Francisco, California. Naval Sea Systems Command. August 31, 2004. Section 1.2, Page 1-2 and 1-3.
9	**VOCs**	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.3.1.2, pages 2-24 and 2-25.
10	**PAHs**	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.3.1.3, page 2-25.
11	**Metals**	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.3.1.1, page 2-23 and 2-24.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
12	VOCs	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Sections 2.4.1, 2.4.3, and 2.4.4, pages 2-28, 2-29, 2-31 to 2-38, and 2-40.
13	Chromium VI and zinc	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.4.1 through 2.4.4, pages 2-28, 2-30, 2-33, 2-35, 2-36, 2-39, and 2-40.
14	Radiologically impacted sites	Section 2.3	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Section 2.1.1, pages 2-1 and 2-2. Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939 – 2003, Hunters Point Shipyard, San Francisco, California. Naval Sea Systems Command. August 31, 2004. Section 8.3.3, pages 8-50 to 8-73.
15	Reuses	Section 2.4	Hunters Point Shipyard Redevelopment Plan. City and County of San Francisco. Section II.B and Map 1. San Francisco Redevelopment Agency. July 14, 1997.
16	2010 amended land use	Section 2.4	Hunters Point Shipyard Redevelopment Plan. City and County of San Francisco. Map 2, titled "Land Use Districts Map," July 14, 1997, Amended ___, 2010," dated May 27, 2010
17	Human health CSM	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C3.0, Figure C-1.
18	HHRA	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C5.0, pages C-16 to C-24.
19	Cancer risks and noncancer hazards	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C7.0, pages C-27 to C-32.
20	Total and incremental risks	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Sections 3.1.2 and 3.1.3, pages 3-4 to 3-9.
21	Revised HHRA results	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Tables 3-2 through 3-16.
22	Radiological risks	Section 2.5.1	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Tables 3-3 and 3-4.
23	Combined chemical and radiological risks	Section 2.5.1	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Tables 3-5 and 3-6.
24	Assumptions and uncertainties	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C9.0, pages C-43 to C-46.
25	Surface water quality	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G, Table G-1.
26	Chromium VI and zinc	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 3.2, pages 3-11 to 3-14.
27	Environmental impacts to the bay	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
28	Trigger levels	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix H.
29	Chromium VI	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G, Tables G-2 and G-3.
30	Zinc	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G, Tables G-2 and G-3.
31	Soil	Section 2.5.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Figures 3-2 through 3-7.
32	Groundwater	Section 2.5.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Figures 3-8 and 3-9.
33	Radiologically impacted structures and soil	Section 2.5.3	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Tables 3-3 to 3-6.
34	Radionuclides of concern	Section 2.5.3	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Table 2-1.
35	RAOs	Section 2.7	Final Feasibility Study Report for Parcel C. Hunters Point Shipyard, San Francisco, California, SulTech. July 31, 2008. Section 4.1, page 4-1.
36	Table 7 of the final soil gas memorandum	Section 2.7	Final Memorandum: Approach for Developing Soil Gas Action Levels for Vapor Intrusion Exposure at Hunters Point Shipyard, Hunters Point Shipyard, San Francisco, California. ChaduxTt. April 30, 2010. Table 7.
37	General response actions (GRA)	Section 2.8	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 4.3, page 4-18.
38	Preliminary remedial alternatives	Section 2.8	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Sections 5.0 and 5.1, page 5-1.
39	Nine evaluation criteria	Section 2.8.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 6.0, pages 6-1 and 6-2.
40	Present-Worth Cost: $1,580,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-2A.
41	Present-Worth Cost: $16,430,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-4A.
42	Present-Worth Cost: $6,930,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-6A.
43	Present-Worth Cost: $24,950,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-8A.
44	Present-Worth Cost: $12,240,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-9 and F-11A.
45	Present-Worth Cost: $21,910,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Table F-13A.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
46	**Present-Worth Cost: $28,290,000**	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Table F-15A.
47	**Present-Worth Cost: $48,450,000**	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Table F-17A.
48	**Present-Worth Cost: $29,698,000**	Table 6	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Appendix B, Section 6.9, pages B.6-5 and B.6-6.
49	**2010 soil data gap investigation**	Section 2.9.2	Draft Technical Memorandum for Data Gap Investigation of Soil Under Buildings on Parcel C, Hunters Point Shipyard, San Francisco, California. CH2M HILL Kleinfelder, A Joint Venture (KCH). July 2010. Section 7 and Appendix B.
50	**Dust control measures**	Section 2.9.2	Final Basewide Dust Control Plan, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC Inc. June 12, 2008.
51	**ICs**	Section 2.9.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 4.3.2.1, pages 4-20 to 4-23.
52	**IR Program website**	Section 2.10	http://www.bracpmo.navy.mil/

1 Bold blue text indicates hyperlinks available on reference CD to detailed site information contained in the publicly available Administrative Record.

For access to information contained in the Administrative Record for Hunters Point Shipyard, please contact:

Diane Silva
Naval Facilities Engineering Command Southwest
2965 Mole Rd, Bldg 3519
San Diego, CA 92136
619-532-3676

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
1	Parcel C	Section 2.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.1, page 2-9. Draft Final Proposed Plan for Parcels C and UC-2, Hunters Point Shipyard, San Francisco, California. Department of the Navy. January 2009. Page 1.

treatability study was conducted in two stages, anaerobic (Stage 1) and aerobic (Stage 2). Stage 1 was conducted from April to December 2004. Stage 2 was conducted from January to May 2005. The purpose of Stage 1 was to evaluate the biological degradation of chlorinated organics, including the chlorinated ethenes, ethanes, and benzenes under anaerobic conditions. The purpose of Stage 2 was to evaluate the biodegradation of potentially reduced residual chlorinated organic and nonchlorinated organic chemicals under aerobic conditions. The treatability study demonstrated that sequential anaerobic and aerobic bioremediation is an effective treatment technology for groundwater plumes of mixed chlorinated organic chemicals, such as that observed at RU-C5 (Shaw Environmental, Inc. 2005).

2.2 HUNTERS POINT SHIPYARD ENVIRONMENTAL SETTING

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

2.2.1 HPS and Surrounding Land Use

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

Parcel C consists of about 79 acres of shoreline and lowland coast along the east-central portion of HPS (see Figure 1-2). Parcel C is located south of Parcel B and east of Parcel D, and is bounded to the north by Parcel B, east by the Bay, south by Berths 10 and 11, southwest by Dry Dock 4, and west by Fisher Avenue. Parcel C is the oldest portion of the shipyard and was used almost exclusively for industrial purposes since the late 1800s. Seventy buildings, 3 dry docks, 1 wharf, 11 ship berths, and 1 pier are located within the boundaries of Parcel C.

Historically, the dominant land use of Parcel C has been for shipping, ship repair, and office and commercial activities. Parcel C land use and historical areas are discussed below. Figure 2-1 shows the reuse areas and locations of the buildings at Parcel C. According to the redevelopment plan (SFRA 1997), Parcel C is expected to be zoned to accommodate buildings for cultural and institutional uses; buildings for research and development; and mixed-use areas for live/work spaces for artists, studios, galleries, warehouses, and hotels. In addition, the area along the eastern portion of Parcel C bounded by the Bay will be set aside as open space (see Figure 2-1). Section 2.1.3 lists the proposed zoning categories and the redevelopment blocks associated with each category.

Hunters Point Shipyard
Parcel C

San Francisco, California ***January 2009***

U.S. NAVY ANNOUNCES PROPOSED PLAN

The U.S. Navy encourages the public to comment on its ***Proposed Plan**** for cleanup of Parcel C at Hunters Point Shipyard (HPS) in San Francisco, California (see Figures 1 and 2). This Proposed Plan presents proposals for ***remedial actions*** to be selected in Re***cords of Decision (ROD)***. Parcel UC-2 was formerly part of Parcel C; however, this planned utility corridor is now designated as a separate parcel for remedy selection (see Figures 2 and 3). Two separate RODs will be prepared for Parcel C and Parcel UC-2, although both are discussed in this Proposed Plan.

This Proposed Plan summarizes the alternatives evaluated and explains the basis for choosing the preferred remedial (cleanup) alternatives for soil, structures, and ***groundwater*** contamination at Parcels C and UC-2 at HPS under the ***Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).*** The Navy operated a shipyard to repair ships at HPS from 1939 to 1975. Ship repair and support required the use of fuels, solvents, paints, radiological material, and other substances that may have been spilled on the ground, leaked from underground pipes, or otherwise released to the environment. These potential spills and releases contaminated soil, building structures, and groundwater at Parcels C and UC-2, in the central portion of HPS (Figures 2 and 3).
The ***U.S. Environmental Protection Agency (EPA), Region 9***, the ***California Environmental Protection Agency Department of Toxic Substances Control (DTSC),*** and the ***San Francisco Bay Regional Water Quality Control Board (Water Board)*** worked with the Navy in evaluating the remedial alternatives and in selecting the ***preferred alternatives***.

The Navy proposes the following actions to address contamination in soil, building structures, and groundwater at Parcels C and UC-2:

- Removing soil in selected areas where concentrations of organic chemicals and lead, mercury, and zinc are higher than the levels considered safe for human health.
- Operating a ***soil vapor extraction (SVE)*** system to remove and treat ***volatile organic compounds (VOC)*** in soil.
- Installing soil covers to prevent contact with metals (found throughout the fill material quarried from local rock and soil) in areas that were not excavated.
- Conducting radiological surveys and decontaminating buildings, former building sites, sewer lines, and other areas potentially affected by radiological sources.

- NOTICE -

Public Comment Period
January 29 through February 27, 2009

Public Meeting
February 11, 2009
Alex L. Pitcher, Jr., Room
Southeast Community Facility Commission Building
1800 Oakdale Avenue, San Francisco.
6:00 to 8:00 p.m.

- Screening, separating, and disposing of radioactive sources and radiologically-contaminated building materials and soil at disposal facilities that meet federal and state requirements.
- Transporting excavated contaminated soil off site to an appropriate landfill.
- ***Treating groundwater by injecting chemicals or biological nutrients*** to break down the organic contaminants at RU-C1, RU-C2, RU-C4, and RU-C5 and immobilize metals.
- Implementing a ***groundwater monitoring program*** to verify that remediation efforts meet ***remediation goals*** as defined in the RODs and that metals in groundwater do not impact the bay.
- Using ***engineering controls (EC)*** and ***institutional controls (IC)*** to limit exposure to contaminated soil and groundwater by restricting specified land uses and activities on the parcel (see Insert 1 on page 21 for more details on ICs).

This Proposed Plan summarizes the regulatory process that governs the cleanup; describes the site history, environmental investigations, risk assessments, and remedial alternatives for Parcels C and UC-2; and indicates how the Navy selected the preferred alternatives for cleaning up soil and groundwater. The Navy invites you to provide comments on this Proposed

* Words in bold italic type are defined in the glossary on page 25

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
2	IR Sites	Section 2.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.1.3, page 2-3. Draft Final Parcel B Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC Environmental Management, Inc., Levine-Fricke-Recon, Inc. (LFR), and Uribe & Associates (U&A). June 3, 1996. Sections 4.4 and 4.11, pages 4-28, 4-29, and 4-266. Draft Final Parcel C Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC, HLA, LFR, and U&A. March 13, 1997. Sections 4.2, 4.3, 4.4, 4.5, 4.11, 4.12, 4.13, and 4.14, pages 4-64, 4-88 to 4-96, 4-242 to 4-244, 4-330, 4-489, 4-519, 4-520, 4-571, and 4-589.

within an area for different future land use scenarios. The SFRA designated redevelopment blocks for Parcel C in accordance with the CCSF's planned future reuse. This report uses the risk grids and the redevelopment blocks as the basis for evaluating the results of the revised HHRA and developing remedial alternatives to address potential unacceptable risk present within Parcel C. The Navy acknowledges that the boundaries of the redevelopment blocks may be revised during redevelopment; however, the record of decision (ROD) will list the boundaries of the reuse categories. The chemicals at Parcel C determined to pose a potential unacceptable risk were identified as COCs. COCs are determined when the chemical-specific risk exceeds 1E-06 or the noncancer hazard exceeds 1. IR sites are still referred to in the characterization sections of this Final FS Report as they relate to historical operations and resulting sources of contamination found in Parcel C soil and groundwater.

In 1997, the CCSF's redevelopment plan assigned reuse categories to all of HPS by redevelopment blocks (SFRA 1997). In some cases, IR sites are completely contained within redevelopment blocks, and in other cases, the IR sites cross redevelopment block boundaries. Figure 2-1 shows Parcel C, the redevelopment blocks, and the IR site boundaries. Figure 2-2 shows the IR site boundaries and the RU boundaries. Table 2-1 outlines the correlation between the redevelopment blocks and the IR sites.

Parcel C includes 14 IR sites: IR-06, IR-25, IR-27, IR-28, IR-29, IR-30, IR-45, IR-49, IR-50, IR-51, IR-57, IR-58, IR-63, and IR-64 (see Figure 2-1). IR-06 and IR-25 were initially located in Parcel B and addressed in the Parcel B RI. These sites were transferred to Parcel C in 2002 following the discovery of volatile organic compounds (VOC) in soil and groundwater related to the activities in Building 134 (Navy 2002; SulTech 2007). Sites IR-45, IR-49, IR-50, and IR-51 are facility-wide sites consisting of utilities that cut across other IR sites, or are the locations of former transformer storage areas.

According to the redevelopment plan (SFRA 1997), Parcel C will consist of 15 redevelopment blocks (see Figure 2-1). The blocks and their proposed zoning are listed below.

4.4 IR-06: FORMER BUILDINGS 111 AND 112, AND TANK FARM

IR-06 was one of the 12 sites at HPS identified during the IAS conducted by the Navy in 1984 under NACIP. The site was originally designated as IAS Site 10 and was redesignated IR-06 in 1988 when HPS was incorporated in the Navy's IRP. IR-06 was then included in the Group II (later renamed OU II) SIs. RI activities conducted at IR-06 between 1988 and 1991 were first reported in the "Draft OU II RI Report" (HLA 1992e). IR-06 is an inland site located about 800 feet inland from the shoreline at San Francisco Bay.

IR-06 is the former location of 18 ASTs and former Buildings 111 and 112, which housed the lubrication oil and diesel fuel pumphouses (see Figure 4.4-1). The tank farm was constructed in 1942 along what had been the shoreline in 1935 and was used by the Navy until 1974 to store fuel and lubrication oil (HLA 1992e). From the tank farm, fuel and lubrication oil were distributed to the berths north and northeast of IR-06 through the pumphouses and underground lines. Diesel oil reportedly spilled from a ruptured tank in the early 1940s when apparently, the contents of a 286-barrel (about 12,000-gallon) tank overflowed the berm. The spilled diesel oil was recovered and taken to the oil reclamation ponds at IR-03 in Parcel E. Triple A reportedly used the tank farm from 1976 until 1986. Stoddard Solvent may have been stored in ASTs 7 and 8 during this period (see Figure 4.4-1) (HLA 1992e). Between 0.5 and 6 inches of sandblast grit were found in Berms 1 through 4 in Areas 1 through 4, respectively (EMCON 1987b).

Tank facilities, including the tanks, pumphouses in Buildings 111 and 112, support racks, and associated piping within the bermed areas were removed as part of the removal action conducted at IR-06 (HLA 1994d). Approximately 140 yd^3 of soil were excavated from within Berms 1 through 4 during the removal action and disposed of off site (HLA 1994d). A total of 2,580 yd^3 of soils contaminated with organic compounds, metals, and petroleum hydrocarbon is scheduled to be removed from IR-06 in Fall 1996. The extent of soil excavation to be completed in Fall 1996 at IR-06 is summarized in an EE/CA report for this removal action. The EE/CA is included in Appendix G of this report.

Structures that remain at IR-06 include a truck washout ramp, four berms, and trenches containing fuel distribution and steam lines that run from the former pumphouses to the fueling berths north of IR-06. The ground surface at the tank farm is mostly flat and, except for the berms, paved with asphalt or concrete. Robinson Street, located south of the tank farm, is separated from the tank farm by a steep slope that forms the southern portion of Berms 1, 3, and 4.

Water within the bermed areas currently drains directly to the storm drain system. Until 1993, when the last tanks were removed from the site, water entering the bermed areas was contained within the berms until it was discharged to the storm drain system through manual plug drains. The other utility near IR-06 is the sanitary sewer that runs beneath the southern portion of Lockwood Street at approximately 12 feet bgs (see Figure 4.4-1).

In 1986, as part of the confirmation study verification step, surface soil at IR-06 was visually examined, and petroleum odors and visible contamination were noted (EMCON 1987a); however, soil samples were not collected for chemical analysis.

RI field investigations, physical characteristics, RI analytical results, the nature and extent of contaminants, contaminant fate and transport, the risk assessment, and conclusions and recommendations for IR-06 are discussed below.

4.4.1 RI Field Investigations

Based on the results of the confirmation study verification step, IR-06 was recommended for an RI. RI activities conducted at IR-06 are summarized in the table below.

Field Activities Summary

Task	Number of Sampling Stations or Wells	Number of Samples			
		Soil	Well Groundwater	Hydropunch Groundwater	Grab Groundwater
Surface Soil Sampling	19	35	NA	NA	NA
Soil Borings	35	140	NA	0	0

4.11 IR-25: BUILDING 134: MACHINE SHOP

Site IR-25 consists of Building 134, which was used by the Navy for offices, machine shop activities including parts cleaning, and as the Quality and Reliability Assurance (Q&RA) industrial laboratory. Since base closure in 1974, the building has also been used by Cal Marine Works Machine Shop and, most recently, the Odaco Refrigeration Machine Shop and Storage. These two tenants may have used Building 134 for general storage and marine refrigeration (PRC 1995h). A large, concrete dip tank labeled "chlorinated materials" is built into the foundation and drains to a sump that is partly inside and partly outside the building (HLA 1994a).

Building 134 was inspected in February and March 1991 and in January 1993 (HLA 1994a). Sludge and oily liquid were observed in the dip tank and the sump. The contents of the dip tank and sump have been removed, and the dip tank and sump have been cleaned. The floor tile in one machine room was observed to be saturated with and deformed by oil and corrosive material. Pools of standing oil on the concrete flooring near and under machines were observed in 1991; however, the floors appeared to be clean and in good physical condition in 1993 (HLA 1994a). A utility vault is present on the southwest exterior of the building. Fuel distribution lines presently pass beneath the central part of Building 134.

The investigation of Building 134 began in January 1993 as part of the SI, which was completed in 1993; an RI was subsequently recommended for Building 134.

SI and RI activities are collectively referred to as RI activities in the following sections. RI field investigations, physical characteristics, RI analytical results, the nature and extent of contaminants, contaminant fate and transport, the risk assessment, and conclusions and recommendations for IR-25 are discussed below.

4.11.1 RI Field Investigations

The RI field investigation of IR-25 was conducted between January 1993 and June 1995 and is summarized in the table below.

4.2 IR-27 BUILDING 205

Site IR-27 was originally identified during the 1988 "fence-to-fence" survey (ERM-West 1988). The site was later designated as PA-27 during the Preliminary Assessment (HLA 1990a). PA-27 was included in the SI conducted in 1993 (HLA 1994c), then redesignated IR-27 in compliance with the basewide IRP (PRC 1995b).

Site IR-27 is located in the eastern portion of Parcel C, near the end of the pier between Drydocks 2 and 3 (Figure 1.3-3). Site IR-27 consists of Building 205, which is referred to as the Pump and Compressor Plant, and two former USTs. Historically, the building was used as a boiler house for steam generation and a pump house for Drydock 2. The building is bilevel; lubricating pans containing oil are present beneath pulley gear motors in the pump room on the ground level. A subsurface pump chamber containing water with an oily sheen is present in Building 205 (HLA 1994c). Two former USTs, Tanks HPA-06 and S-214, are associated with Building 205; they were investigated separately during the UST program and incorporated into IR-27 during the RI/FS (HLA 1994d).

Potential sources identified during the investigation at IR-27 include leaks from former UST S-214 and its associated piping or waste oil discharged into the pump chamber in Building 205.

Previous field investigations, RI field investigations, geology and hydrogeology, analytical results, the nature and extent of contamination, contaminant fate and transport, a site-specific risk assessment, and conclusions and recommendations for IR-27 are discussed in the following sections.

4.2.1 Previous Field Investigations

Several field investigations have preceded the RI. The results of each investigation were incorporated into the RI. The following summary describes the activities, results, and recommendations of each of these investigations.

Fence-to-Fence Survey

In 1988, ERM-West conducted a "fence-to-fence" survey and inventory of suspected and known hazardous materials at HPS (ERM-West 1988). Navy and tenant facilities, including buildings, drydocks, piers, electrical substations, and open fields and lots were inspected. The investigation

4.3 IR-28 CENTRAL PARCEL C

IR-28 includes most of the buildings within the central portion of Parcel C. The site has a complex history, with various building sites and associated USTs constructed at different times. The site was initially identified as PA-28 during the Preliminary Assessment in 1990 (HLA 1990a). At that time, the site consisted of the adjoined Buildings 211 and 253 (Machine and Electronic Test and Repair Shop; and Electronics, Optical, Radio, and Ordnance Shops, respectively) and the nearby Bomb Shelter, Building 219 (Substation E), Building 231 (Machine Shop), Building 258 (Pipe Manufacturing), Building 270 (Paint Shop), Building 271 (Paint Shop Annex), and Building 281 (Electronic Weapons Precision Facility). PA-28 was redesignated IR-28 in compliance with the basewide IRP in 1993 (HLA 1993c). Several building sites identified as "potentially contaminated" during the Site Assessment conducted in 1994 were included in IR-28 (PRC 1994b). These sites are: SA-94 (Building 251), SA-96 (Building 214), SA-99 (Building 230), SA-101 (Building 273), and SA-111 (Building 229).

Site IR-28 consists of approximately 31.7 acres of northeast central shoreline and lowland coast in the central portion of Parcel C. IR-28 is bounded to the north by Van Keuren Avenue and Drydock 2, to the east by Berths 1 and 2, to the south by Berths 3, 4, and 5, and to the east by C Street (Figure 1.3-3). Nearly 100 percent of IR-28 is covered by an asphalt or concrete surface or by buildings. IR-28 is underlain by the facility-wide steam line, storm drain, sanitary sewer, and fuel line systems.

The IR-28 investigation was organized by building area. Thirteen of the buildings at Parcel C and their surrounding areas were included in the IR-28 investigation: Buildings 211, 214, 219, 229, 230, 231, 251, 253, 258, 270, 271, 273, and 281. The investigations of Buildings 211 and 253 were combined since they are a connected pair of buildings. The investigations of Buildings 270 and 271 have also been combined, because they share source areas and hydraulic properties. In all, 12 areas are under investigation in IR-28, including Berth 2.

Historically, the buildings at IR-28 were used for industrial and administrative uses. A brief history and a description of each of the buildings included in site IR-28 are presented below.

Building 211: Machine and Electronic Test and Repair Shop (SA-111) and Building 253: Electronics, Optical, Radio, and Ordnance Shops (SA-102)

Buildings 211 and 253 share a common production floor, one large and two small paint booths, two large dip tanks, one large vapor degreaser, resin impregnation tanks, and a parts washer. The buildings also share a common drainage system that runs to a large sump on the west end of Building 253. A description of each building is presented in the following paragraphs. The tanks, sumps, and previous disposal of waste to the sanitary sewer are the focus of the investigation of both buildings.

Building 211 was formerly a machine and electronic test and repair shop . The building was used for machining, welding, assembly, and painting operations. A sump built into a curing or drying oven is present in the north-central portion of Building 211. Building 211 is currently used for storage of ship equipment by the U.S. Department of Transportation, Maritime Administration.

Former UST HPA-01 was located on the south side of Building 211. The 122-gallon tank was removed and was used to store diesel and methanol.

Building 253 was formerly known as the Electronics, Optical, Radio, and Ordnance Shops, and consists of six main production floors and a tower. The building was formerly used to repair, test, fabricate, and calibrate a variety of electronic-, optical-, and ordnance-related equipment. Activities included machining, welding, assembly, and painting operations. Most of the original equipment including sinks and tanks were removed. Building 253 is currently used for storage of ship parts by the U.S. Department of Transportation, Maritime Administration. Building 253 was identified as meeting the criteria for the National Register of Historic Places.

In addition to the tanks that are common to Buildings 253 and 211, there are several process tanks on the third, fourth, and fifth floors of Building 253. Sumps on the first floor of Building 253 and in an associated bomb shelter (Building 224), acted as collection points for a variety of process waste streams.

A room on the sixth floor of Building 253 was used by NRDL as a calibration facility. Licensed and sealed radioactive sources that were used to calibrate instrumentation were stored and used in this room. In August 1974, a radiation survey was performed on the shipyard upon decommissioning. Based on the 1974 survey results, a confirmation survey was not considered necessary at the former NRDL sites (PRC 1996b). The calibration laboratory is currently unoccupied and equipment was

removed. The Navy Radiological Affairs Support Office (RASO) has determined that additional surveys are not required (RASO 1995).

Eight former USTs are associated with Building 253. Former USTs HPA-02 and HPA-03 were located on the north side of Building 253. Both tanks had 1,500-gallon capacities; conflicting reports indicate they were used to store fuel oil or solvents (PRC 1994d). Former USTs HPA-04 and HPA-05 were located northwest of the building. Both tanks had 1,000-gallon capacities and were used to store gasoline and diesel. Former USTs S-001, S-002, S-003, and S-004 were located near the northwest corner of the building. Tanks S-001, S-002, and S-004 had 3,000-gallon capacities and were used to store gasoline. Tank S-003 also had a 3,000-gallon capacity, but was used to store diesel. All USTs were removed from the vicinity of Building 253.

Building 214: Combat Weapons System Office

Building 214 was used by the Navy as the Combat Weapons System Office. Room 105 in Building 214 was used as a Health Physics Counting Room by the NRDL. In August 1974, a radiation survey was performed at the shipyard upon decommissioning. Based on the 1974 survey results, a confirmation study was not considered necessary at the former NRDL sites (PRC 1996b). The building is currently being used as office space by EFA WEST. Building 214 was formerly used by Triple A as administration headquarters.

Building 219: Electrical Substation (SA-111)

Building 219 is an electrical substation that houses six PCB-containing transformers, three 55-gallon drums of PCB-containing oil, six cardboard drums of unknown solids, and miscellaneous electrical equipment. A sump is also located on the north exterior of the building. The current building tenant is EFA WEST. The primary concerns at Building 219 are the PCB-containing transformers and the sump.

Building 229 - Electrical Substation (SA-111)

Building 229 is a one-story concrete building used as an electrical substation. Five small sheds are associated with Building 229, and were identified as Buildings A, B, C, D, and E. The buildings were historically used for electrical supply and storage. The area is paved with asphalt, which is heavily

stained with rust in places. A storm drain located in the northwest corner of the yard has evidence of spray painting near it.

To the east of Building 229 is a 15-foot-by-35-foot concrete pad with active transformers. The transformers appear to be new and are labeled "No PCBs." Six metal tanks stored in the yard contain compressed air, oxygen, and carbon dioxide. On the west side of the building is an old-style transformer that appears to be connected but inactive, and does not appear to contain oil. Leaks or stains were not observed (HLA 1994c).

The primary concerns at Building 229 are possible PCBs, unlabeled drums and cans near Building C, and paints. The current building tenant is EFA WEST. A brief description of the associated buildings are as follows (HLA 1994c):

- Building A is a 20-foot-by-20-foot wooden structure. Two large utility boxes are located on the south side of the building. An electrical control box and a 2-foot-by-2-foot metal box on stilts are located southwest of Building A. The small box has a hopper-type 4-inch drain on the bottom, approximately 6 inches above grade. A 4-inch open pipe is beneath this drain. Oil has apparently leaked from this drain onto the degraded asphalt. The purpose and destination of this piping are unknown.
- Building B is a 20-foot-by-10-foot wooden shed that appears to have been used for office space. The exterior area appears to be clean.
- Building C consists of two 8-foot-by-20-foot metal truck bins, and is labeled "Combustible/Flammable." Paint cans and unlabeled drums are stored in this area, with no secondary containment. Spills were not observed on the ground surface.
- Building D is between Buildings B and C, and consists of a 10-foot-by-8-foot wooden shed. Debris are stored around the shed.
- Building E is a 10-foot-by-10-foot metal shack. Debris are stored inside and outside this building. Another electrical box is west of Building E. Two large utilidors located nearby appear to have been gutted of utilities.

Building 230: Machine Shop (SA-99)

Building 230 was used for machining activities. The building is currently leased to Ermico Enterprises, a manufacturer of polyurethane skateboard wheels and bearings and customized go-carts. The building has three sections. The easternmost room is used for manufacturing polyurethane

components and contains polyurethane heating, molding, and milling equipment. The middle room is an inactive machine shop, and the western room is used for maintenance activities and assembly.

The potential concerns at Building 230 are VOCs, SVOCs, and petroleum hydrocarbons. Areas of concern are soil stains near the storm drain and cracked and stained asphalt.

Building 231: Machine Shop

Building 231 was formerly used for heavy industrial machining. The building houses several air treatment systems, sumps, sandblasting rooms, and subfloor trenches and piping. Some of the sumps contain lubricant oils and large machinery. The wooden floor is soaked with oil.

Five former USTs (HPA-10, HPA-11, HPA-12, HPA-16, and HPA-17) are associated with Building 231. Former UST HPA-10 was located adjacent to Building 231 on the east side. The 6,500-gallon tank was used to store fuel oil and was removed. Former UST HPA-11 was located adjacent to the building on the north side. The 1,600-gallon tank was used to store diesel and was removed. Former UST HPA-12 was located immediately north of the building. The 250-gallon tank was used to store diesel and was closed in place. Former UST HPA-16 was located near the northeast corner of the building. The 7,200-gallon tank was used to store water and was closed in place. Former UST HPA-17 was located adjacent to the building on the north side. The 1,700-gallon tank was used to store diesel and was removed. A summary of the former USTs is presented in Table 2.3-1. According to a Navy memorandum dated May 14, 1996 (Navy 1996), on August 4, 1993, a spill removal action was conducted to remove 50 gallons of hydraulic fluid from Building 231.

The primary concerns are releases of lubricant oils, the subfloor trenches and piping runs, a large exterior sump, and potential UST releases. Hazardous waste from the building was historically disposed of in the sanitary sewer and landfill, although waste manifests are not available to document the waste handling procedures. The building is currently unoccupied.

Building 251: Industrial Relations and Central Tool Room (SA-94)

Building 251 was used as a tool storage area and an industrial relations office. The building has a concrete foundation covered by creosote-coated wood-block flooring. Building 251 is three stories high in the middle and two stories high on each side. The building is currently not being used.

Dip tanks and sumps are located in the northern portion of the building. The dip tanks contained TCE that was used to strip paint from metal. A paint room in the north-central portion of the building contains floor sumps that were used for compressed-air spray painting. A solvent dispenser pump is located in the southeast corner of this room. The eastern third of the building is used for storage and office space. The central interior is open and houses overhead cranes and hoists and some equipment stored on pallets. Large sliding doors on the east side of the building designate a "Mercury Exclusion Area."

Two USTs containing solvent were removed (UST S-219 and UST-251) from the north side of Building 251. Confirmation samples collected from the tank excavation at UST-S-219 indicated the presence of metals at concentrations exceeding HPALs. According to Don Brown of Navy Public Works, a UST containing paint thinner was also removed from this site (HLA 1994e).

The potential concerns at Building 251 are paints, solvents, acids, and metals.

Building 258: Pipefitter Shop (SA-102)

Historically, Building 258 was used as a pipe manufacturing facility where sulfuric, chromic, and hydrochloric acids, sodium hydroxide, and degreasing solvents were used. The concrete floor is covered by large metal plates in the southern half of the building. On the east side of the building, the roof overhangs an open pickling and degreasing area that includes eleven concrete and metal dip tanks and their associated drainage sumps. Large cranes that are connected to the ceiling are located between the dip tanks. According to a Navy memorandum dated May 14, 1996 (Navy 1996), on August 21, 1992, a spill removal action was conducted to remove 15 gallons of PCB (pyranol) from Building 258.

During an SI site visit, a "Haz Mat" caution tape barricade was observed in a small area of the southeast corner of the interior building. The source of the barricade has not been identified (HLA 1994c).

Building 258 is currently used as a storage area for desks and office supplies. The exterior dip tank area is not in use.

The primary concerns at Building 258 are the pickling and degreasing operations and oil stains within and on the north exterior of the building (HLA 1994c).

Building 270: Paint Shop (SA-102) and Building 271: Paint Shop Annex (SA-103)

Building 270 is currently used for equipment storage and office space by the Navy Supervisor of Shipbuilding, Conversion, and Repair. Building 270 was formerly used as a paint shop. The single-story building covers approximately 23,600 square feet and is open in some areas. Most of the concrete floor is covered by oil-stained wooden blocks. The concrete is heavily oil stained and contains cracks and pits. The building houses a storage area for 5- and 55-gallon drums of solvents and oils, a sandblast booth, and a baghouse. Eight full 55-gallon drums on pallets appeared to be rusting, but were not leaking. One drum was labeled "Lien Oil." Sandblast material was stored in a bin east of Building 270. A large stained area on the asphalt east of Building 270 was observed after large equipment was removed by the Navy (HLA 1994c). A large, inaccessible vault covered with a steel plate is adjacent to a shed immediately adjacent to and east of Building 270. The area was possibly used for steam cleaning. Hazardous waste from the building was historically disposed of in the sanitary sewer and landfill, although waste manifests are not available to document the waste handling procedures.

One UST is adjacent to Building 270. UST S-215 previously contained solvent and was abandoned in place on the south end of the alley between Buildings 270 and 271 during Phase I of the HPS UST Program (PRC 1992, 1994d). A vent pipe possibly associated with a UST is near the overhead covered area on the east side of the building.

The primary concerns at Building 270 are lead paint, photo chemicals, oil stains on asphalt near the storm drains, sandblast material, and oil and solvent storage in drums (EFA WEST 1994).

Building 271 is currently used for equipment storage and the Barge Services Office by the Navy Supervisor. Building 271 was a paint shop annex and was used for painting, sandblasting, and curing. The building may have also housed a photo lab. The one-story building has a concrete floor. The concrete surface in the northern portion of the building is covered by damaged floor tile. The building contains a small oven, a furnace that vents to the outside, and a shop sink with a disconnected drain. A sign in one room reads "Radioactive Material." Offices, restrooms, and a storage area are located in the central portion of building. The northern portion of the building houses two paint booths. Two

spray booths are located in the south-central area. Each booth has a 3-foot trough at the bottom and no drainage.

In the southwest corner of Building 271 is a metal shed that sits over a grated sump. The shed was previously used as a sandblasting room, and to store materials including bagged sand, oxidizers, degreasers, and detergents. The room emits strong "paint" odor when opened (HLA 1994c).

On the west side of the Building 271 is a small metal vault that may have been a sewer manhole for the building. The vault is approximately 3 feet deep with two broken/cut pipes entering. A third pipe enters at the side of the vault and elbows to exit at the bottom. Water trapped in this vault has a slight sheen and a faint "ether-like" odor (HLA 1994c).

The primary concerns are metals, solvents, sandblast grit, stains on damaged asphalt east of Building 271, and potentially an affected storm drain.

Building 273 - Electrical Substation GH-2 (SA-101)

Electrical substation GH-2 is located in Building 273 immediately adjacent to the east side of Building 270; it is currently used by EFA WEST. It consists of a roofless concrete wall and floor structure (EFA WEST 1994). The building contains transformers and switches. The exterior is paved with asphalt and cracked in some areas.

Eight skid-mounted steel tanks, each with a capacity of approximately 1,000 gallons, were stored in the yard east of Building 270 without secondary containment. According to Navy personnel, the portable tanks contained solvent and were previously used to clean out tanks and equipment. HLA observed one of the tanks leaking to the ground surface. This fluid had a "solvent-like" odor and was observed to be running off to a storm drain inlet approximately 30 feet away. The Navy was alerted and corrective action was taken.

The primary concerns are PCBs and solvents.

Building 281: Electronics-Weapons Precision Facility/Machine Shop (SA-100)

The historical use of Building 281 is not well documented. The building name, Electronics-Weapons Precision Facility/Machine Shop, implies that the building was used for production of defense-related

equipment. This five-story building has a concrete floor, portions of which are covered by wooden blocks. The building is enclosed on the south side, and open on the north. Remnants of a large vacuum system exist, which may have been used to evacuate particulate matter. Building 281 has previously been used by the Defense Logistics Agency (DLA) to store defense-related equipment and has recently been used by the Skellington Corporation to film movies.

One-ton hoists hang from beams on the north wall of Building 281. Larger (100+ ton) hoists hang from the ceiling at the east and west ends of the building. A paint room with two sliding doors in the southwest area of the building contains several grate-covered concrete sumps. The sumps are mostly dry and do not appear stained. At the west end of this paint room are five steel dip tanks, one of which has a label reading "Warning: Acid, Keep Away." A small amount of liquid was observed in the dip tanks, but no odors were noted. East of the paint rooms on the south side of the building are office space, storage space, and restrooms. Adjacent to the restrooms is a room with a shop sink specked with paint and a floor drain. Along the northeastern side of the building is an elevator labeled as an "Antenna Test Platform." A vault/pit beneath this platform is filled with liquid. A steel shed on a concrete pad on the south exterior side of the building contained a refrigeration unit.

Three former USTs, HPA-07, HPA-33, and HPA-34 are adjacent to Building 281. Former UST HPA-07 was located on the southeast side of the Building 281. This tank had a capacity of 500 gallons, contained waste oil, and was removed. Two former solvent tanks, HPA-33 and HPA-34, located on the north side of Building 281 were also removed (PRC 1994d). A geophysical survey was performed to look for supply tanks for the dip vats, but none were discovered (Section 4.3.2.11).

The primary concerns inside Building 281 are solvents, acids, asbestos, paints, and metals. The primary concerns outside the building are the exterior sump and surrounding soils.

Berth 2

In 1954, 29 drums of radioactive waste accidentally fell off the berth, but were immediately recovered. Contents of the drums were unknown. Apparently none of the drums ruptured or spread compounds. The area was surveyed for radiation by the EPA in 1989 (EFA WEST 1994). The results of the survey indicated that no release of radioactive waste from the drums had occurred and no further investigation was necessary.

4.4 IR-29 (BUILDINGS 203, 217, 275, 279, 280, 282, AND FORMER USTS S-203 AND S-209 THROUGH S-213)

Several buildings at site IR-29 were originally identified during the Initial Assessment Study in 1984. Additional buildings were identified during the "fence-to-fence" survey and included in IR-29 (ERM-West 1988). These buildings were designated as PA-29 during the Preliminary Investigation (HLA 1990a). PA-29 was included in the SI program conducted in 1993 (HLA 1994c), then redesignated IR-29 in compliance with the basewide IRP (PRC 1995b).

Site IR-29 is located in the western portion of Parcel C, immediately south of IR-63, and west of IR-28 (Figure 1.3-3). IR-29 consists of Buildings 203, 217, 275, 280, and 282, former Building 279, plus former USTs S-203 and S-209 through S-213. Each of these buildings is described below. Investigations conducted at IR-29 are discussed in Section 4.4.1.

Building 203

Building 203 is a boiler room and power plant. Building 203 is an approximately 25,000-square-foot structure which has a concrete floor and contains large boiler equipment. The building is not presently in use. A small (approximately 625-square-foot) building containing an apparent industrial kiln is located on the south side of Building 203. According to records, three ASTs are associated with Building 203. However, only two ASTs, located at the northeast and southeast corners of the building, were observed (HLA 1994c). One of the tanks formerly contained diesel fuel; the former contents of the other ASTs are not known. The following former USTs are also associated with Building 203: S-203, S-209, S-210, S-211, S-212, and S-213. The tanks were used to store brine, fuel oil, and water. USTs S-203, S-211, S-212, and S-213 were removed while USTs S-209 and S-210 were closed in place. The building is currently occupied by EFA WEST.

Based on the results from previous investigations, petroleum hydrocarbons from former USTs are the primary COPCs at Building 203. Metals, PCBs/pesticides, VOCs, and SVOCs are also COPCs for this building.

Building 217

Building 217 was used for sheet metal production, photoengraving, welding, and painting. Building 217 is a two-story structure with a ground surface area of approximately 35,000 square feet. Dip

tanks used for photoengraving are present on the second floor. The building has a concrete floor and two floor vaults on the ground floor. Currently, it is used as a warehouse and storage area for furniture and other items by EFA WEST.

Based on the results from previous investigations, COPCs at Building 217 include metals and VOCs associated with painting, and photoengraving activities.

Building 275

Building 275 was used for sheet metal fabrication. Building 275 is a single-story building covering approximately 8,500 square feet. The floor of the building consists of concrete, which contains cracks. Currently, it is leased by Ermico Enterprises and is used to create aluminum casts in sand molds. Empty drums and equipment were observed in the southwest exterior corner of the building near a storm drain. A tank pad was also observed at the northeast corner of the building (HLA 1994c).

Based on the results from previous investigations, COPCs at Building 275 include those associated with Building 203.

Former Building 279

Building 279 was used as a materials storage area. The equipment and products stored at the building are unknown, but the materials were likely associated with operations at Building 241 in IR-30 to the west (Section 4.5). Building 279 was demolished. The building had an area of approximately 300 square feet and consisted of three metal sides; it was open on the eastern side. The concrete floor exhibited indentations at former machinery locations. It was also reported that temporary storage of equipment parts, dip-cleaning baskets, dip tanks, and empty drums occurred west of the building (HLA 1994c).

Based on the results from previous investigations, COPCs at former Building 279 include petroleum hydrocarbons, VOCs, SVOCs, and metals.

Building 280

Building 280 was used for aluminum cleaning and oil recycling. Building 280 has an area of approximately 300 square feet and consists of three metal sides; it is open on the eastern side. Based on signs on the walls, dip tanks for cleaning equipment once existed in the building. The building is no longer in use (HLA 1994c).

Based on the results from previous investigations, COPCs at Building 280 include petroleum hydrocarbons, VOCs, SVOCs, and metals.

Building 282

Building 282 was used as an abrasive blast facility. The two-story metal building has an area of approximately 8,700 square feet. A large sealed chamber inside the building with an open roof was used as an abrasive blast room for paint removal. The grated floor inside this chamber was designed to catch the spent abrasive and abraded material; air in the chamber was evacuated through the floor to a large baghouse filtration system adjacent to the chamber. The remaining floor area in the building is concrete. The building is not currently in use; however, abundant sandblast material is present inside and outside the chamber.

Based on the results from previous investigations, COPCs at Building 282 include those associated with the sandblast material.

Previous field investigations, RI field investigations, geology and hydrogeology, analytical results, the nature and extent of contamination, contaminant fate and transport, a site-specific risk assessment, and conclusions and recommendations for IR-29 are discussed in the following sections.

4.4.1 Previous Field Investigations

Several field investigations have preceded the RI. The results of each investigation were incorporated into the IRP. The following summary describes activities, results, and recommendations of each of these investigations.

4.5 IR-30 BUILDING 241

Site IR-30 was originally identified during the 1988 "fence-to-fence" survey (ERM-West 1988). IR-30 was later designated as PA-30 during the Preliminary Investigation (HLA 1990a). PA-30 was included in the SI conducted in 1993 (HLA 1994c), then redesignated IR-30 in compliance with the basewide IRP (PRC 1995b).

IR-30 is located in the western portion of Parcel C, immediately west of IR-29 (Figure 1.3-3). IR-30 consists of Building 241, also known as the Forge Shop. The southern portion of the building has a dirt floor and the northern portion has a concrete floor. The building contains two large steel vats that hold oil and numerous ovens with asbestos lining (HLA 1994c). In 1993, oil was observed at the base of the southeast wall on the exterior of the building. At least two sumps were revealed beneath the area where large machinery had been located. The sumps were discovered during dismantling of the large equipment in the building by Naval Station Treasure Island (NSTI). Two ASTs, whose contents are unknown, were also observed west of the building (HLA 1994c).

Building 241 was used as a forge and metal heat treating facility. Forge operations took place in the southern portion of the building on the dirt floor. Heat treating of the metals was performed in the northern portion of the building on the concrete floor. The steel vats were used as baths for quenching metal. A cyanide compound was used in the ovens during heat treating. Building 241 has been occupied by Golden Gate Heat Treating (GGHT) since 1988 (HLA 1994c).

Based on historical investigations and sampling, COPCs at IR-30 include metals, cyanide, VOCs, SVOCs, PCBs, TPH extractables, and TPH purgeables.

The previous field investigations, RI, geology and hydrogeology, analytical results, nature and extent of contamination, contaminant fate and transport, site-specific risk assessment, and conclusions and recommendations for IR-30 are discussed in the following sections.

4.5.1 Previous Field Investigations

Several field investigations have preceded the RI. The results of each investigation were incorporated into the IRP. The following summary describes the activities, results, and recommendations of each of these investigations.

4.11 IR-57 DRYDOCK 4

IR-57 is the Drydock 4 site, and includes Buildings 300, 301, and 367. IR-57 is located on the southwestern portion of Parcel C. The site was first identified in the PA of October 1990 as PA-57 (HLA 1990a). The site was included within the SI conducted in 1993 (HLA 1994a) and was redesignated as IR-57 in 1994 in compliance with the basewide IRP (PRC 1995b). In addition, an Environmental Baseline Survey (EBS) of Drydock 4 was drafted in April 1994 to document the environmental condition of real property at Drydock 4 in support of a Finding of Suitability to Lease (MINSY 1994b).

Drydock 4 was constructed between 1942 and 1944, for use in the service and repair of naval ships that had sustained battle damage during World War II. The entire area surrounding Drydock 4 is paved with asphalt. The facility remained in use as a repair facility by the Navy from 1942 until it was deactivated in 1974. Most of HPS, including Drydock 4, was leased to Triple A Machine Shop in 1976 and was used for the repair of commercial vessels until 1985. In late 1985, the Navy resumed occupancy of the base and from November 1985 to August 1989, several Navy surface ship dockings occurred at Drydock 4 (MINSY 1994b). The facility has been operated by Astoria Metals since 1995.

Drydock 4 was included within the IRP because of the potential for soil in the vicinity of Drydock 4 to have been affected by chemicals from several sources. Metals in soils were suspected from sandblast operations previously conducted at the facility. Additionally, PCBs were suspected from a leaking transformer located on the northeast corner of the facility, which had left an oil stain extending to a nearby catch basin. Affected subsurface soil was also suspected at the northwestern end of Drydock 4 at a site posted as a "hazardous waste accumulation area." Oil and paint surface stains were noted on the asphalt pavement in this area, however, hazardous wastes were not observed to be stored in the area. Previous field investigations, RI field investigations, and geology and hydrogeology, analytical results, the nature and extent of contaminants, contaminant fate and transport, the site-specific risk assessment, and conclusions and recommendations for IR-57 are discussed in the following sections.

The Navy is planning a removal action at Drydock 4. The Drydock 4 removal action addresses the sediment, which has accumulated in the drainage tunnels below the floor of the drydock. The Navy is planning to remove the sediment, which is thought to contain sandblast grit and other contaminants as a CERCLA removal action. The removal of the sediment is expected to take place during the summer 1997.

4.12 IR-58 SCRAP YARD

Site IR-58 was first identified during the 1988 "fence-to-fence" survey, and labeled as an inactive parking area (ERM-West 1988). IR-58 was also briefly discussed in the PA (HLA 1990a), but no further investigation was recommended. The site was later designated as PA-58 and included in the SI program conducted in 1993 (HLA 1994c). The Scrap Yard was redesignated IR-58 in compliance with the basewide IRP (PRC 1995b).

Site IR-58 consists of a 2.3-acre open area in the northern portion of Parcel C, bounded to the east by Lockwood Street, to the south by Van Keuren Avenue, to the west by the extension of "C" Street, and to the north by Fisher Avenue (Figure 1.3-3). Most of the scrap yard ground surface consists of asphalt or concrete. The site has a few utility vaults and storm drains. Portions of the site are underlain by facilitywide steam line and storm drain systems. IR-58 and the property to the west are enclosed by an unlocked cyclone fence.

Historical activities at IR-58 are unknown, but a medical dispensary once existed at Building 210. Building 210 was formerly located in the east-central portion of the scrap yard, near monitoring well IR58MW25F. Details of the demolition of former Building 210 are not available. Between 1991 and 1993, IR-58 was used for storage and disposal of miscellaneous construction demolition debris. Reportedly, the materials that accumulated in the scrap yard were segregated into scrap metals (aluminum and copper), wood, manufacturing equipment, abandoned automobiles, motors, scrap wood, office equipment, and fire extinguishers (HLA 1994c). In one area, it appeared that several drums of tar were emptied onto the soil. Several damaged insulators leaking oil were also observed. Other debris observed on the surface included plates from a damaged lead-acid battery, a leaking oil drum, and a large piece of unidentified equipment that was leaking oil. All debris was removed before SI field work began. The subsequent field investigations have focused on soil stains, the former locations of the miscellaneous debris (as described above), and the storm drain (HLA 1992f).

Two USTs located at Building 251 in site IR-28 have potentially affected groundwater quality at IR-58. One tank contained waste solvent and the other contained solvent(s). Both were removed as part of the UST program (PRC 1992 and 1994d).

Potential sources of metals in soil may be associated with sandblast grit or antifouling paint additives in artificial fill material and leaching of metal debris. The potential sources of SVOCs, PCBs, and

petroleum hydrocarbons in soil and groundwater are associated with diesel and motor oil leaking from miscellaneous equipment and drums in the scrap yard. The potential source of VOCs in groundwater at IR-58 is associated with subsurface releases from the former solvent tanks located north of Building 251.

Previous field investigations that were not part of the RI program, RI field investigations, geology and hydrogeology, analytical results, the nature and extent of contamination, contaminant fate and transport, a site-specific risk assessment, and conclusions and recommendations for IR-58 are discussed in the following sections.

4.12.1 Previous Field Investigations

Several field investigations have preceded the RI. The results of each investigation were incorporated into the IRP. The following summary describes the activities, results, and recommendations of each of these investigations. Some of these investigations took place before IR-58 was being used as a scrap yard. The first recorded observation of debris at IR-58 was in 1991 (HLA 1992f).

Fence-to-Fence Survey

The area known as site IR-58 was first identified during the 1988 "fence to fence" survey, and labeled as an inactive parking area (ERM-West 1988). Further action was not recommended.

Preliminary Assessment

The Preliminary Assessment of 1988 concluded that activities conducted at Building 210 did not warrant further investigation (HLA 1990a).

UST Program - Phase I and II

During the UST program, two USTs located at Building 251 in site IR-28 were investigated. Since these tanks have potentially affected conditions at IR-58, they are mentioned as part of IR-58. A discussion of these tanks is presented as part of the IR-28 discussion in Section 4.3.2 (PRC 1994).

4.13 IR-63 FORMER BUILDING 278

Building 278 was originally identified as SA-89 in the SA program conducted in 1993 (HLA 1994c). It was later designated IR-63 in compliance with the basewide IRP (PRC 1995b).

Site IR-63 is located in the western portion of Parcel C, immediately north of IR-29 across Van Keuren Avenue (Figure 1.3-3). IR-63 encompasses the location of former Building 278. The building was approximately 3,600 square feet in size. The site is now a vacant lot surrounded by a chain-link fence.

Former Building 278 was used for paint storage. The results from previous investigations show that COPCs at IR-63 include constituents of paints and paint-related products stored in Building 278. Paints and paint-related products are also the potential sources of contamination at IR-63.

The following sections discuss previous field investigations, RI field investigations, geology and hydrogeology, analytical results, the nature and extent of contamination, contaminant fate and transport, a site-specific risk assessment, and conclusions and recommendations for IR-63.

4.13.1 Previous Field Investigations

Investigations were not conducted at IR-63 that preceded the RI field activities.

4.13.2 IR Field Investigations

The IRP was conducted in several stages. The first stage of investigation was conducted during 1993 and reported in the Parcel C Site Inspection Report dated May 2, 1994 (HLA 1994c). The second stage of the RI was conducted during 1994 and the third stage of the investigation was conducted between October 1995 and May 1996. The results of the third stage of the investigation are presented for the first time in this report. IR-63 was only included in the third stage of the RI field investigation.

Field activities are summarized in Table 4.13-1. A discussion of the RI field activities and sampling procedures is presented in Appendix I, and analytical results are shown in Appendix M. Boring logs showing the lithology and well construction details are presented in Appendix J. RI source, soil, groundwater, and aquifer characterization activities are discussed in the following sections.

4.14 IR-64 BUILDING 206

Building 206 was originally identified as SA-90 in the SA program conducted in 1993 (HLA 1994c). It was later designated IR-64 in compliance with the basewide IRP (PRC 1995b).

Site IR-64 is located in the northern portion of Parcel C, immediately south of Drydock 3 (Figure 1.3-3). IR-64 consists of Building 206 and its vicinity, including a concrete pad and external storage areas. Building 206 is also known as Substation A. The building is approximately 4,000 square feet in area and is currently not in use. Although all equipment was removed from the structure, there are seven sumps inside the building, six of which were probably drip basins for equipment (HLA 1994c). All of the sumps contain standing water, as does a large sunken area at the northeast end of the building (HLA 1990a). The six drip basin sumps appeared to contain oil as well. Also reported are numerous areas containing debris and large pieces of machinery that are present outside of the building on the asphalt pavement (HLA 1994c). Items reported include six unlabeled 55-gallon drums, metal debris, a large (20 cubic yards) debris box, an oxygen tank, an acetylene tank, two ship engines, several vault boxes, and a large vault (6 by 12 feet). The concrete pad west of the building, approximately 1,250 square feet in size, supports three large transformers. The transformers were dismantled. There are also electrical vault covers at each end of the pad. Between the transformer pad and the building is a 3- by 4- by 4-foot concrete electrical outlet box with many outlets for welding equipment. Additional vaults and dismantled electrical equipment are present in the vicinity of the concrete pad.

Building 206 was used as an electrical substation for the drydock area. In the past it housed electrical transformers and other related equipment. Based on investigations and sampling, COPCs at IR-64 include PCBs, metals, TPH extractables, and TPH purgeables. A potential source of contamination at IR-64 is leaks from the six sumps used as drip basins inside Building 206.

Previous field investigations, RI field investigations, geology and hydrogeology, analytical results, the nature and extent of contamination, contaminant fate and transport, a site-specific risk assessment, and conclusions and recommendations for IR-64 are discussed in the following sections.

4.14.1 Previous Field Investigations

Investigations were not conducted at IR-64 that preceded the RI.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
3	Hydrostratigraphic units	Section 2.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.8.1, pages 2-13 to 2-15.

The Bay Mud consists of fine-grained Holocene estuarine deposits of silt and clay. The Bay Mud underlies and is interbedded with the undifferentiated upper sands.

Undifferentiated sediments are the oldest unconsolidated sedimentary unit present beneath Parcel C. Undifferentiated sediments consist mostly of clay and silt and isolated sand lenses. The undifferentiated sediments at HPS occur between underlying bedrock and overlying undifferentiated upper sands and Bay Mud. In places, undifferentiated sediments are directly overlain by artificial fill materials. Undifferentiated sediments are thinner below the northern and western portions of the parcel, and are typically absent in those locations where the bedrock surface is shallow and the overburden is thin.

Bedrock at HPS (and in Parcel C) is part of the Franciscan Complex, a mélange of igneous, sedimentary, and metamorphic rocks assembled during subduction related continental-margin accretion (Wakabayashi 1992). Rock types of the complex include basalt (greenstone), serpentinite, chert, sandstones, siltstones, and shales. The bedrock occurs at depths of 0 to 25 feet across much of Parcel C; although in the southeast area near Berth 3, depth to the bedrock surface increases to over 110 feet bgs. The deep bedrock in this area is overlain by sand and clay beds of the Undifferentiated Sediments. Figure 2-12 presents the bedrock surface elevation contours at Parcel C.

2.2.8 Parcel C Hydrogeology

This section presents a brief overview of the Parcel C hydrogeology, and is presented by hydrostratigraphy, aquifer parameters, groundwater flow, and tidal influence. For a more detailed description of the Parcel C hydrogeology, refer to the Phase III GDGI Report (Tetra Tech 2004a).

2.2.8.1 Parcel C Hydrostratigraphy

The hydrostratigraphic units at HPS include (1) the A-aquifer, (2) the Bay Mud aquitard, (3) the B-aquifer, and (4) the F-WBZ. The Navy and the regulatory agencies have agreed to use this designation of the aquifer system at Parcel C. Figure 2-7 presents a map showing cross-section locations for the RU-specific cross sections, and shows the location of borings and wells with lithologic data. Figures 2-8 through 2-11 show the RU-specific cross sections.

The A-aquifer at HPS typically consists of unconsolidated Artificial Fill (Q_{af}) that overlies the Bay Mud aquitard and bedrock and forms a continuous zone of unconfined groundwater. Alluvium and colluvium, Undifferentiated Upper Sands, and shallow bedrock also are part of the A-aquifer at various locations across Parcel C, wherever the additional units are considered hydrologically connected to form a single aquifer unit. The A-aquifer generally thickens from about 10 feet in the southwest to as much as 80 feet in the northeast, but averages between 20 and 25 feet thick over most of Parcel C.

Bay Mud acts as an aquitard that separates the A- and B-aquifers in the central area of the parcel. The Bay Mud consists of highly plastic clay to sandy clay and generally thickens from 0 feet near the historical shoreline in the southwest to 40 feet near the bay margin in the northeast. The Bay Mud is discontinuous at Parcel C resulting in the A-aquifer being in direct hydraulic communication with the units of the B-aquifer.

The B-aquifer is present over an area of approximately 22 acres, or about 28 percent, of Parcel C. B-aquifer only occurs in the east-central area of the parcel from Dry Dock 2 to Building 251 to Berths 3 and 4, and in the area northwest of Building 134 (see Figure 2-13). The B-aquifer consists of the Undifferentiated Sediments; these deposits are typically separated from the A-aquifer by the Bay Mud. In the area north of Berths 3 and 4, these deposits thicken and consist of interbedded sands and clayey silts. The upper sand bed is generally 20 to 30 feet thick, whereas deeper sand beds are only 5 to 8 feet thick. In the area of Building 134, the B-aquifer has a very limited extent and has been characterized as having a low production capacity in the adjacent area of Parcel B. Where the Bay Mud is not present, the upper sand bed of the Undifferentiated Sediments is directly, hydraulically connected to the A-aquifer. The upper sand bed of the Undifferentiated Sediments ranges from about 5 to over 30 feet thick. In areas where this upper bed is relatively thin and Bay Mud is absent, the sediments are included in the A-aquifer.

The water table is within the saturated F-WBZ in about 30 acres (or 38 percent) of Parcel C. Fill material, either unsaturated or with seasonal thin perched water, overlies the F-WBZ across much of the 30-acre area. The F-WBZ is overlain by either saturated fill of the A-aquifer or saturated sediments of the B-aquifer across the other 49 acres of Parcel C. The distribution of the shallow F-WBZ and the A-aquifer are shown on Figure 2-14.

The F-WBZ is *not* considered an aquifer because of its low capacity for water production. The bedrock consists of serpentinite, with lesser amounts of greenstone and chert, and rare shale, sandstone, and siltstone. During the RI, the bedrock borings were usually dry during drilling and coring. The upper 15 to 30 feet are intensely fractured and moderately to deeply weathered, frequently forming a clayey gravel residuum from the serpentinite with calcite-filled fractures. The flow within the bedrock is dependent on the degree and continuity of fracturing, the fracture pattern, the extent of and resistance to weathering, and the amount of secondary precipitation of minerals in fractures. The flow is laminar seepage to turbulent sheet flow similar to water moving between two closely spaced bricks, rather than flow through a porous media such as sand. The bedrock has very limited groundwater storage capacity because most of the bedrock is not a porous medium. The field sampling records from monitoring events show the water production rates are generally low and highly variable, reflecting the low storage capacity. Review of drilling logs and monitoring well sampling records indicated the bedrock cherts and sandstones tend to be better producing areas. The highly weathered clayey gravel residuum of the upper F-WBZ is usually termed part of the overlying hydrostratigraphic unit (either the A-aquifer or B-aquifer, whichever directly overlies the F-WBZ), because the saturated upper F-WBZ clayey gravel residuum is in direct vertical hydraulic continuity with the overlying groundwater unit and behaves somewhat like a porous medium.

Monitoring well name designations (for example, A, B, or F) are generally based on the lithologic unit in which the well is screened. For example, wells screened in the Undifferentiated Sediments are designated "B," whereas the saturated sand of the Undifferentiated Sediments may be labeled part of the "A-aquifer" or "B-aquifer" depending on whether or not the Bay Mud Aquitard is present. The one exception to this well labeling rule is at Building 134 of RU-C5, where treatability study wells were installed in 2000 and mislabeled with the wrong unit designation.

Depth to the top of the A-aquifer occurs at approximately 8 to 10 feet bgs across most of Parcel C. Groundwater flows generally south/southeast across Parcel C toward the Bay, except at northern portions of the parcel where the primary flow direction is toward the dry docks.

2.2.8.2 Hydraulic Characteristics

Slug tests were performed in the mid 1990s at Parcel C, and the results were reported in the Parcel C RI Report (PRC, LFR, and U&A 1997). Constant rate discharge pumping tests were conducted at Parcel C between July 2000 and August 2002, and results were reported in the Phase III GDGI Report (Tetra Tech 2004a). The pump tests provide a more representative assessment of aquifer characteristics. Table 2-9 provides the results of the pump tests and slug tests, as well as calculated aquifer parameters, including hydraulic conductivity, transmissivity, and storage coefficient. No discharge tests have been performed in the bedrock at HPS.

2.2.8.3 Groundwater Flow

Horizontal groundwater flow and groundwater recharge and discharge are discussed below. The horizontal groundwater flow discussion is based on the 2004 fourth quarter water levels measured during HPS basewide quarterly groundwater monitoring at Parcel C (Kleinfelder 2005). Vertical groundwater flow and groundwater recharge and discharge discussions are based on data presented in the Parcel C Phase III GDGI Report (Tetra Tech 2004a). Groundwater flow directions may shift in the future from the directions presented in this section, since the pump at the lift station for storm sewer lines of Parcel C was shut down in May 2007. The groundwater flow directions and chemical distribution in groundwater should be reevaluated prior to preparing the remedial design.

Groundwater flow patterns at HPS are largely determined by the upgradient Parcel A topographic high (west of Parcel C) centrally located at HPS with respect to the Bay shoreline configuration. The general pattern of groundwater flow is radially away from the Parcel A topographic high and toward the shoreline. Figure 2-15 presents a groundwater elevation contour map for the A-aquifer at Parcel C, for measurements collected in November 2004 (Kleinfelder 2005).

At Parcel C, the general direction of groundwater flow is to the east where groundwater discharges into the Bay. Locally, at bayside perimeter locations of the parcel, the groundwater flow direction is southeast or northeast directly toward the Bay or Dry Dock or the nearest surface water. Dry Docks 2 and 3 were constructed with concrete seawalls, and are shown as areas with no groundwater flow on Figure 2-15. Leaking storm drains, sewer lines, and water supply lines influence groundwater movement across Parcel C.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
4	Drinking water	Section 2.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.9, pages 2-17 to 2-21.

Tidal studies were conducted at Parcel C during the Phase III GDGI to evaluate the extent of tidal influence and tidal mixing in groundwater. Tidal mixing refers to the influx and mixing of the Bay's saline surface water into near-shore groundwater by daily tidal action; this results in degradation of groundwater with a significant increase of total dissolved solids (TDS) to above 10,000 milligrams per liter (mg/L). Tidal effects on Parcel C groundwater are important because much of Parcel C is adjacent to the Bay with which the shallow aquifer system is hydraulically connected. Tidal effects on groundwater are observed throughout Parcel C, except for the most inland portions.

The maximum fluctuation of Bay water levels during the tidal influence study was about 10 feet. The A-aquifer tidal influence zone, defined as the area where the maximum tidal fluctuation exceeds 0.10 feet, extends about 150 to 500 feet inland from the Bay (not considering Dry Dock 2, which is hydraulically separated from the groundwater by the dock wall). Tidal effects on A-aquifer groundwater are strongest near the eastern and southeastern shoreline of Parcel C and become weaker toward the west and northwest.

The data are insufficient to define the boundary of the B-aquifer tidal influence zone, but at IR28MW401B, located over 200 feet from Dry Dock 2 to the north and over 650 feet from the Bay to the east and south, 1.2 feet of groundwater tidal fluctuations were observed. Tidal influence data indicated that tidal effects are generally stronger in the B-aquifer than in the A-aquifer, which is expected considering the semi-confined to confined nature of the B-aquifer and the generally unconfined nature of the A-aquifer.

The tidal mixing zone is defined as the area in the shallow aquifer near the shoreline where groundwater and seawater mix as a result of tidal fluctuations. Tidal mixing studies conducted at HPS have indicated a tidal mixing zone at least 70 feet wide (Tetra Tech 2004a). Additional information on mixing between Parcel C groundwater and the Bay are outlined in the following subsection.

2.2.9 Groundwater Beneficial Use Evaluation

This section summarizes the evaluation of the potential for groundwater from the A- and B-aquifers at Parcel C to be used for domestic drinking and municipal water supply. The full beneficial use evaluation is presented in Appendix A. A primary purpose of the beneficial use evaluation is to determine if maximum contaminant levels (MCL) as established by EPA under the Safe Drinking Water Act for potential drinking water sources are ARARs for groundwater remediation goals. The results of the beneficial use evaluation are also considered in selection of potential exposure pathways in support of the baseline HHRA.

The hydrostratigraphic units at HPS include (1) the A-aquifer, (2) the Bay Mud aquitard, (3) the B-aquifer, and (4) the F-WBZ. The water table is within the shallow F-WBZ across about 38 percent of Parcel C, and is within the A-aquifer across the remainder of the parcel. The

highly weathered clayey gravel residuum of the upper F-WBZ is usually termed part of the overlying hydrostratigraphic unit (either the A-aquifer or B-aquifer, whichever directly overlies the F-WBZ). The saturated upper sands of the Undifferentiated Sediments (normally comprising the upper B-Aquifer) are also included with the A-aquifer at Parcel C in areas where the Bay Mud either does not exist or is too thin to serve as an aquitard.

The potential beneficial uses of Parcel C groundwater have been referenced in several previous documents (see Appendix A). In an August 11, 2003, letter to the Water Board, the Navy provided their determination that the A-aquifer at HPS is not a municipal or domestic water supply source (Navy 2003). A September 25, 2003, response letter from the Water Board concurred that A-aquifer groundwater at HPS meets the exception criteria in the State Water Resources Control Board (SWRCB) Sources of Drinking Water Resolution No. 88-63 (SWRCB 1988; Water Board 2003). Therefore, the Parcel C beneficial use evaluation for the A-aquifer includes comparison with federal but not state groundwater classification criteria. The evaluation of the B-aquifer includes comparison to both state and federal criteria.

The State of California and EPA have different TDS and well yield criteria for evaluating groundwater as having potential as a municipal or domestic water supply. The state criterion is for TDS concentrations in groundwater to be lower than 3,000 mg/L, and the EPA (federal) criterion is for groundwater TDS concentrations to be lower than 10,000 mg/L. The state well yield criteria specify that an aquifer must be capable of providing an average sustained yield of 200 gallons per day (gpd) from a single well. The federal criteria specify that well yield must be sufficient to supply an average family, which is considered to be a minimum of 150 gpd; this level of production should be possible throughout the year.

Figure A-1 in Appendix A presents the spatial distribution of maximum TDS concentrations for the A-aquifer in Parcel C. Figure A-1 also includes results for wells located in Parcel B, thereby providing continuous spatial coverage for the northern section of Parcel C. As indicated on the figure, approximately 35 percent of Parcel C (the western and northern portions of the parcel) has TDS concentrations less than 3,000 mg/L and 25 percent has TDS concentrations between 3,000 and 10,000 mg/L. The remaining 40 percent of groundwater is near the Bay and is saline with TDS concentrations exceeding 10,000 mg/L; this saline groundwater has only limited industrial uses (see Appendix A).

Based on EPA groundwater classification guidance (EPA 1986), groundwater from the A-aquifer across approximately 60 percent of Parcel C is designated as Class IIB (a potential future source of drinking water or other beneficial use). The A-aquifer groundwater in the remaining 40 percent of Parcel C is designated as Class IIIA (not a potential source of drinking water and interconnected to surface water).

The following beneficial use evaluation is conducted to address federal guidance and determine if MCLs are ARARs for groundwater when developing CERCLA response actions. Differences in cleanup levels can be established depending on whether the groundwater is a current or potential source of drinking water or other beneficial uses. EPA can establish that MCLs are not ARARs on a case-by-case basis (EPA 1984). Where groundwater is not used as a current

drinking water source under Class IIB, EPA can consider site-specific factors (SSF) such as the probability of use, cost of cleanup, and availability of alternative drinking water sources in determining cleanup requirements. In an attachment to a letter to the Navy sent on May 12, 1999, the EPA listed the SSFs that should be considered when determining whether all or portions of an aquifer should be considered a potential drinking water source for making a CERCLA cleanup decision (EPA 1999a). These factors include the following:

- Aquifer thickness
- Actual TDS levels
- Actual groundwater yield
- Proximity to saltwater and the potential for saltwater intrusion
- Quality of underlying water-bearing units
- Existence of institutional controls on well construction or aquifer use
- Information on the historic and current use of the aquifer
- Cost to remediate groundwater to MCLs
- Depth to groundwater

The A-aquifer was evaluated with respect to the above listed SSFs. As detailed in Appendix A, five of the nine SSFs categorize the A-aquifer as having low potential for use as a drinking water source. The remaining four SSFs—aquifer thickness, TDS concentrations, groundwater yield, and quality of underlying water-bearing units—categorize the A-aquifer as having moderate potential as a drinking water source. When these factors are considered together, the A-aquifer groundwater is not a viable potential source of drinking water; therefore, MCLs should not be ARARs for the A-aquifer at Parcel C for a CERCLA action.

The beneficial use evaluation of the B-aquifer was conducted in a similar manner. However, the state concurrence with the Navy's determination that the A-aquifer groundwater at HPS is not a potential drinking water source has not been extended to include the B-aquifer. Therefore, state criteria were also considered in the B-aquifer beneficial use evaluation.

The B-aquifer is present over an area of approximately 22 acres at Parcel C, of which about 6.5 acres exhibit TDS concentrations less than 10,000 mg/L. Figure A-2 shows the maximum TDS concentrations detected in each B-aquifer well. Approximately 70.5 percent of the areal extent of the B-aquifer at Parcel C has TDS concentrations exceeding 10,000 mg/L, giving this saline groundwater area a federal groundwater classification of Class IIIA (not a potential source of drinking water and interconnected to surface water). Only a small area of the B-aquifer (about 200 feet by 530 feet or 2.4 acres) in the vicinity of and to the northwest of Buildings 251 and 252 meets the state TDS criterion of less than 3,000 mg/L for drinking water beneficial use. The B-aquifer in this area is about 30 feet thick. Assuming a porosity of

30 percent, about 22.5 acre-feet of available fresh water meets the state TDS drinking water criterion. The remaining 18.5 percent (roughly 4.1 acres) of the Parcel C B-aquifer area has groundwater with TDS concentrations exceeding 3,000 mg/L and less than 10,000 mg/L (that is, brackish water).

Limited well yield data are available for the B-aquifer. However, well purging and field sampling data indicated the likelihood for sustainable yields exceeding 200 gpd, thus qualifying portions of the B-aquifer as a potential drinking water source according to both state and federal well yield criteria.

An evaluation of the SSFs for the B-aquifer was conducted to evaluate the potential for B-aquifer groundwater within Parcel C to be used as a drinking water source. As detailed in Appendix A, six of the nine SSFs categorize the aquifer to have low potential for use as a drinking water source. When the SSFs are considered together, the B-aquifer groundwater is not a viable potential source of drinking water. The production of B-aquifer wells in the freshwater area will induce the influx of poorer quality groundwater relatively quickly, resulting in the rapid degradation of the B-aquifer freshwater zone to brackish and then saline conditions. This degradation can be expected to occur within 3 weeks to 3 months of the onset of steady production from the B-aquifer. Additionally, the City and County of San Francisco prohibits installation of domestic wells within city boundaries. B-aquifer groundwater at HPS has never been and is not currently used as a drinking water source, nor has the groundwater ever been used for any other beneficial use. The City and County of San Francisco currently obtains its municipal water supply from the Hetch Hetchy watershed in the Sierra Nevada and plans to continue using the Hetch Hetchy watershed as a drinking water source in the future. As a result, the B-aquifer in Parcel C is not considered a viable source for drinking water beneficial use, and MCLs should not be ARARs for the B-aquifer at Parcel C for a CERCLA action. The A- and B-aquifers have potential agricultural and industrial beneficial uses. However, agricultural beneficial use for irrigation is limited by the salinity tolerance of plants and generally requires TDS concentrations of less than 700 mg/L, although some grasses can tolerate up to 1,500 mg/L of TDS. Very little of the A- and B-aquifers meet the TDS constraints for agricultural irrigation beneficial use as shown by the distribution of TDS on Figures A-1 and A-2 in Appendix A. TDS requirements for livestock vary by species, with cattle generally tolerating up to 10,000 mg/L of TDS, although TDS concentrations above 7,000 mg/L typically cause gastrointestinal problems. Water with TDS concentrations above 10,000 mg/L is not considered to have any agricultural use. The City and County of San Francisco's 1997 Reuse Plan does not provide for agricultural reuse (SFRA 1997).

Groundwater with TDS concentrations exceeding 10,000 mg/L has only very limited industrial uses. Water with TDS concentrations exceeding 10,000 mg/L is suitable for boiler and cooling operations at industrial facilities. Other industrial uses generally require treatment to lower TDS concentrations to below at least 7,000 to 8,000 mg/L prior to use. Other than the presence of nonaqueous-phase liquids, the presence of dissolved chemicals does not impede the industrial use of highly saline groundwater (exceeding 10,000 mg/L of TDS).

In conclusion, a beneficial use evaluation was conducted for both the A- and B-aquifers at HPS Parcel C. Based on TDS concentrations exceeding 10,000 mg/L, 40 percent of the A-aquifer area and 65 percent of the B-aquifer area meet groundwater classification Class IIIA and are not considered a potential source for drinking water. The remaining portions of each aquifer meet the TDS and well yield criteria to be Class IIB aquifers. However, the results of SSF evaluations for each aquifer determined that both aquifers are not viable potential sources of drinking water.

The Navy has accepted the substantive provisions of SWRCB Res. No. 88-63 as a State ARAR. The Navy has applied these substantive provisions to the B aquifer and bedrock water bearing zone (F WBZ) across Parcel C at HPS and determined that this groundwater is not a source of municipal and domestic drinking water supply. In a letter dated July 29, 2008, the Water Board stated that they concurred with the Navy's determination for the B-aquifer in the central area of Parcel C, and that they concurred with the inclusion of the upper weathered residuum of the bedrock with the A- and B-aquifer (Appendix A). The Water Board disagrees with the Navy's determination as it applies to the deeper, unweathered bedrock. The Water Board considers the B-aquifer in the area of Building 134 (RU-C5) to be part of the B-aquifer in Parcel B, and the B-aquifer in Parcel B is considered to be a distinct, separate groundwater unit from the B-aquifer in the central area of Parcel C.

The Navy will continue to work with the Water Board regarding the beneficial use of the B-aquifer at RU-C5 and the deeper bedrock zones. For this feasibility study, MCLs will apply at RU-C5 and the bedrock water bearing zone. MCLs are not considered ARARs for either the A- or the B-aquifer at HPS Parcel C for a CERCLA action outside these areas.

2.3 PARCEL C NATURE AND EXTENT OF SOIL CONTAMINATION

During a series of investigations at Parcel C from 1984 to 2002, the Navy collected soil samples from surface locations, shallow test pits, and deeper soil and monitoring well borings to determine whether hazardous substances and petroleum hydrocarbons had been released at Parcel C. These investigations resulted in an analytical data set consisting of thousands of soil samples analyzed for hundreds of chemicals. All analytical data from soil above 10 feet bgs that were collected at Parcel C and that have not been removed by subsequent excavations are presented in Appendix B. Appendix B consists of tables that present the analytical data and maps showing the sampling locations.

This section provides a summary of the evaluation of the nature and extent of soil contamination at Parcel C because several sampling events and removal actions have been conducted since soil contamination was originally evaluated in the 1997 RI Report. The Navy developed statistical tables for chemicals analyzed at Parcel C to focus the updated evaluation on the most significant soil contamination at Parcel C. Table 2-10 provides the statistics for all chemicals analyzed at Parcel C. To focus the discussion by redevelopment block, statistics were also developed for COCs and total petroleum hydrocarbons (TPH) at each redevelopment block (see Table 2-11). The COCs listed in this section were determined during the revised HHRA (see Section 3.1 and Appendix C).

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
5	Parcel C ecology	Section 2.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.2.5, page 2-11.

2.2.5 Ecology

The aquatic ecology of HPS is characterized by bay sediments disturbed in places by former dredging activities, and a manmade shoreline consisting of either concrete and timber wharfs. Physical structures, such as docks and berths, serve as artificial habitats for estuarine life. The marine environment is disturbed as a result of commercial, industrial, and recreational activities in the Bay. Several hundred species of plants and animals are believed to live at or near HPS, including terrestrial and marine plants and algae; benthic and water column-dwelling marine animals such as clams, mussels, amphipods, and fish; insects; amphibians; reptiles; birds; and mammals.

Threatened or endangered species are not known to inhabit HPS or its vicinity (Environmental Science Associates 1987). Some endangered species have been infrequently observed at HPS, including winter run Chinook salmon, Peregrine falcon, burrowing owls, and California brown pelicans.

More than 90 percent of the ground surface at Parcel C is covered by pavement and former industrial buildings. The ecological risk assessment performed basewide at HPS concluded Parcel C was almost entirely paved except for small pockets of vegetation, which are not considered suitable habitat for animal life (PRC 1994b; Appendix F of the RI Report [PRC, LFR, and U&A 1997]). Exposure pathways to terrestrial species are incomplete because of the predominance of paved areas in Parcel C, which precludes the presence of viable habitats. The ecological risk assessment stated that hazardous substances may migrate to groundwater and affect the Bay (PRC 1994b).

Future use of Parcel C includes 15 acres (less than 20 percent of the parcel) for hard surface open space reuse (SFRA 1997). Open space reuse at Parcel C is planned along the bay front between Dry Dock 2 and Dry Dock 4, adjacent to Berths 1 through 4. The Redevelopment Plan identifies plazas, promenades, and ancillary commercial uses as options for hard surface open space areas (SFRA 1997).

Offshore sediment characterization is discussed in the Parcel F FS Report (Barajas & Associates, Inc. 2007).

2.2.6 Soils

Soils at HPS are derived from underlying rocks and weathered material or were imported as fill. Parcels B through E-2 are primarily covered by lowland soils, which are flat to gently sloped urban land (U.S. Soil Conservation Service 1991). Lowland soils at HPS have a high liquefaction potential, especially in areas that have subsided as a result of the Loma Prieta

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
6	**Samples**	Table 1	Draft Final Parcel B Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC Environmental Management, Inc. (PRC), Levine-Fricke-Recon, Inc. (LFR), and Uribe & Associates (U&A). June 3, 1996. Tables 4.4-1 to 4.4-8, and 4.11-1 to 4.11-20. Draft Final Parcel C Remedial Investigation Report, Hunters Point Shipyard, San Francisco, California. PRC, LFR, and U&A. March 13, 1997. Executive Summary, pages ES-4 and ES-5 plus Tables 4.2-1 to 4.2-7, 4.3-1 to 4.3-20, 4.4-1 to 4.4-22, 4.5-1 to 4.5-11, 4.11-1 to 4.11-11, 4.12-1 to 4.12-16, 4.13-1 to 4.13-4, and 4.14-1 to 4.14-12.

TABLE 4.4-1

SUMMARY OF SOIL ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06B001	8944H007				√		√	√	√	√			√				√	√		√
IR06B001	8944H008				√		√	√	√	√			√				√	√		√
IR06B001	8944H009				√		√	√	√	√			√				√	√		√
IR06B002	8943G112				√		√	√	√	√			√				√	√		√
IR06B002	8943G113				√		√	√	√	√			√				√	√		√
IR06B002	8943G114				√		√	√	√	√			√				√	√		√
IR06B002	8943G115							√									√	√		√
IR06B002	8943G116							√									√	√		√
IR06B003	8944H004				√		√	√	√	√			√				√	√		√
IR06B003	8944H005				√		√	√	√	√			√				√	√		√
IR06B004	8944H001				√		√	√	√	√			√				√	√		√
IR06B004	8944H002				√		√	√	√	√			√				√	√		√
IR06B004	8944H003				√		√	√	√	√			√				√	√		√
IR06B005	8943G085				√		√	√	√	√	√		√				√	√		√
IR06B005	8943G086				√		√	√	√	√	√		√				√	√		√
IR06B005	8943G087				√		√	√	√	√	√		√				√	√		√
IR06B005	8943G088							√									√	√		√
IR06B006	8943G091				√		√	√	√	√			√				√	√		√
IR06B006	8943G092				√		√	√	√	√			√				√	√		√
IR06B006	8943G093				√		√	√	√	√			√				√	√		√
IR06B006	8943G094							√									√	√		√
IR06B006	8943G095							√									√	√		√
IR06B007	8944H012				√		√	√	√	√			√				√	√		√
IR06B007	8944H013				√		√	√	√	√			√				√	√		√
IR06B007	8944H014				√		√	√	√	√			√				√	√		√
IR06B007	8944H015							√									√	√		√
IR06B008	8944H006				√		√	√	√	√			√				√	√		√
IR06B008	8944H017				√		√	√	√	√			√				√	√		√
IR06B009	8944H037				√		√	√	√	√	√		√				√	√		√
IR06B009	8944H038				√		√	√	√	√	√		√				√	√		√
IR06B009	8944H039				√		√	√	√	√	√		√				√	√		√
IR06B009	8944H040							√									√	√		√
IR06B009	8944H041							√									√	√		√
IR06B010	8944H023				√		√	√	√	√	√		√				√	√		√
IR06B010	8944H024				√		√	√	√	√	√		√				√	√		√
IR06B010	8944H025				√		√	√	√	√	√		√				√	√		√
IR06B010	8944H026							√									√	√		√

TABLE 4.4-1 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06B010	8944H027							✓									✓	✓		✓
IR06B010	8944H028							✓									✓	✓		✓
IR06B011	8944H029				✓		✓	✓	✓	✓			✓				✓	✓		✓
IR06B011	8944H030				✓		✓	✓	✓	✓			✓				✓	✓		✓
IR06B011	8944H031				✓		✓	✓	✓	✓			✓				✓	✓		✓
IR06B011	8944H032							✓									✓	✓		✓
IR06B011	8944H033							✓									✓	✓		✓
IR06B012	8944G122				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B012	8944G123				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B012	8944G124				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B012	8944G125							✓									✓	✓		✓
IR06B013	8945G127				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B013	8945G128				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B013	8945G129				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B013	8945G130							✓									✓	✓		✓
IR06B013	8945G131							✓									✓	✓		✓
IR06B014	8943G096				✓		✓	✓	✓	✓			✓				✓	✓		✓
IR06B014	8943G097				✓		✓	✓	✓	✓			✓				✓	✓		✓
IR06B014	8943G098				✓		✓	✓	✓	✓			✓				✓	✓		✓
IR06B014	8943G099							✓									✓	✓		✓
IR06B014	8943G100							✓									✓	✓		✓
IR06B015	8944H018				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B015	8944H019				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B015	8944H020				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B015	8944H021							✓									✓	✓		✓
IR06B015	8944H022							✓									✓	✓		✓
IR06B016	8944G117				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B016	8944G118				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B016	8944G119				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B016	8944G120							✓									✓	✓		✓
IR06B016	8944G121							✓									✓	✓		✓
IR06B017	8944H043				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B017	8944H044				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B017	8944H045				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓
IR06B017	8944H046							✓									✓	✓		✓
IR06B017	8944H047							✓									✓	✓		✓

TABLE 4.4-1 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06B018	8945G132				√		√	√	√	√	√		√				√	√		√
IR06B018	8945G133				√		√	√	√	√	√		√				√	√		√
IR06B018	8945G134				√		√	√	√	√	√		√				√	√		√
IR06B019	8945H052				√		√	√	√	√	√		√				√	√		√
IR06B019	8945H053				√		√	√	√	√	√		√				√	√		√
IR06B019	8945H054				√		√	√	√	√	√		√				√	√		√
IR06B019	8945H055							√									√	√		√
IR06B020	8945H048				√		√	√	√	√	√		√				√	√		√
IR06B020	8945H049				√		√	√	√	√	√		√				√	√		√
IR06B020	8945H050				√		√	√	√	√	√		√				√	√		√
IR06B020	8945H051							√									√	√		√
IR06B021	8945H057				√		√	√	√	√	√		√				√	√		√
IR06B021	8945H058				√		√	√	√	√	√		√				√	√		√
IR06B021	8945H059							√									√	√		√
IR06B024	8945G135				√		√	√	√	√	√		√				√	√		√
IR06B024	8945G136				√		√	√	√	√	√		√				√	√		√
IR06B024	8945G137				√		√	√	√	√	√		√				√	√		√
IR06B024	8945G138							√									√	√		√
IR06B024	8945G139							√									√	√		√
IR06B024	8945G140							√									√	√		√
IR06B025	9022H234				√		√			√	√		√							√
IR06B025	9022H235				√		√	√		√	√		√				√	√		√
IR06B025	9022H236							√									√	√		√
IR06B026	8945G141				√		√	√	√	√	√		√				√	√		√
IR06B026	8945G142				√		√	√	√	√	√		√				√	√		√
IR06B026	8945G143				√		√	√	√	√	√		√				√	√		√
IR06B026	8945G144							√									√	√		√
IR06B026	8945G145							√									√	√		√
IR06B028	9023G284				√		√	√		√	√		√				√	√		√
IR06B028	9023G285				√		√	√		√	√		√				√	√		√
IR06B028	9023G286							√									√	√		√
IR06B028A	9023G275				√		√	√		√	√		√				√	√		√
IR06B029	9022G265				√		√	√		√	√		√				√	√		√
IR06B029	9022G266				√		√	√		√	√		√				√	√		√
IR06B029	9022G267							√									√	√		√
IR06B031	9022G268				√		√	√		√	√		√				√	√		√

TABLE 4.4-1 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06B031	9022G269				√		√	√		√	√		√				√	√		√
IR06B031	9022G270							√									√	√		√
IR06B033	8945H060				√		√	√	√	√	√		√				√	√		√
IR06B033	8945H061				√		√	√	√	√	√		√				√	√		√
IR06B033	8945H062				√		√	√	√	√	√		√				√	√		√
IR06B033	8945H063							√									√	√		√
IR06B033	8945H064							√									√	√		√
IR06B033	8945H065							√									√	√		√
IR06B036	8945G146				√		√	√	√	√	√		√				√	√		√
IR06B036	8945G147				√		√	√	√	√	√		√				√	√		√
IR06B036	8945G148				√		√	√	√	√	√		√				√	√		√
IR06B036	8945G149							√									√	√		√
IR06B036	8945G150							√									√	√		√
IR06B036	8945G151							√									√	√		√
IR06B037	8945H066				√		√	√	√	√	√		√				√	√		√
IR06B037	8945H067							√									√	√		√
IR06B037	8945H068							√									√	√		√
IR06B037	8945H069							√									√	√		√
IR06B038	8945H070				√		√	√	√	√	√		√				√	√		√
IR06B038	8945H071				√		√	√	√	√	√		√				√	√		√
IR06B038	8945H072				√		√	√	√	√	√		√				√	√		√
IR06B038	8945H073							√									√	√		√
IR06B038	8945H074							√									√	√		√
IR06B038	8945H075							√									√	√		√
IR06B039	9022H226				√		√	√		√	√		√				√	√		√
IR06B039	9022H227				√		√	√		√	√		√				√	√		√
IR06B039	9022H228							√									√	√		√
IR06B039	9022H229							√									√	√		√
IR06B043	9023H260				√		√	√		√	√		√				√	√		√
IR06B043	9023H261				√					√	√						√	√		√
IR06B043	9023H262							√									√	√		√
IR06MW22A	9022F040				√		√	√		√	√		√				√	√		√
IR06MW22A	9022F041				√		√	√		√	√		√				√	√		√
IR06MW22A	9022F042							√									√	√		√
IR06MW23A	9022F043				√		√	√		√	√		√				√	√		√
IR06MW23A	9022F044				√		√	√		√	√		√				√	√		√

TABLE 4.4-1 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TNICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW23A	9022F045							√									√	√		√
IR06MW23A	9022F046							√									√	√		√
IR06MW27A	9022H239				√		√	√		√	√		√				√	√		√
IR06MW27A	9022H240				√		√	√		√	√		√				√	√		√
IR06MW27A	9022H241							√									√	√		√
IR06MW30A	9022H230				√		√	√		√	√		√				√	√		√
IR06MW30A	9022H231				√		√	√		√	√		√				√	√		√
IR06MW30A	9022H232							√									√	√		√
IR06MW30A	9022H233							√									√	√		√
IR06MW32A	9022H242				√		√	√		√	√		√				√	√		√
IR06MW32A	9022H243				√		√	√		√	√		√				√	√		√
IR06MW32A	9022H244							√									√	√		√
IR06MW32A	9022H245							√									√	√		√
IR06MW34A	9023H256				√		√	√		√	√		√				√	√		√
IR06MW34A	9023H257				√		√	√		√	√		√				√	√		√
IR06MW34A	9023H258							√									√	√		√
IR06MW34A	9023H259							√									√	√		√
IR06MW35A	9023G271				√		√	√		√	√		√				√	√		√
IR06MW35A	9023G272				√		√	√		√	√		√				√	√		√
IR06MW35A	9023G273							√									√	√		√
IR06MW35A	9023G274							√									√	√		√
IR06MW40A	9023G277				√		√			√	√		√				√	√		√
IR06MW40A	9023G278				√		√	√		√	√		√				√	√		√
IR06MW40A	9023G279							√									√	√		√
IR06MW40A	9023G280							√									√	√		√
IR06MW40A	9023G281							√									√	√		√
IR06MW40A	9023G282							√									√	√		√
IR06MW40A	9023G283							√									√	√		√
IR06MW41A	9023H246				√		√	√		√	√		√				√	√		√
IR06MW41A	9023H247				√		√	√		√	√		√				√	√		√
IR06MW41A	9023H248							√									√	√		√
IR06MW41A	9023H249							√									√	√		√
IR06MW41A	9023H251							√									√	√		√
IR06MW42A	9023H252				√		√			√	√		√				√	√		√
IR06MW42A	9023H253				√		√	√		√	√		√				√	√		√
IR06MW42A	9023H254							√									√	√		√

TABLE 4.4-1 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW42A	9023H255							✓									✓	✓		✓
IR06MW44A	9138M192				✓			✓			✓						✓		✓	✓
IR06MW44A	9138M193				✓			✓			✓						✓		✓	✓
IR06MW44A	9138M194				✓			✓			✓						✓		✓	✓
IR06MW44A	9138M195				✓			✓			✓						✓		✓	✓
IR06MW44A	9138M196				✓			✓			✓						✓		✓	✓
IR06MW44A	9138M197				✓			✓			✓						✓		✓	✓
IR06MW44A	9138M198				✓			✓			✓						✓		✓	✓
IR06MW44A	9138M199				✓			✓			✓						✓		✓	✓
IR06MW45A	9138M186							✓			✓						✓		✓	✓
IR06MW45A	9138M187							✓			✓						✓		✓	✓
IR06MW45A	9138M188							✓			✓						✓		✓	✓
IR06MW46A	9138M183				✓			✓			✓						✓		✓	✓
IR06MW46A	9138M184				✓			✓			✓						✓		✓	✓
IR06MW46A	9138M185				✓			✓			✓						✓		✓	✓
IR06MW49F	9143G635							✓									✓			✓
IR06SS01	8902A127				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS01	8902A128				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS02	8902A129				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS02	8902A130				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS03	8902A131				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS03	8902A132				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS04	8902A133				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS04	8902A134				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS05	8902A135				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS06	8902A136				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS07	8902A137				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS07	8902A138				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS08	8902A139				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS08	8902A140				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS09	8902A141				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS09	8902A142				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS10	8902A143				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS11	8902A144				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS11	8902A145				✓		✓		✓	✓	✓		✓				✓			✓
IR06SS12	8902A146				✓		✓		✓	✓	✓		✓				✓			✓

TABLE 4.4-1 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06SS12	8902A147				√		√		√	√	√		√				√			√
IR06SS13	8902A148				√		√		√	√	√		√				√			√
IR06SS13	8902A149				√		√		√	√	√		√				√			√
IR06SS14	8902A150				√		√		√	√	√		√				√			√
IR06SS14	8902A151				√		√		√	√	√		√				√			√
IR06SS15	8902A152				√		√		√	√	√		√							√
IR06SS15	8902A153				√		√		√	√	√		√							√
IR06SS16	8902A154				√		√		√	√	√		√							√
IR06SS16	8902A155				√		√		√	√	√		√							√
IR06SS17	8902A156				√		√		√	√	√		√							√
IR06SS17	8902A157				√		√		√	√	√		√							√
IR06SS18	8902A158				√		√		√	√	√		√							√
IR06SS18	8902A159				√		√		√	√	√		√							√
IR06SS19	8902A160				√		√		√	√	√		√							√
IR06SS19	8902A161				√		√		√	√	√		√							√

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-2

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	2,610	36,400	13,900	MG/KG	4.1	143	143	76,700	0	100,000	0		
	ANTIMONY	4.8	28.9	11.9	MG/KG	7.5	143	22	30.7	0	681	0	9.05	13
	ARSENIC	0.31	56.6	3.1	MG/KG	0.40	143	121	0.32	120	2.0	69	11.10	1
	BARIUM	8.9	834	130	MG/KG	0.21	143	143	5,340	0	100,000	0	314.36	7
	BERYLLIUM	0.18	0.91	0.46	MG/KG	0.13	143	98	0.14	98	1.1	0	0.71	5
	CADMIUM	0.92	2.8	1.5	MG/KG	0.85	143	12	9.0	0	852	0	3.14	0
	CALCIUM	343	121,000	7,680	MG/KG	6.3	143	143						
	CHROMIUM	40.0	1,910	338	MG/KG	0.62	143	143	211	81	1,580	2	h	23
	CHROMIUM VI	0.08	0.11	0.10	MG/KG	0.06	155	5	0.20	0	225	0		
	COBALT	8.2	208	45.3	MG/KG	2.8	143	134					h	18
	COPPER	5.8	140	36.1	MG/KG	0.52	143	141	2,850	0	63,300	0	124.31	3
	IRON	6,560	77,000	31,900	MG/KG	2.9	143	143						
	LEAD	0.67	2,580	153	MG/KG	0.65	143	137	130	19	1,000	7	8.99	64
	MAGNESIUM	3,510	251,000	44,500	MG/KG	5.7	143	143						
	MANGANESE	169	4,640	783	MG/KG	0.15	143	143	382	109	8,300	0	1431.18	10
	MERCURY	0.10	0.98	0.22	MG/KG	0.10	128	37	23.0	0	511	0	2.28	0
	MOLYBDENUM	2.0	2.0	2.0	MG/KG	0	111	1	383	0	8,520	0	2.68	0
	NICKEL	21.7	3,390	650	MG/KG	7.1	143	143	150	119	34,100	0	h	36
	POTASSIUM	231	5,660	1,040	MG/KG	89.6	143	117						
	SELENIUM	0.57	3.3	1.3	MG/KG	0.51	143	4	383	0	8,520	0	1.95	1
	SILVER	0.31	1.5	0.86	MG/KG	0.35	143	14	383	0	8,520	0	1.43	1
	SODIUM	29.2	1,790	344	MG/KG	16.0	143	92						

TABLE 4.4-2 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	THALLIUM	0.38	0.79	0.48	MG/KG	0.47	143	11					0.81	0
	VANADIUM	7.7	102	52.3	MG/KG	0.44	143	143	537	0	11,900	0	117.17	0
	ZINC	16.7	597	81.1	MG/KG	0.84	143	143	23,000	0	100,000	0	109.86	22
VOC	1,1,2-TRICHLOROETHANE	2	2	2	UG/KG	6	156	1	1,400	0	3,300	0		
	1,2-DICHLOROETHENE (TOTAL)	3	47	22	UG/KG	16	156	7	75,000	0	270,000	0		
	2-BUTANONE	3	82	20	UG/KG	30	156	13	8,700,000	0	34,000,000	0		
	BENZENE	4	140	65	UG/KG	22	232	7	1,400	0	3,200	0		
	BROMOFORM	4	4	4	UG/KG	6	156	1	56,000	0	240,000	0		
	CARBON DISULFIDE	3	7	5	UG/KG	6	156	4	16,000	0	52,000	0		
	ETHYLBENZENE	6	260	72	UG/KG	33	232	24	2,900,000	0	3,100,000	0		
	TETRACHLOROETHENE	2	2,200	350	UG/KG	16	156	7	7,000	0	25,000	0		
	TOLUENE	1	500	35	UG/KG	18	232	85	1,900,000	0	2,700,000	0		
	TRICHLOROETHENE	1	190	46	UG/KG	16	156	5	7,100	0	17,000	0		
	VINYL ACETATE	2	14	8	UG/KG	39	156	2	65,000,000	0	100,000,00	0		
	XYLENE (TOTAL)	1	8,100	640	UG/KG	270	232	28	980,000	0	980,000	0		
SVOC	2,4-DIMETHYLPHENOL	81	13,000	2,500	UG/KG	8,300	140	7	1,300,000	0	14,000,000	0		
	2-METHYLNAPHTHALENE	130	46,000	11,000	UG/KG	13,000	143	37	800,000	0	800,000	0		
	4-METHYLPHENOL	37	290	180	UG/KG	640	139	3	330,000	0	3,400,000	0		
	4-NITROPHENOL	55	55	55	UG/KG	350	143	1						
	ACENAPHTHENE	320	2,400	1,000	UG/KG	780	143	5	360,000	0	360,000	0		
	ACENAPHTHYLENE	52	110	81	UG/KG	560	143	2	360,000	0	360,000	0		
	ANTHRACENE	46	620	170	UG/KG	530	143	5	19,000	0	19,000	0		

TABLE 4.4-2 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	BENZO(A)ANTHRACENE	87	830	310	UG/KG	730	143	9	610	1	2,600	0		
	BENZO(A)PYRENE	91	1,300	330	UG/KG	480	143	7	61	7	260	2		
	BENZO(B)FLUORANTHENE	41	2,500	510	UG/KG	580	143	13	610	3	2,600	0		
	BENZO(G,H,I)PERYLENE	41	830	260	UG/KG	460	143	8	800,000	0	800,000	0		
	BENZO(K)FLUORANTHENE	95	2,500	630	UG/KG	590	143	10	610	3	26,000	0		
	BENZOIC ACID	140	140	140	UG/KG	370	143	1	100,000,00	0	100,000,00	0		
	CHRYSENE	41	1,900	320	UG/KG	660	143	24	6,100	0	24,000	0		
	DI-N-BUTYLPHTHALATE	42	140	77	UG/KG	520	143	6	6,500,000	0	68,000,000	0		
	DIBENZ(A,H)ANTHRACENE	60	84	72	UG/KG	370	143	2	61	1	260	0		
	DIBENZOFURAN	43	3,400	1,400	UG/KG	5,700	143	9	260,000	0	2,700,000	0		
	FLUORANTHENE	53	2,400	730	UG/KG	650	143	16	2,600,000	0	27,000,000	0		
	FLUORENE	37	10,000	2,600	UG/KG	11,000	143	23	300,000	0	300,000	0		
	INDENO(1,2,3-CD)PYRENE	74	570	210	UG/KG	470	143	7	610	0	2,600	0		
	N-NITROSODIPHENYLAMINE	800	800	800	UG/KG	6,400	143	1						
	NAPHTHALENE	130	11,000	3,100	UG/KG	7,900	143	23	800,000	0	800,000	0		
	PENTACHLOROPHENOL	90	90	90	UG/KG	1,800	139	1	2,500	0	7,900	0		
	PHENANTHRENE	54	19,000	2,900	UG/KG	8,500	143	52	800,000	0	800,000	0		
	PYRENE	38	1,700	490	UG/KG	870	143	35	2,000,000	0	20,000,000	0		
PEST	4,4'-DDD	17	19	18	UG/KG	18	111	2	1,900	0	7,900	0		
	ALDRIN	12	130	53	UG/KG	43	111	3	26	1	110	1		
	ENDOSULFAN I	56	56	56	UG/KG	40	111	1	3,300	0	34,000	0		
	AROCLOR-1260	77	150,000	20,000	UG/KG	7,500	144	8	66	8	340	4		

TABLE 4.4-2 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
TPHEXT	TPH-DIESEL	9	26,000	4,500	MG/KG	610	221	107	1,000	69i				
TRPH	TRPH	51	52	52	MG/KG	23	14	2	1,000	0i				
O&G	TOTAL OIL & GREASE	58	110,000	3,000	MG/KG	60	193	142	1,000	45i				

TABLE 4.4-2 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/KG	Microgram per kilogram
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures.
Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples.
The range of HPAL values for chromium, cobalt, and nickel are 93.943 to 1783.223, 18.248 to 166.769, and 86.865 to 4986.881 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.4-3

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B001	IR06B001	IR06B001	IR06B002	IR06B002	IR06B002	IR06B002
Sampling Depth (feet bgs)	0.75	3.25	5.75	1.25	3.25	5.25	7.75
Sample Number	8944H007	8944H008	8944H009	8943G112	8943G113	8943G114	8943G115
Sample Date	10/31/89	10/31/89	10/31/89	10/27/89	10/27/89	10/27/89	10/27/89
Metal (mg/kg)							
ALUMINUM	18,000	21,500	15,100	17,400	26,400	29,000	NA
ANTIMONY	8.1	ND (7.7)	13.7 α	ND (7.8)	10.4 α	ND (7.7)	NA
ARSENIC	56.6 *#α	3.3 *#	1.2 *	2.8 *	2.7 *#	1.4 *	NA
BARIUM	104	259	118	149	170	249	NA
BERYLLIUM	0.48 *	0.67 *	0.70 *	0.63 *	0.56 *	0.58 *	NA
CADMIUM	ND (0.84)	1.3	ND (1.0)	ND (0.90)	0.94	1.2	NA
CALCIUM	5,320	10,800	3,000	8,910	5,370	7,260	NA
CHROMIUM	491 *	235 *	894 *	360 *	438 *	225 *	NA
CHROMIUM VI	ND (0.06)	ND (0.06)	ND (0.07)	ND (0.06)	ND (0.06)	ND (0.06)	NA
COBALT	64.8	34.3	100	45.1	43.9	49.1	NA
COPPER	34.7	53.5	33.8	48.4	43.5	69.6	NA
IRON	41,000	37,500	52,700	33,400	42,400	45,900	NA
LEAD	9.6 α	55.6 α	ND (4.9)	102 α	7.3	6.3	NA
MAGNESIUM	137,000	25,900	112,000	43,200	58,100	45,500	NA
MANGANESE	658 *	1,460 *α	880 *	685 *	838 *	960 *	NA
MERCURY	ND (0.10)	ND (0.10)	0.20	0.10	ND (0.10)	0.10	NA
MOLYBDENUM	ND (1.4)	ND (1.4)	ND (1.7)	ND (2.2)	ND (2.3)	ND (2.4)	NA
NICKEL	1,228 *	318 *	1,750 *	699 *	725 *	417 *	NA
POTASSIUM	789	1,040	850	810	837	1,240	NA
SELENIUM	ND (0.50)	0.57	ND (0.61)	ND (0.54)	ND (0.51)	ND (0.53)	NA
SILVER	ND (0.59)	ND (0.62)	0.88	ND (0.64)	ND (0.61)	ND (0.63)	NA
SODIUM	ND (65.8)	ND (250)	ND (432)	179	222	433	NA
THALLIUM	ND (0.52)	ND (0.55)	ND (0.64)	ND (0.56)	ND (0.54)	ND (0.56)	NA
VANADIUM	41.5	94.0	41.5	68.3	67.3	64.0	NA
ZINC	50.1	89.4	54.2	85.0	68.2	84.6	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	ND (30)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	ND (30)	NA
2-BUTANONE	ND (57)	ND (60)	ND (69)	ND (61)	ND (58)	12	NA
BENZENE	ND (28)	ND (30)	15	ND (30)	ND (29)	ND (30)	ND (130)
BROMOFORM	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	ND (30)	NA
CARBON DISULFIDE	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	ND (30)	NA
ETHYLBENZENE	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	87	180
TETRACHLOROETHENE	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	ND (30)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B001	IR06B001	IR06B001	IR06B002	IR06B002	IR06B002	IR06B002
Sampling Depth (feet bgs)	0.75	3.25	5.75	1.25	3.25	5.25	7.75
Sample Number	8944H007	8944H008	8944H009	8943G112	8943G113	8943G114	8943G115
Sample Date	10/31/89	10/31/89	10/31/89	10/27/89	10/27/89	10/27/89	10/27/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (28)	ND (30)	ND (35)	7	ND (29)	9	ND (130)
TRICHLOROETHENE	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	ND (30)	NA
VINYL ACETATE	ND (57)	ND (60)	ND (69)	ND (61)	ND (58)	ND (60)	NA
XYLENE (TOTAL)	ND (28)	ND (30)	ND (35)	ND (30)	ND (29)	140	330
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
2-METHYLNAPHTHALENE	690	46,000	24,000	ND (24,000)	42,000	12,000	NA
4-METHYLPHENOL	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
4-NITROPHENOL	ND (18,000)	ND (230,000)	ND (140,000)	ND (120,000)	ND (120,000)	ND (120,000)	NA
ACENAPHTHENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
ACENAPHTHYLENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
ANTHRACENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
BENZO(A)ANTHRACENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
BENZO(A)PYRENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
BENZO(B)FLUORANTHENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
BENZO(G,H,I)PERYLENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
BENZO(K)FLUORANTHENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
BENZOIC ACID	ND (18,000)	ND (240,000)	ND (140,000)	ND (120,000)	ND (120,000)	ND (120,000)	NA
CHRYSENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
DI-N-BUTYLPHTHALATE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
DIBENZ(A,H)ANTHRACENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
DIBENZOFURAN	ND (3,700)	ND (240,000)	ND (28,000)	ND (24,000)	3,400	ND (24,000)	NA
FLUORANTHENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
FLUORENE	ND (3,700)	10,000	5,300	ND (24,000)	6,600	2,900	NA
INDENO(1,2,3-CD)PYRENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
N-NITROSODIPHENYLAMINE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
NAPHTHALENE	420	ND (48,000)	ND (28,000)	ND (24,000)	6,300	2,500	NA
PENTACHLOROPHENOL	ND (18,000)	ND (240,000)	ND (140,000)	ND (120,000)	ND (120,000)	ND (120,000)	NA
PHENANTHRENE	ND (3,700)	19,000	11,000	ND (24,000)	14,000	5,700	NA
PYRENE	ND (3,700)	ND (48,000)	ND (28,000)	ND (24,000)	ND (23,000)	ND (24,000)	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (180)	ND (290)	ND (330)	ND (15,000)	ND (280)	ND (290)	NA
ALDRIN	ND (91)	ND (140)	ND (170)	ND (730)	ND (140)	ND (140)	NA
ENDOSULFAN I	ND (91)	ND (140)	ND (170)	ND (7,300)	ND (140)	ND (140)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B001	IR06B001	IR06B001	IR06B002	IR06B002	IR06B002	IR06B002
Sampling Depth (feet bgs)	0.75	3.25	5.75	1.25	3.25	5.25	7.75
Sample Number	8944H007	8944H008	8944H009	8943G112	8943G113	8943G114	8943G115
Sample Date	10/31/89	10/31/89	10/31/89	10/27/89	10/27/89	10/27/89	10/27/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (1,800)	ND (2,900)	ND (3,300)	ND (150,000)	ND (2,800)	ND (2,900)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	890	13,000	8,100	2,400	9,500	3,400	2,900
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	3,700	9,400	3,500	9,100	10,000	6,600	2,800
Percent Moisture (%)							
% SOLIDS	88.3	83.5	72.0	81.8	85.7	82.8	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B002	IR06B003	IR06B003	IR06B004	IR06B004	IR06B004	IR06B005
Sampling Depth (feet bgs)	9.75	0.25	2.75	0.25	1.25	2.75	0.75
Sample Number	8943G116	8944H004	8944H005	8944H001	8944H002	8944H003	8943G085
Sample Date	10/27/89	10/30/89	10/31/89	10/30/89	10/30/89	10/30/89	10/25/89
Metal (mg/kg)							
ALUMINUM	NA	4,260	4,680	11,900	9,340	6,060	8,950
ANTIMONY	NA	14.4 α	20.6 α	ND (7.6)	28.9 α	17.3 α	10.2 α
ARSENIC	NA	0.75 *	0.56 *	1.6 *	0.94 *	1.1 *	1.8 *
BARIUM	NA	21.0	8.9	101	45.8	31.8	56.5
BERYLLIUM	NA	0.29 *	0.31 *	0.46 *	0.36 *	0.36 *	0.19 *
CADMIUM	NA	ND (0.90)	ND (0.90)	ND (0.88)	ND (0.99)	ND (0.86)	ND (0.88)
CALCIUM	NA	562	343	3,920	1,630	1,060	3,340
CHROMIUM	NA	912 *	1,370 *	226 *α	1,910 *Nx	1,170 *	816 *
CHROMIUM VI	NA	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.07)	ND (0.06)	ND (0.06)
COBALT	NA	102	85.2	28.7	120 α	95.9	89.3
COPPER	NA	30.0	16.3	47.2	46.0	21.2	25.1
IRON	NA	36,600	36,300	28,700	52,300	38,400	42,700
LEAD	NA	12.3 α	ND (0.45)	6.7	ND (3.0)	18.9 α	4.3
MAGNESIUM	NA	183,000	187,000	11,900	129,000	154,000	135,000
MANGANESE	NA	961 *	806 *	394 *	744 *	811 *	773 *
MERCURY	NA	ND (0.10)	ND (0.10)	ND (0.10)	0.40	0.30	ND (0.10)
MOLYBDENUM	NA	ND (1.5)	ND (1.5)	ND (1.4)	ND (1.6)	ND (1.4)	ND (1.4)
NICKEL	NA	2,360 *	1,890 *	286 *α	2,550 *	1,940 *	1,910 *
POTASSIUM	NA	ND (93.9)	ND (93.9)	534	ND (198)	ND (129)	286
SELENIUM	NA	ND (0.53)	ND (0.53)	ND (0.52)	ND (0.59)	ND (0.51)	ND (0.53)
SILVER	NA	ND (0.63)	1.1	ND (0.62)	ND (0.70)	0.96	ND (0.62)
SODIUM	NA	ND (91.2)	ND (77.4)	ND (197)	ND (179)	ND (119)	79.0
THALLIUM	NA	ND (0.56)	ND (0.56)	ND (0.55)	ND (0.62)	ND (0.54)	ND (0.55)
VANADIUM	NA	37.7	32.9	56.7	31.6	33.0	43.2
ZINC	NA	27.3	23.3	36.5	32.6	30.1	39.1
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	NA	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)
2-BUTANONE	NA	ND (61)	ND (61)	ND (59)	27	ND (58)	ND (12)
BENZENE	ND (71)	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)
BROMOFORM	NA	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)
CARBON DISULFIDE	NA	ND (30)	ND (30)	ND (30)	4	ND (29)	ND (6)
ETHYLBENZENE	79	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)
TETRACHLOROETHENE	NA	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B002	IR06B003	IR06B003	IR06B004	IR06B004	IR06B004	IR06B005
Sampling Depth (feet bgs)	9.75	0.25	2.75	0.25	1.25	2.75	0.75
Sample Number	8943G116	8944H004	8944H005	8944H001	8944H002	8944H003	8943G085
Sample Date	10/27/89	10/30/89	10/31/89	10/30/89	10/30/89	10/30/89	10/25/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (71)	ND (30)	11	ND (30)	4	11	ND (6)
TRICHLOROETHENE	NA	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)
VINYL ACETATE	NA	ND (61)	ND (61)	ND (59)	2	ND (58)	ND (12)
XYLENE (TOTAL)	ND (140)	ND (30)	ND (30)	ND (30)	ND (7)	ND (29)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
2-METHYLNAPHTHALENE	NA	ND (24,000)	3,600	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
4-METHYLPHENOL	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
4-NITROPHENOL	NA	ND (120,000)	ND (31,000)	ND (120,000)	ND (270,000)	ND (110,000)	ND (19,000)
ACENAPHTHENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
ACENAPHTHYLENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
ANTHRACENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
BENZO(A)ANTHRACENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
BENZO(A)PYRENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
BENZO(B)FLUORANTHENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
BENZO(G,H,I)PERYLENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
BENZO(K)FLUORANTHENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
BENZOIC ACID	NA	ND (120,000)	ND (31,000)	ND (120,000)	ND (270,000)	ND (110,000)	ND (19,000)
CHRYSENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
DI-N-BUTYLPHTHALATE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
DIBENZ(A,H)ANTHRACENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
DIBENZOFURAN	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
FLUORANTHENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
FLUORENE	NA	ND (24,000)	670	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
INDENO(1,2,3-CD)PYRENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
N-NITROSODIPHENYLAMINE	NA	ND (24,000)	800	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
NAPHTHALENE	NA	ND (24,000)	1,100	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
PENTACHLOROPHENOL	NA	ND (120,000)	ND (31,000)	ND (120,000)	ND (270,000)	ND (110,000)	ND (19,000)
PHENANTHRENE	NA	ND (24,000)	1,500	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
PYRENE	NA	ND (24,000)	ND (6,400)	ND (24,000)	ND (54,000)	ND (23,000)	ND (3,900)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	ND (290)	ND (19)	ND (290)	ND (320)	ND (19)	ND (190)
ALDRIN	NA	ND (150)	ND (10)	ND (140)	ND (160)	ND (9)	ND (96)
ENDOSULFAN I	NA	ND (150)	ND (10)	ND (140)	ND (160)	ND (9)	ND (96)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B002	IR06B003	IR06B003	IR06B004	IR06B004	IR06B004	IR06B005
Sampling Depth (feet bgs)	9.75	0.25	2.75	0.25	1.25	2.75	0.75
Sample Number	8943G116	8944H004	8944H005	8944H001	8944H002	8944H003	8943G085
Sample Date	10/27/89	10/30/89	10/31/89	10/30/89	10/30/89	10/30/89	10/25/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	ND (2,900)	ND (190)	ND (2,900)	ND (3,200)	ND (190)	ND (1,900)
TPH-Extractable (mg/kg)							
TPH-DIESEL	1,200	4,600	1,900	3,800	4,200	1,300	240
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	3,000	1,200	2,500	11,000	4,300	4,700	620
Percent Moisture (%)							
% SOLIDS	NA	82.4	82.4	84.1	74.5	85.9	83.7
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	7.6

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B005	IR06B005	IR06B005	IR06B006	IR06B006	IR06B006	IR06B006
Sampling Depth (feet bgs)	2.75	5.25	7.75	0.75	2.75	5.25	7.75
Sample Number	8943G086	8943G087	8943G088	8943G091	8943G092	8943G093	8943G094
Sample Date	10/25/89	10/25/89	10/25/89	10/26/89	10/26/89	10/26/89	10/26/89
Metal (mg/kg)							
ALUMINUM	20,200	14,400	NA	10,300	9,940	8,760	NA
ANTIMONY	ND (7.0)	ND (7.2)	NA	7.7	ND (7.0)	7.8	NA
ARSENIC	2.6 *#	1.9 *	NA	1.9 *	1.8 *	2.3 *#	NA
BARIUM	102	183	NA	116	73.8	87.7	NA
BERYLLIUM	0.37 *	0.40 *	NA	0.36 *	0.37 *	0.37 *	NA
CADMIUM	ND (0.81)	ND (0.83)	NA	ND (0.80)	ND (0.81)	ND (0.81)	NA
CALCIUM	6,220	4,940	NA	3,210	2,650	2,450	NA
CHROMIUM	451 *	250 *	NA	303 *	321 *	379 *	NA
CHROMIUM VI	ND (0.06)	ND (0.06)	NA	ND (0.05)	ND (0.05)	ND (0.05)	NA
COBALT	50.4	35.0	NA	36.7	22.6	34.7	NA
COPPER	31.3	28.3	NA	45.9	36.1	30.2	NA
IRON	37,800	33,600	NA	27,200	25,500	25,900	NA
LEAD	7.4	18.3 *	NA	6.8	4.7	6.9	NA
MAGNESIUM	111,000	43,900	NA	42,600	25,200	49,700	NA
MANGANESE	723 *	1,080 *	NA	696 *	317	527 *	NA
MERCURY	ND (0.10)	0.10	NA	ND (0.10)	ND (0.10)	ND (0.10)	NA
MOLYBDENUM	ND (1.3)	ND (1.3)	NA	ND (1.5)	ND (1.3)	ND (1.3)	NA
NICKEL	877 *	411 *	NA	641 *	495 *	738 *	NA
POTASSIUM	623	761	NA	529	394	376	NA
SELENIUM	ND (0.48)	ND (0.49)	NA	ND (0.47)	ND (0.48)	ND (0.48)	NA
SILVER	ND (0.57)	ND (0.58)	NA	ND (0.56)	ND (0.57)	ND (0.57)	NA
SODIUM	116	143	NA	120	119	136	NA
THALLIUM	ND (0.50)	ND (0.52)	NA	ND (0.50)	ND (0.50)	ND (0.50)	NA
VANADIUM	48.0	66.9	NA	45.4	46.2	46.4	NA
ZINC	52.2	42.7	NA	38.1	33.4	34.3	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (28)	NA	ND (5)	ND (5)	ND (5)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (28)	NA	ND (5)	ND (5)	ND (5)	NA
2-BUTANONE	ND (11)	ND (56)	NA	ND (11)	ND (11)	ND (11)	NA
BENZENE	ND (6)	ND (28)	ND (61)	ND (5)	ND (5)	ND (5)	ND (120)
BROMOFORM	ND (6)	ND (28)	NA	ND (5)	ND (5)	ND (5)	NA
CARBON DISULFIDE	4	ND (28)	NA	ND (5)	ND (5)	ND (5)	NA
ETHYLBENZENE	8	ND (28)	100	ND (5)	ND (5)	ND (5)	ND (120)
TETRACHLOROETHENE	ND (6)	ND (28)	NA	ND (5)	ND (5)	ND (5)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B005	IR06B005	IR06B005	IR06B006	IR06B006	IR06B006	IR06B006
Sampling Depth (feet bgs)	2.75	5.25	7.75	0.75	2.75	5.25	7.75
Sample Number	8943G086	8943G087	8943G088	8943G091	8943G092	8943G093	8943G094
Sample Date	10/25/89	10/25/89	10/25/89	10/26/89	10/26/89	10/26/89	10/26/89
Volatile Organic Compound (ug/kg)							
TOLUENE	6	ND (28)	ND (61)	13	ND (5)	ND (5)	ND (120)
TRICHLOROETHENE	ND (6)	ND (28)	NA	ND (5)	ND (5)	ND (5)	NA
VINYL ACETATE	ND (11)	ND (56)	NA	ND (11)	ND (11)	ND (11)	NA
XYLENE (TOTAL)	28	ND (28)	240	ND (5)	ND (5)	ND (5)	ND (230)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
2-METHYLNAPHTHALENE	29,000	18,000	NA	ND (350)	ND (3,600)	ND (1,400)	NA
4-METHYLPHENOL	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
4-NITROPHENOL	ND (110,000)	ND (440,000)	NA	ND (1,700)	ND (17,000)	ND (7,000)	NA
ACENAPHTHENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
ACENAPHTHYLENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
ANTHRACENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
BENZO(A)ANTHRACENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
BENZO(A)PYRENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
BENZO(B)FLUORANTHENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
BENZO(G,H,I)PERYLENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
BENZO(K)FLUORANTHENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
BENZOIC ACID	ND (110,000)	ND (440,000)	NA	ND (1,700)	ND (17,000)	ND (7,000)	NA
CHRYSENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
DI-N-BUTYLPHTHALATE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
DIBENZ(A,H)ANTHRACENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
DIBENZOFURAN	2,200	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
FLUORANTHENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
FLUORENE	2,300	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
INDENO(1,2,3-CD)PYRENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
N-NITROSODIPHENYLAMINE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
NAPHTHALENE	4,100	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
PENTACHLOROPHENOL	ND (110,000)	ND (440,000)	NA	ND (1,700)	ND (17,000)	ND (7,000)	NA
PHENANTHRENE	8,900	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
PYRENE	ND (22,000)	ND (90,000)	NA	ND (350)	ND (3,600)	ND (1,400)	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (260)	ND (270)	NA	ND (17)	ND (17)	ND (170)	NA
ALDRIN	ND (130)	ND (130)	NA	ND (86)	ND (9)	ND (87)	NA
ENDOSULFAN I	ND (130)	ND (130)	NA	ND (86)	ND (9)	ND (87)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B005	IR06B005	IR06B005	IR06B006	IR06B006	IR06B006	IR06B006
Sampling Depth (feet bgs)	2.75	5.25	7.75	0.75	2.75	5.25	7.75
Sample Number	8943G086	8943G087	8943G088	8943G091	8943G092	8943G093	8943G094
Sample Date	10/25/89	10/25/89	10/25/89	10/26/89	10/26/89	10/26/89	10/26/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (2,600)	ND (2,700)	NA	ND (170)	ND (170)	ND (1,700)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	1,300	1,900	6,200	650	460	270	ND (580)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	3,300	4,400	5,300	340	970	470	88
Percent Moisture (%)							
% SOLIDS	91.7	88.9	NA	92.8	91.6	91.3	NA
pH (pH units)							
PH	8.4	7.8	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B006	IR06B007	IR06B007	IR06B007	IR06B007	IR06B008	IR06B008
Sampling Depth (feet bgs)	10.75	0.25	2.75	5.25	7.75	1.25	2.75
Sample Number	8943G095	8944H012	8944H013	8944H014	8944H015	8944H006	8944H017
Sample Date	10/26/89	10/31/89	10/31/89	10/31/89	10/31/89	10/30/89	10/31/89
Metal (mg/kg)							
ALUMINUM	NA	13,400	11,600	16,500	NA	10,300	9,060
ANTIMONY	NA	ND (6.8)	ND (7.1)	ND (6.9)	NA	ND (7.2)	ND (6.9)
ARSENIC	NA	3.0 *#	2.4 *#	3.4 *#	NA	1.8 *	1.6 *
BARIUM	NA	148	55.0	161	NA	62.0	54.9
BERYLLIUM	NA	0.49 *	0.42 *	0.61 *	NA	0.39 *	0.45 *
CADMIUM	NA	ND (0.78)	ND (0.82)	ND (0.80)	NA	ND (0.83)	ND (0.80)
CALCIUM	NA	4,860	2,900	9,700	NA	2,940	2,850
CHROMIUM	NA	369 *	343 *	168	NA	148 a	143
CHROMIUM VI	NA	ND (0.05)	ND (0.06)	ND (0.05)	NA	0.11	ND (0.05)
COBALT	NA	41.1	33.4	26.7	NA	10.9	10.5
COPPER	NA	27.2	15.8	24.2	NA	25.4	11.8
IRON	NA	30,300	27,000	27,300	NA	23,700	23,200
LEAD	NA	12.5 a	9.2 a	18.2 a	NA	15.6 a	ND (2.8)
MAGNESIUM	NA	70,400	63,200	16,800	NA	6,500	6,500
MANGANESE	NA	875 *	413 *	698 *	NA	169	184
MERCURY	NA	ND (0.10)	ND (0.10)	ND (0.10)	NA	ND (0.10)	ND (0.10)
MOLYBDENUM	NA	ND (1.3)	ND (1.3)	ND (1.3)	NA	ND (1.3)	ND (1.3)
NICKEL	NA	661 *	660 *	218 *	NA	101	119
POTASSIUM	NA	641	584	1,030	NA	470	ND (421)
SELENIUM	NA	ND (0.47)	ND (0.49)	ND (0.47)	NA	ND (0.49)	ND (0.48)
SILVER	NA	ND (0.55)	ND (0.58)	ND (0.56)	NA	ND (0.58)	ND (0.56)
SODIUM	NA	ND (110)	ND (118)	ND (198)	NA	ND (201)	ND (206)
THALLIUM	NA	ND (0.49)	ND (0.51)	ND (0.50)	NA	ND (0.51)	ND (0.50)
VANADIUM	NA	45.2	40.4	62.7	NA	46.2	44.1
ZINC	NA	47.2	35.4	62.5	NA	30.6	26.6
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	ND (5)	ND (28)	ND (27)	NA	ND (6)	ND (27)
1,2-DICHLOROETHENE (TOTAL)	NA	ND (5)	ND (28)	ND (27)	NA	ND (6)	ND (27)
2-BUTANONE	NA	ND (11)	ND (56)	36	NA	ND (11)	ND (54)
BENZENE	65	ND (5)	ND (28)	ND (27)	ND (130)	ND (6)	ND (27)
BROMOFORM	NA	ND (5)	ND (28)	ND (27)	NA	ND (6)	ND (27)
CARBON DISULFIDE	NA	ND (5)	ND (28)	ND (27)	NA	ND (6)	ND (27)
ETHYLBENZENE	ND (6)	ND (5)	ND (28)	ND (27)	ND (130)	ND (6)	ND (27)
TETRACHLOROETHENE	NA	ND (5)	ND (28)	ND (27)	NA	ND (6)	ND (27)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B006	IR06B007	IR06B007	IR06B007	IR06B007	IR06B008	IR06B008
Sampling Depth (feet bgs)	10.75	0.25	2.75	5.25	7.75	1.25	2.75
Sample Number	8943G095	8944H012	8944H013	8944H014	8944H015	8944H006	8944H017
Sample Date	10/26/89	10/31/89	10/31/89	10/31/89	10/31/89	10/30/89	10/31/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	3	6	ND (27)	ND (130)	ND (6)	ND (27)
TRICHLOROETHENE	NA	ND (5)	ND (28)	ND (27)	NA	ND (6)	ND (27)
VINYL ACETATE	NA	ND (11)	ND (56)	ND (54)	NA	ND (11)	ND (54)
XYLENE (TOTAL)	ND (19)	ND (5)	ND (28)	ND (27)	ND (270)	ND (6)	ND (27)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
2-METHYLNAPHTHALENE	NA	ND (350)	ND (1,500)	410	NA	ND (370)	ND (360)
4-METHYLPHENOL	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
4-NITROPHENOL	NA	ND (1,700)	ND (7,100)	ND (14,000)	NA	ND (1,800)	ND (1,700)
ACENAPHTHENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
ACENAPHTHYLENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
ANTHRACENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
BENZO(A)ANTHRACENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
BENZO(A)PYRENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
BENZO(B)FLUORANTHENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
BENZO(G,H,I)PERYLENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
BENZO(K)FLUORANTHENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
BENZOIC ACID	NA	ND (1,700)	ND (7,100)	ND (14,000)	NA	ND (1,800)	ND (1,700)
CHRYSENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
DI-N-BUTYLPHTHALATE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
DIBENZ(A,H)ANTHRACENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
DIBENZOFURAN	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
FLUORANTHENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
FLUORENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
INDENO(1,2,3-CD)PYRENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
N-NITROSODIPHENYLAMINE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
NAPHTHALENE	NA	ND (350)	ND (1,500)	320	NA	ND (370)	ND (360)
PENTACHLOROPHENOL	NA	ND (1,700)	ND (7,100)	ND (14,000)	NA	ND (1,800)	ND (1,700)
PHENANTHRENE	NA	ND (350)	ND (1,500)	930	NA	ND (370)	ND (360)
PYRENE	NA	ND (350)	ND (1,500)	ND (2,800)	NA	ND (370)	ND (360)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	ND (17)	ND (180)	ND (17)	NA	ND (18)	ND (17)
ALDRIN	NA	ND (9)	ND (89)	ND (9)	NA	ND (9)	ND (9)
ENDOSULFAN I	NA	ND (9)	ND (89)	ND (9)	NA	ND (9)	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B006	IR06B007	IR06B007	IR06B007	IR06B007	IR06B008	IR06B008
Sampling Depth (feet bgs)	10.75	0.25	2.75	5.25	7.75	1.25	2.75
Sample Number	8943G095	8944H012	8944H013	8944H014	8944H015	8944H006	8944H017
Sample Date	10/26/89	10/31/89	10/31/89	10/31/89	10/31/89	10/30/89	10/31/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	ND (170)	ND (1,800)	ND (170)	NA	ND (180)	ND (170)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (31)	ND (53)	1,000	4,000	1,100	ND (560)	ND (540)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	88	89	810	2,000	ND (67)	ND (56)	ND (54)
Percent Moisture (%)							
% SOLIDS	NA	94.3	90.0	92.9	NA	89.4	92.2
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B009	IR06B009	IR06B009	IR06B010	IR06B010	IR06B010	IR06B010
Sampling Depth (feet bgs)	1.25	2.75	5.25	0.75	3.25	5.75	7.75
Sample Number	8944H037	8944H038	8944H039	8944H023	8944H024	8944H025	8944H026
Sample Date	11/03/89	11/03/89	11/03/89	11/01/89	11/01/89	11/01/89	11/01/89
Metal (mg/kg)							
ALUMINUM	8,600	6,130	11,100	4,750	2,920	14,300	NA
ANTIMONY	8.7	7.9	ND (7.7)	ND (7.3)	ND (7.5)	ND (7.8)	NA
ARSENIC	1.2 *	1.6 *	1.8 *	2.8 *#	1.2 *	1.5 *	NA
BARIUM	81.3	47.5	93.3	76.0	46.1	160	NA
BERYLLIUM	0.61 *	0.54 *	0.68 *	0.24 *	0.23 *	0.41 *	NA
CADMIUM	ND (0.95)	ND (0.87)	ND (0.89)	2.6	ND (0.87)	ND (0.90)	NA
CALCIUM	1,630	1,200	2,130	3,480	784	2,510	NA
CHROMIUM	630 *	506 *	581 *a	80.8	255 *	205	NA
CHROMIUM VI	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	NA
COBALT	73.7	81.8	60.7 a	13.5	51.9	19.9	NA
COPPER	65.1	38.0	18.5	68.7	12.7	20.1	NA
IRON	35,800	39,700	35,800	10,800	14,800	27,200	NA
LEAD	3.1	6.9	4.6	1,450 *#a	1.3	42.6 a	NA
MAGNESIUM	101,000	146,000	24,100	10,600	62,900	12,900	NA
MANGANESE	673 *	781 *	716 *	333	1,080 *	300	NA
MERCURY	ND (0.10)	ND (0.10)	ND (0.10)	0.20	ND (0.10)	ND (0.10)	NA
MOLYBDENUM	ND (1.5)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.5)	NA
NICKEL	1,430 *	1,640 *	846 *a	158 *	793 *	206 *	NA
POTASSIUM	273	241	497	ND (293)	ND (99.6)	559	NA
SELENIUM	ND (0.56)	ND (0.52)	ND (0.53)	ND (0.50)	ND (0.52)	ND (0.54)	NA
SILVER	ND (0.67)	ND (0.61)	ND (0.62)	ND (0.59)	ND (0.61)	ND (0.63)	NA
SODIUM	150	148	210	69.6	35.0	151	NA
THALLIUM	ND (0.59)	ND (0.54)	ND (0.55)	ND (0.52)	ND (0.54)	ND (0.56)	NA
VANADIUM	38.6	39.5	63.7	27.8	17.8	57.0	NA
ZINC	41.4	41.0	41.4	159 a	18.3	55.5	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (32)	ND (1,200)	ND (6)	ND (28)	ND (6)	ND (30)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (32)	ND (1,200)	ND (6)	ND (28)	ND (6)	ND (30)	NA
2-BUTANONE	ND (64)	ND (2,300)	ND (12)	ND (57)	ND (12)	15	NA
BENZENE	ND (32)	ND (1,200)	ND (6)	ND (28)	ND (6)	ND (30)	ND (61)
BROMOFORM	ND (32)	ND (1,200)	ND (6)	ND (28)	ND (6)	ND (30)	NA
CARBON DISULFIDE	ND (32)	ND (1,200)	ND (6)	ND (28)	ND (6)	ND (30)	NA
ETHYLBENZENE	32	ND (1,200)	12	ND (28)	ND (6)	18	91
TETRACHLOROETHENE	ND (32)	ND (1,200)	ND (6)	ND (28)	ND (6)	ND (30)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B009	IR06B009	IR06B009	IR06B010	IR06B010	IR06B010	IR06B010
Sampling Depth (feet bgs)	1.25	2.75	5.25	0.75	3.25	5.75	7.75
Sample Number	8944H037	8944H038	8944H039	8944H023	8944H024	8944H025	8944H026
Sample Date	11/03/89	11/03/89	11/03/89	11/01/89	11/01/89	11/01/89	11/01/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (32)	ND (1,200)	ND (6)	ND (28)	6	ND (30)	ND (61)
TRICHLOROETHENE	ND (32)	ND (1,200)	ND (6)	ND (28)	ND (6)	ND (30)	NA
VINYL ACETATE	ND (64)	ND (2,300)	ND (12)	ND (57)	ND (12)	ND (61)	NA
XYLENE (TOTAL)	55	ND (1,200)	5	ND (28)	ND (6)	18	230
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
2-METHYLNAPHTHALENE	7,300	6,100	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
4-METHYLPHENOL	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
4-NITROPHENOL	ND (41,000)	ND (120,000)	ND (120,000)	ND (230,000)	ND (38,000)	ND (970,000)	NA
ACENAPHTHENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
ACENAPHTHYLENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
ANTHRACENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
BENZO(A)ANTHRACENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
BENZO(A)PYRENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
BENZO(B)FLUORANTHENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
BENZO(G,H,I)PERYLENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
BENZO(K)FLUORANTHENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
BENZOIC ACID	ND (41,000)	ND (120,000)	ND (120,000)	ND (230,000)	ND (38,000)	ND (970,000)	NA
CHRYSENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
DI-N-BUTYLPHTHALATE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
DIBENZ(A,H)ANTHRACENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
DIBENZOFURAN	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
FLUORANTHENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
FLUORENE	1,200	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
INDENO(1,2,3-CD)PYRENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
N-NITROSODIPHENYLAMINE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
NAPHTHALENE	1,500	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
PENTACHLOROPHENOL	ND (41,000)	ND (120,000)	ND (120,000)	ND (230,000)	ND (38,000)	ND (970,000)	NA
PHENANTHRENE	2,400	4,100	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
PYRENE	ND (8,500)	ND (23,000)	ND (24,000)	ND (46,000)	ND (7,800)	ND (190,000)	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (210)	ND (280)	ND (290)	ND (1,400)	ND (190)	ND (290)	NA
ALDRIN	ND (100)	ND (140)	ND (140)	ND (6,800)	ND (94)	ND (150)	NA
ENDOSULFAN I	ND (100)	ND (140)	ND (140)	ND (6,800)	ND (94)	ND (150)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B009	IR06B009	IR06B009	IR06B010	IR06B010	IR06B010	IR06B010
Sampling Depth (feet bgs)	1.25	2.75	5.25	0.75	3.25	5.75	7.75
Sample Number	8944H037	8944H038	8944H039	8944H023	8944H024	8944H025	8944H026
Sample Date	11/03/89	11/03/89	11/03/89	11/01/89	11/01/89	11/01/89	11/01/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (2,100)	ND (2,800)	ND (2,900)	ND (14,000)	ND (1,900)	ND (2,900)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	2,400	5,500	1,300	3,100	610	7,200	6,400
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	1,600	4,500	230	32,000	850	470	1,300
Percent Moisture (%)							
% SOLIDS	78.0	85.2	83.3	87.9	84.9	82.2	NA
pH (pH units)							
PH	7.6	7.9	8.4	6.8	8.1	8.1	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B010	IR06B010	IR06B011	IR06B011	IR06B011	IR06B011	IR06B011
Sampling Depth (feet bgs)	10.25	14.75	0.75	2.75	5.25	7.75	9.75
Sample Number	8944H027	8944H028	8944H029	8944H030	8944H031	8944H032	8944H033
Sample Date	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89
Metal (mg/kg)							
ALUMINUM	NA	NA	10,300	11,000	9,630	NA	NA
ANTIMONY	NA	NA	ND (7.0)	ND (7.1)	ND (7.1)	NA	NA
ARSENIC	NA	NA	0.31	2.8 *#	3.5 *#	NA	NA
BARIUM	NA	NA	76.2	77.6	79.7	NA	NA
BERYLLIUM	NA	NA	0.46 *	0.47 *	0.47 *	NA	NA
CADMIUM	NA	NA	2.8	ND (0.82)	ND (0.82)	NA	NA
CALCIUM	NA	NA	3,730	2,550	2,420	NA	NA
CHROMIUM	NA	NA	191	136	195 a	NA	NA
CHROMIUM VI	NA	NA	ND (0.06)	ND (0.06)	ND (0.06)	NA	NA
COBALT	NA	NA	18.7	16.0	19.9	NA	NA
COPPER	NA	NA	47.2	14.7	14.8	NA	NA
IRON	NA	NA	23,800	23,000	23,400	NA	NA
LEAD	NA	NA	326 *a	ND (3.6)	ND (4.1)	NA	NA
MAGNESIUM	NA	NA	13,300	6,470	6,320	NA	NA
MANGANESE	NA	NA	379	299	441 *	NA	NA
MERCURY	NA	NA	0.70	ND (0.10)	ND (0.10)	NA	NA
MOLYBDENUM	NA	NA	ND (1.3)	ND (1.3)	ND (1.3)	NA	NA
NICKEL	NA	NA	244 *	187 *a	186 *a	NA	NA
POTASSIUM	NA	NA	798	737	667	NA	NA
SELENIUM	NA	NA	ND (0.48)	0.62	ND (0.49)	NA	NA
SILVER	NA	NA	ND (0.57)	ND (0.57)	ND (0.58)	NA	NA
SODIUM	NA	NA	ND (129)	ND (148)	ND (192)	NA	NA
THALLIUM	NA	NA	ND (0.50)	ND (0.51)	ND (0.51)	NA	NA
VANADIUM	NA	NA	45.1	42.1	52.3	NA	NA
ZINC	NA	NA	187 a	32.1	31.9	NA	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	NA	ND (6)	ND (6)	ND (6)	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (6)	ND (6)	ND (6)	NA	NA
2-BUTANONE	NA	NA	ND (11)	ND (11)	ND (11)	NA	NA
BENZENE	ND (60)	ND (68)	ND (6)	ND (6)	ND (6)	ND (60)	ND (68)
BROMOFORM	NA	NA	ND (6)	ND (6)	ND (6)	NA	NA
CARBON DISULFIDE	NA	NA	ND (6)	ND (6)	ND (6)	NA	NA
ETHYLBENZENE	ND (60)	ND (340)	ND (6)	ND (6)	ND (6)	ND (60)	ND (68)
TETRACHLOROETHENE	NA	NA	ND (6)	ND (6)	ND (6)	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B010	IR06B010	IR06B011	IR06B011	IR06B011	IR06B011	IR06B011
Sampling Depth (feet bgs)	10.25	14.75	0.75	2.75	5.25	7.75	9.75
Sample Number	8944H027	8944H028	8944H029	8944H030	8944H031	8944H032	8944H033
Sample Date	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (60)	160	ND (6)	ND (6)	ND (6)	ND (60)	ND (68)
TRICHLOROETHENE	NA	NA	ND (6)	ND (6)	ND (6)	NA	NA
VINYL ACETATE	NA	NA	ND (11)	ND (11)	ND (11)	NA	NA
XYLENE (TOTAL)	ND (120)	1,300	ND (6)	ND (6)	ND (6)	ND (120)	ND (140)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
2-METHYLNAPHTHALENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
4-METHYLPHENOL	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
4-NITROPHENOL	NA	NA	ND (18,000)	ND (1,800)	ND (1,800)	NA	NA
ACENAPHTHENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
ACENAPHTHYLENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
ANTHRACENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
BENZO(A)ANTHRACENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
BENZO(A)PYRENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
BENZOIC ACID	NA	NA	ND (18,000)	ND (1,800)	ND (1,800)	NA	NA
CHRYSENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
DIBENZOFURAN	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
FLUORANTHENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
FLUORENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
NAPHTHALENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
PENTACHLOROPHENOL	NA	NA	ND (18,000)	ND (1,800)	ND (1,800)	NA	NA
PHENANTHRENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
PYRENE	NA	NA	ND (3,600)	ND (360)	ND (370)	NA	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	ND (180)	ND (18)	ND (18)	NA	NA
ALDRIN	NA	NA	ND (88)	ND (9)	ND (9)	NA	NA
ENDOSULFAN I	NA	NA	ND (88)	ND (9)	ND (9)	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B010	IR06B010	IR06B011	IR06B011	IR06B011	IR06B011	IR06B011
Sampling Depth (feet bgs)	10.25	14.75	0.75	2.75	5.25	7.75	9.75
Sample Number	8944H027	8944H028	8944H029	8944H030	8944H031	8944H032	8944H033
Sample Date	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89	11/01/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	NA	ND (1,800)	ND (180)	ND (180)	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	9	6,800	ND (550)	ND (550)	ND (560)	320	ND (34)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	ND (60)	110,000	6,400	ND (55)	60	260	90
Percent Moisture (%)							
% SOLIDS	NA	NA	91.3	90.7	89.9	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B012	IR06B012	IR06B012	IR06B012	IR06B013	IR06B013	IR06B013
Sampling Depth (feet bgs)	0.75	2.75	5.25	7.75	0.75	2.75	5.25
Sample Number	8944G122	8944G123	8944G124	8944G125	8945G127	8945G128	8945G129
Sample Date	11/02/89	11/02/89	11/02/89	11/02/89	11/06/89	11/06/89	11/06/89
Metal (mg/kg)							
ALUMINUM	3,720	8,170	4,050	NA	7,220	6,050	7,870
ANTIMONY	ND (7.5)	ND (7.4)	ND (7.4)	NA	ND (7.6)	ND (7.6)	ND (7.5)
ARSENIC	1.3 *	0.62 *	1.3 *	NA	1.9 *	1.1 *	1.9 *
BARIUM	36.0	70.4	66.7	NA	67.4	74.4	76.4
BERYLLIUM	0.18 *	0.25 *	0.21 *	NA	0.54 *	0.54 *	0.48 *
CADMIUM	ND (0.87)	ND (0.85)	ND (0.86)	NA	ND (0.87)	ND (0.88)	ND (0.87)
CALCIUM	1,490	1,890	1,080	NA	2,030	1,430	2,070
CHROMIUM	59.8	130 a	62.1	NA	158	71.9	103
CHROMIUM VI	ND (0.06)	ND (0.06)	ND (0.06)	NA	ND (0.06)	ND (0.06)	ND (0.06)
COBALT	15.8	16.1	19.5	NA	34.8	18.8	24.5 a
COPPER	9.8	10.2	5.8	NA	10.7	11.6	11.2
IRON	8,200	16,500	6,560	NA	18,100	13,100	18,500
LEAD	12.1 a	1.8	4.2	NA	8.7	2.9	3.1
MAGNESIUM	4,450	5,290	5,270	NA	13,600	4,570	5,460
MANGANESE	256	358	301	NA	250	292	591 *
MERCURY	ND (0.10)	ND (0.10)	ND (0.10)	NA	ND (0.10)	ND (0.10)	ND (0.10)
MOLYBDENUM	ND (1.4)	ND (1.4)	ND (1.4)	NA	ND (1.4)	ND (1.4)	ND (1.4)
NICKEL	176 *a	258 *a	188 *a	NA	389 *a	167 *a	185 *a
POTASSIUM	ND (281)	ND (329)	ND (166)	NA	469	450	562
SELENIUM	ND (0.52)	ND (0.51)	ND (0.51)	NA	ND (0.52)	ND (0.52)	ND (0.52)
SILVER	ND (0.61)	ND (0.60)	ND (0.60)	NA	ND (0.61)	ND (0.62)	ND (0.61)
SODIUM	108	416	353	NA	102	146	224
THALLIUM	ND (0.54)	ND (0.53)	ND (0.53)	NA	ND (0.54)	ND (0.55)	ND (0.54)
VANADIUM	17.8	25.8	13.9	NA	38.0	39.7	48.7
ZINC	36.8	24.0	18.7	NA	31.0	28.2	30.3
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (29)	ND (6)	ND (6)	NA	ND (30)	ND (30)	ND (29)
1,2-DICHLOROETHENE (TOTAL)	ND (29)	ND (6)	ND (6)	NA	ND (30)	ND (30)	ND (29)
2-BUTANONE	82	16	9	NA	ND (59)	ND (60)	ND (59)
BENZENE	ND (29)	ND (6)	ND (6)	ND (150)	ND (30)	ND (30)	ND (29)
BROMOFORM	ND (29)	ND (6)	ND (6)	NA	ND (30)	ND (30)	ND (29)
CARBON DISULFIDE	ND (29)	ND (6)	ND (6)	NA	ND (30)	ND (30)	ND (29)
ETHYLBENZENE	ND (29)	130	15	ND (150)	ND (30)	ND (30)	ND (29)
TETRACHLOROETHENE	ND (29)	ND (6)	ND (6)	NA	ND (30)	ND (30)	ND (29)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B012	IR06B012	IR06B012	IR06B012	IR06B013	IR06B013	IR06B013
Sampling Depth (feet bgs)	0.75	2.75	5.25	7.75	0.75	2.75	5.25
Sample Number	8944G122	8944G123	8944G124	8944G125	8945G127	8945G128	8945G129
Sample Date	11/02/89	11/02/89	11/02/89	11/02/89	11/06/89	11/06/89	11/06/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (29)	18	1	ND (150)	ND (30)	ND (30)	ND (29)
TRICHLOROETHENE	ND (29)	ND (6)	ND (6)	NA	ND (30)	ND (30)	ND (29)
VINYL ACETATE	ND (59)	ND (12)	ND (12)	NA	ND (59)	ND (60)	ND (59)
XYLENE (TOTAL)	ND (29)	170	30	ND (300)	ND (30)	ND (30)	ND (29)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	13,000	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
2-METHYLNAPHTHALENE	ND (47,000)	44,000	2,900	NA	3,900	240	1,300
4-METHYLPHENOL	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
4-NITROPHENOL	ND (230,000)	ND (180,000)	ND (9,300)	NA	ND (120,000)	ND (3,800)	ND (19,000)
ACENAPHTHENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
ACENAPHTHYLENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
ANTHRACENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
BENZO(A)ANTHRACENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
BENZO(A)PYRENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
BENZO(B)FLUORANTHENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
BENZO(G,H,I)PERYLENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
BENZO(K)FLUORANTHENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
BENZOIC ACID	ND (230,000)	ND (180,000)	ND (9,300)	NA	ND (120,000)	ND (3,800)	ND (19,000)
CHRYSENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
DI-N-BUTYLPHTHALATE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
DIBENZ(A,H)ANTHRACENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
DIBENZOFURAN	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
FLUORANTHENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
FLUORENE	ND (47,000)	5,500	500	NA	ND (24,000)	ND (790)	ND (3,900)
INDENO(1,2,3-CD)PYRENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
N-NITROSODIPHENYLAMINE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
NAPHTHALENE	ND (47,000)	11,000	650	NA	ND (24,000)	ND (790)	480
PENTACHLOROPHENOL	ND (230,000)	ND (180,000)	ND (9,300)	NA	ND (120,000)	ND (3,800)	ND (19,000)
PHENANTHRENE	7,500	8,700	770	NA	2,800	120	740
PYRENE	ND (47,000)	ND (38,000)	ND (1,900)	NA	ND (24,000)	ND (790)	ND (3,900)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (1,400)	ND (18)	ND (19)	NA	ND (280)	ND (19)	ND (19)
ALDRIN	ND (140)	ND (9)	ND (9)	NA	ND (140)	ND (10)	ND (9)
ENDOSULFAN I	ND (700)	ND (9)	ND (9)	NA	ND (140)	ND (10)	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B012	IR06B012	IR06B012	IR06B012	IR06B013	IR06B013	IR06B013
Sampling Depth (feet bgs)	0.75	2.75	5.25	7.75	0.75	2.75	5.25
Sample Number	8944G122	8944G123	8944G124	8944G125	8945G127	8945G128	8945G129
Sample Date	11/02/89	11/02/89	11/02/89	11/02/89	11/06/89	11/06/89	11/06/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (2,800)	ND (180)	ND (190)	NA	ND (2,800)	ND (190)	ND (190)
TPH-Extractable (mg/kg)							
TPH-DIESEL	26,000	10,000	1,300	1,300	2,800	ND (60)	1,300
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	20,000	5,600	680	220	3,100	120	370
Percent Moisture (%)							
% SOLIDS	85.3	86.7	86.0	NA	84.7	84.0	85.1
pH (pH units)							
PH	6.7	8.6	8.9	NA	4.9	7.6	8.0

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B013	IR06B013	IR06B014	IR06B014	IR06B014	IR06B014	IR06B015
Sampling Depth (feet bgs)	8.25	10.25	1.25	3.25	5.25	10.75	0.75
Sample Number	8945G130	8945G131	8943G096	8943G097	8943G098	8943G100	8944H018
Sample Date	11/06/89	11/06/89	10/26/89	10/26/89	10/26/89	10/26/89	11/01/89
Metal (mg/kg)							
ALUMINUM	NA	NA	21,700	7,340	17,200	NA	2,610
ANTIMONY	NA	NA	ND (7.5)	8.0	13.8 α	NA	ND (7.7)
ARSENIC	NA	NA	2.0 *	1.5 *	2.5 *#	NA	1.2 *
BARIUM	NA	NA	118	51.8	103	NA	15.0
BERYLLIUM	NA	NA	0.62 *	0.30 *	0.59 *	NA	ND (0.13)
CADMIUM	NA	NA	ND (0.87)	ND (0.86)	ND (0.90)	NA	ND (0.89)
CALCIUM	NA	NA	8,720	1,950	2,580	NA	910
CHROMIUM	NA	NA	414 *	207	482 *α	NA	111
CHROMIUM VI	NA	NA	ND (0.06)	ND (0.06)	ND (0.06)	NA	ND (0.06)
COBALT	NA	NA	47.7	22.7	38.9	NA	27.1
COPPER	NA	NA	71.4	24.8	33.6	NA	21.6
IRON	NA	NA	38,000	17,000	42,900	NA	10,900
LEAD	NA	NA	10.5 α	19.9 α	6.1	NA	91.0 α
MAGNESIUM	NA	NA	87,000	27,100	15,700	NA	20,900
MANGANESE	NA	NA	796 *	290	582 *	NA	382 *
MERCURY	NA	NA	0.20	ND (0.10)	ND (0.10)	NA	ND (0.10)
MOLYBDENUM	NA	NA	ND (2.6)	ND (1.4)	ND (2.2)	NA	ND (1.4)
NICKEL	NA	NA	800 *	468 *	673 *α	NA	284 *
POTASSIUM	NA	NA	818	249	755	NA	ND (93.3)
SELENIUM	NA	NA	ND (0.52)	ND (0.51)	ND (0.53)	NA	ND (0.53)
SILVER	NA	NA	ND (0.61)	ND (0.61)	ND (0.63)	NA	ND (0.63)
SODIUM	NA	NA	169	222	254	NA	29.2
THALLIUM	NA	NA	ND (0.54)	0.79	ND (0.56)	NA	ND (0.55)
VANADIUM	NA	NA	59.0	25.3	74.2	NA	7.7
ZINC	NA	NA	60.5	28.6	46.7	NA	54.3
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	NA	ND (6)	ND (6)	ND (6)	NA	ND (6)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (6)	ND (6)	ND (6)	NA	ND (6)
2-BUTANONE	NA	NA	ND (12)	ND (12)	ND (12)	NA	ND (12)
BENZENE	ND (59)	ND (71)	ND (6)	ND (6)	ND (6)	ND (56)	ND (6)
BROMOFORM	NA	NA	ND (6)	ND (6)	ND (6)	NA	ND (6)
CARBON DISULFIDE	NA	NA	ND (6)	ND (6)	ND (6)	NA	ND (6)
ETHYLBENZENE	ND (59)	ND (71)	ND (6)	ND (6)	ND (6)	ND (56)	ND (6)
TETRACHLOROETHENE	NA	NA	ND (6)	ND (6)	ND (6)	NA	2

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B013	IR06B013	IR06B014	IR06B014	IR06B014	IR06B014	IR06B015
Sampling Depth (feet bgs)	8.25	10.25	1.25	3.25	5.25	10.75	0.75
Sample Number	8945G130	8945G131	8943G096	8943G097	8943G098	8943G100	8944H018
Sample Date	11/06/89	11/06/89	10/26/89	10/26/89	10/26/89	10/26/89	11/01/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (59)	ND (71)	17	19	9	ND (56)	ND (6)
TRICHLOROETHENE	NA	NA	4	ND (6)	ND (6)	NA	ND (6)
VINYL ACETATE	NA	NA	ND (12)	ND (12)	ND (12)	NA	ND (12)
XYLENE (TOTAL)	ND (120)	ND (140)	ND (6)	ND (6)	ND (6)	ND (110)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
2-METHYLNAPHTHALENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
4-METHYLPHENOL	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
4-NITROPHENOL	NA	NA	ND (1,900)	ND (1,900)	ND (1,900)	NA	ND (39,000)
ACENAPHTHENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
ACENAPHTHYLENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
ANTHRACENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
BENZO(A)ANTHRACENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
BENZO(A)PYRENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
BENZO(B)FLUORANTHENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
BENZO(G,H,I)PERYLENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
BENZO(K)FLUORANTHENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
BENZOIC ACID	NA	NA	ND (1,900)	ND (1,900)	ND (1,900)	NA	ND (39,000)
CHRYSENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
DI-N-BUTYLPHTHALATE	NA	NA	50	42	57	NA	ND (8,000)
DIBENZ(A,H)ANTHRACENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
DIBENZOFURAN	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
FLUORANTHENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
FLUORENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
INDENO(1,2,3-CD)PYRENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
N-NITROSODIPHENYLAMINE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
NAPHTHALENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
PENTACHLOROPHENOL	NA	NA	ND (1,900)	ND (1,900)	ND (1,900)	NA	ND (39,000)
PHENANTHRENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
PYRENE	NA	NA	ND (380)	ND (380)	ND (400)	NA	ND (8,000)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	ND (19)	ND (19)	ND (19)	NA	ND (290)
ALDRIN	NA	NA	ND (9)	ND (9)	ND (10)	NA	ND (140)
ENDOSULFAN I	NA	NA	ND (9)	ND (9)	ND (10)	NA	ND (140)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B013	IR06B013	IR06B014	IR06B014	IR06B014	IR06B014	IR06B015
Sampling Depth (feet bgs)	8.25	10.25	1.25	3.25	5.25	10.75	0.75
Sample Number	8945G130	8945G131	8943G096	8943G097	8943G098	8943G100	8944H018
Sample Date	11/06/89	11/06/89	10/26/89	10/26/89	10/26/89	10/26/89	11/01/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	NA	ND (190)	ND (190)	ND (190)	NA	ND (2,900)
TPH-Extractable (mg/kg)							
TPH-DIESEL	540	170	ND (58)	ND (58)	ND (60)	ND (28)	3,700
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	730	170	67	ND (58)	ND (60)	100	580
Percent Moisture (%)							
% SOLIDS	NA	NA	85.1	85.9	82.3	NA	83.0
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	7.1

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B015	IR06B015	IR06B015	IR06B016	IR06B016	IR06B016	IR06B016
Sampling Depth (feet bgs)	2.75	5.25	7.75	0.75	2.75	5.25	8.25
Sample Number	8944H019	8944H020	8944H021	8944G117	8944G118	8944G119	8944G120
Sample Date	11/01/89	11/01/89	11/01/89	11/02/89	11/02/89	11/02/89	11/02/89
Metal (mg/kg)							
ALUMINUM	4,550	3,090	NA	5,140	4,190	3,750	NA
ANTIMONY	ND (7.5)	ND (7.4)	NA	ND (7.1)	ND (7.3)	ND (7.5)	NA
ARSENIC	1.9 *	2.6 *#	NA	1.6 *	4.0 *#	2.8 *#	NA
BARIUM	66.1	59.5	NA	63.7	104	61.0	NA
BERYLLIUM	0.25 *	0.27 *	NA	0.23 *	0.31 *	0.29 *	NA
CADMIUM	ND (0.87)	ND (0.85)	NA	ND (0.82)	ND (0.85)	ND (0.86)	NA
CALCIUM	1,180	844	NA	1,550	1,100	1,050	NA
CHROMIUM	66.1	41.2	NA	70.0	64.3	87.4	NA
CHROMIUM VI	ND (0.06)	ND (0.06)	NA	ND (0.06)	ND (0.06)	ND (0.06)	NA
COBALT	16.4	14.6	NA	13.2	22.7 a	38.0 a	NA
COPPER	14.8	11.9	NA	13.2	12.5	9.7	NA
IRON	11,800	8,400	NA	11,700	15,000	10,300	NA
LEAD	2.7	2.8	NA	9.0 a	3.3	3.3	NA
MAGNESIUM	4,330	3,510	NA	4,340	4,690	6,480	NA
MANGANESE	334	374	NA	289	625 *	690 *	NA
MERCURY	ND (0.10)	ND (0.10)	NA	ND (0.10)	ND (0.10)	ND (0.10)	NA
MOLYBDENUM	ND (1.4)	ND (1.4)	NA	ND (1.3)	ND (1.4)	ND (1.4)	NA
NICKEL	139 a	104 a	NA	136 a	162 *a	238 *a	NA
POTASSIUM	ND (305)	ND (254)	NA	ND (438)	ND (353)	ND (247)	NA
SELENIUM	ND (0.51)	ND (0.51)	NA	ND (0.49)	ND (0.50)	ND (0.51)	NA
SILVER	ND (0.61)	ND (0.60)	NA	ND (0.58)	ND (0.60)	ND (0.61)	NA
SODIUM	116	185	NA	139	178	155	NA
THALLIUM	ND (0.54)	ND (0.53)	NA	ND (0.51)	ND (0.53)	ND (0.54)	NA
VANADIUM	29.0	25.4	NA	29.5	42.8	22.2	NA
ZINC	21.7	17.6	NA	29.9	23.9	21.8	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (29)	ND (6)	NA	ND (6)	ND (6)	ND (6)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (29)	ND (6)	NA	ND (6)	ND (6)	ND (6)	NA
2-BUTANONE	ND (58)	ND (12)	NA	ND (11)	ND (11)	ND (12)	NA
BENZENE	ND (29)	ND (6)	ND (62)	ND (6)	ND (6)	ND (6)	ND (66)
BROMOFORM	ND (29)	ND (6)	NA	ND (6)	ND (6)	ND (6)	NA
CARBON DISULFIDE	ND (29)	ND (6)	NA	ND (6)	ND (6)	ND (6)	NA
ETHYLBENZENE	26	ND (6)	120	ND (6)	ND (6)	ND (6)	130
TETRACHLOROETHENE	ND (29)	ND (6)	NA	ND (6)	ND (6)	ND (6)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B015	IR06B015	IR06B015	IR06B016	IR06B016	IR06B016	IR06B016
Sampling Depth (feet bgs)	2.75	5.25	7.75	0.75	2.75	5.25	8.25
Sample Number	8944H019	8944H020	8944H021	8944G117	8944G118	8944G119	8944G120
Sample Date	11/01/89	11/01/89	11/01/89	11/02/89	11/02/89	11/02/89	11/02/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (29)	ND (6)	ND (62)	ND (6)	ND (6)	ND (6)	ND (66)
TRICHLOROETHENE	ND (29)	ND (6)	NA	ND (6)	ND (6)	ND (6)	NA
VINYL ACETATE	ND (58)	ND (12)	NA	ND (11)	ND (11)	ND (12)	NA
XYLENE (TOTAL)	ND (29)	ND (6)	260	ND (6)	ND (6)	ND (6)	320
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
2-METHYLNAPHTHALENE	4,700	2,200	NA	ND (730)	ND (760)	ND (390)	NA
4-METHYLPHENOL	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
4-NITROPHENOL	ND (37,000)	ND (15,000)	NA	ND (3,500)	ND (3,700)	ND (1,900)	NA
ACENAPHTHENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
ACENAPHTHYLENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
ANTHRACENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
BENZO(A)ANTHRACENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
BENZO(A)PYRENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
BENZO(B)FLUORANTHENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
BENZO(G,H,I)PERYLENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
BENZO(K)FLUORANTHENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
BENZOIC ACID	ND (37,000)	ND (15,000)	NA	ND (3,500)	ND (3,700)	ND (1,900)	NA
CHRYSENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
DI-N-BUTYLPHTHALATE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
DIBENZ(A,H)ANTHRACENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
DIBENZOFURAN	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
FLUORANTHENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
FLUORENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
INDENO(1,2,3-CD)PYRENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
N-NITROSODIPHENYLAMINE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
NAPHTHALENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
PENTACHLOROPHENOL	ND (37,000)	ND (15,000)	NA	ND (3,500)	ND (3,700)	ND (1,900)	NA
PHENANTHRENE	1,900	1,300	NA	ND (730)	ND (760)	ND (390)	NA
PYRENE	ND (7,700)	ND (3,000)	NA	ND (730)	ND (760)	ND (390)	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (19)	ND (18)	NA	ND (18)	ND (18)	ND (19)	NA
ALDRIN	ND (9)	ND (9)	NA	ND (9)	ND (9)	ND (9)	NA
ENDOSULFAN I	ND (9)	ND (9)	NA	ND (9)	ND (9)	ND (9)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B015	IR06B015	IR06B015	IR06B016	IR06B016	IR06B016	IR06B016
Sampling Depth (feet bgs)	2.75	5.25	7.75	0.75	2.75	5.25	8.25
Sample Number	8944H019	8944H020	8944H021	8944G117	8944G118	8944G119	8944G120
Sample Date	11/01/89	11/01/89	11/01/89	11/02/89	11/02/89	11/02/89	11/02/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (190)	ND (180)	NA	ND (180)	ND (180)	ND (190)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	2,800	1,300	2,300	61	150	ND (44)	130
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	510	140	460	120	220	ND (58)	ND (66)
Percent Moisture (%)							
% SOLIDS	85.5	86.9	NA	90.4	87.2	85.6	NA
pH (pH units)							
PH	6.6	8.0	NA	7.1	8.0	8.2	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B017	IR06B017	IR06B017	IR06B017	IR06B017	IR06B018	IR06B018
Sampling Depth (feet bgs)	1.25	2.25	5.25	7.75	9.75	1.75	3.25
Sample Number	8944H043	8944H044	8944H045	8944H046	8944H047	8945G132	8945G133
Sample Date	11/03/89	11/03/89	11/03/89	11/03/89	11/03/89	11/06/89	11/06/89
Metal (mg/kg)							
ALUMINUM	10,100	8,920	9,890	NA	NA	9,520	10,700
ANTIMONY	ND (7.6)	ND (7.4)	ND (7.5)	NA	NA	ND (7.0)	ND (7.3)
ARSENIC	2.1 *#	2.4 *#	4.2 *#	NA	NA	1.5 *	0.99 *
BARIUM	86.9	65.4	70.9	NA	NA	55.5	126
BERYLLIUM	0.50 *	0.47 *	0.55 *	NA	NA	0.51 *	0.56 *
CADMIUM	ND (0.88)	ND (0.86)	ND (0.87)	NA	NA	ND (0.81)	ND (0.85)
CALCIUM	3,310	2,780	3,230	NA	NA	2,670	2,590
CHROMIUM	275 *a	128	146	NA	NA	160	220 *a
CHROMIUM VI	ND (0.06)	ND (0.06)	ND (0.06)	NA	NA	ND (0.06)	ND (0.06)
COBALT	25.0	23.3	32.5 a	NA	NA	12.2	48.5 a
COPPER	21.7	13.4	14.2	NA	NA	ND (8.4)	ND (8.2)
IRON	24,200	21,100	24,500	NA	NA	21,100	21,900
LEAD	6.0	3.5	2.9	NA	NA	2.8	3.3
MAGNESIUM	11,100	5,870	7,320	NA	NA	8,510	8,550
MANGANESE	440 *	319	491 *	NA	NA	246	968 *
MERCURY	ND (0.10)	ND (0.10)	ND (0.10)	NA	NA	ND (0.10)	ND (0.10)
MOLYBDENUM	ND (1.4)	ND (1.4)	ND (1.4)	NA	NA	ND (1.3)	ND (1.4)
NICKEL	295 *a	185 *a	240 *a	NA	NA	237 *a	405 *a
POTASSIUM	509	633	736	NA	NA	491	420
SELENIUM	ND (0.52)	ND (0.51)	ND (0.52)	NA	NA	ND (0.48)	ND (0.50)
SILVER	ND (0.62)	ND (0.60)	ND (0.61)	NA	NA	ND (0.57)	ND (0.60)
SODIUM	102	108	145	NA	NA	160	192
THALLIUM	ND (0.55)	ND (0.53)	ND (0.54)	NA	NA	ND (0.50)	ND (0.53)
VANADIUM	45.0	47.8	58.0	NA	NA	30.7	29.4
ZINC	35.1	32.2	34.4	NA	NA	28.6	32.2
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (2,400)	ND (29)	ND (29)	NA	NA	ND (6)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	ND (2,400)	ND (29)	ND (29)	NA	NA	ND (6)	ND (6)
2-BUTANONE	ND (4,700)	ND (58)	ND (59)	NA	NA	ND (11)	ND (11)
BENZENE	ND (2,400)	ND (29)	ND (29)	ND (59)	ND (57)	ND (6)	ND (6)
BROMOFORM	ND (2,400)	ND (29)	ND (29)	NA	NA	ND (6)	ND (6)
CARBON DISULFIDE	ND (2,400)	ND (29)	ND (29)	NA	NA	ND (6)	ND (6)
ETHYLBENZENE	ND (2,400)	ND (29)	ND (29)	ND (59)	ND (57)	ND (6)	ND (6)
TETRACHLOROETHENE	ND (2,400)	ND (29)	ND (29)	NA	NA	ND (6)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B017	IR06B017	IR06B017	IR06B017	IR06B017	IR06B018	IR06B018
Sampling Depth (feet bgs)	1.25	2.25	5.25	7.75	9.75	1.75	3.25
Sample Number	8944H043	8944H044	8944H045	8944H046	8944H047	8945G132	8945G133
Sample Date	11/03/89	11/03/89	11/03/89	11/03/89	11/03/89	11/06/89	11/06/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (2,400)	ND (29)	ND (29)	ND (59)	ND (57)	ND (6)	ND (6)
TRICHLOROETHENE	ND (2,400)	ND (29)	ND (29)	NA	NA	ND (6)	ND (6)
VINYL ACETATE	ND (4,700)	ND (58)	ND (59)	NA	NA	ND (11)	ND (11)
XYLENE (TOTAL)	ND (2,400)	ND (29)	ND (29)	ND (120)	ND (110)	ND (6)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
2-METHYLNAPHTHALENE	10,000	ND (760)	240	NA	NA	ND (360)	ND (380)
4-METHYLPHENOL	NA	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
4-NITROPHENOL	ND (120,000)	ND (3,700)	ND (3,800)	NA	NA	ND (1,700)	ND (1,800)
ACENAPHTHENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
ACENAPHTHYLENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
ANTHRACENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
BENZO(A)ANTHRACENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
BENZO(A)PYRENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
BENZO(B)FLUORANTHENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
BENZO(G,H,I)PERYLENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
BENZO(K)FLUORANTHENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
BENZOIC ACID	ND (120,000)	ND (3,700)	ND (3,800)	NA	NA	ND (1,700)	ND (1,800)
CHRYSENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
DI-N-BUTYLPHTHALATE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
DIBENZ(A,H)ANTHRACENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
DIBENZOFURAN	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
FLUORANTHENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
FLUORENE	2,500	130	ND (780)	NA	NA	ND (360)	ND (380)
INDENO(1,2,3-CD)PYRENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
N-NITROSODIPHENYLAMINE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
NAPHTHALENE	4,600	130	ND (780)	NA	NA	ND (360)	ND (380)
PENTACHLOROPHENOL	NA	ND (3,700)	ND (3,800)	NA	NA	ND (1,700)	ND (1,800)
PHENANTHRENE	5,300	230	210	NA	NA	ND (360)	ND (380)
PYRENE	ND (24,000)	ND (760)	ND (780)	NA	NA	ND (360)	ND (380)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (280)	ND (18)	ND (19)	NA	NA	ND (17)	ND (18)
ALDRIN	ND (140)	ND (9)	ND (9)	NA	NA	ND (9)	ND (9)
ENDOSULFAN I	ND (140)	ND (9)	ND (9)	NA	NA	ND (9)	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B017	IR06B017	IR06B017	IR06B017	IR06B017	IR06B018	IR06B018
Sampling Depth (feet bgs)	1.25	2.25	5.25	7.75	9.75	1.75	3.25
Sample Number	8944H043	8944H044	8944H045	8944H046	8944H047	8945G132	8945G133
Sample Date	11/03/89	11/03/89	11/03/89	11/03/89	11/03/89	11/06/89	11/06/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (2,800)	ND (180)	ND (190)	NA	NA	ND (170)	ND (180)
TPH-Extractable (mg/kg)							
TPH-DIESEL	8,400	3,600	1,300	ND (300)	49	ND (550)	ND (570)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	8,900	1,700	400	76	130	ND (55)	ND (57)
Percent Moisture (%)							
% SOLIDS	84.4	86.5	85.1	NA	NA	91.7	87.2
pH (pH units)							
PH	6.9	8.2	8.2	NA	NA	7.7	7.6

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B018	IR06B019	IR06B019	IR06B019	IR06B020	IR06B020	IR06B020
Sampling Depth (feet bgs)	5.25	1.25	2.75	5.25	1.25	2.75	5.25
Sample Number	8945G134	8945H052	8945H053	8945H054	8945H048	8945H049	8945H050
Sample Date	11/06/89	11/07/89	11/07/89	11/07/89	11/07/89	11/07/89	11/07/89
Metal (mg/kg)							
ALUMINUM	5,200	19,600	23,200	14,000	14,200	13,000	11,200
ANTIMONY	21.2 α	ND (7.1)	ND (7.1)	12.3 α	8.0	7.6	ND (8.7)
ARSENIC	1.7 *	5.0 *#	3.6 *#	2.3 *#	3.6 *#	2.9 *#	1.8 *
BARIUM	25.7	418 α	143	278	154	126	67.4
BERYLLIUM	0.58 *	0.78 *α	0.91 *α	0.71 *	0.65 *	0.68 *	0.65 *
CADMIUM	ND (0.84)	ND (0.82)	ND (0.83)	ND (0.91)	ND (0.84)	ND (0.84)	ND (1.0)
CALCIUM	671	9,750	8,250	3,170	6,290	4,600	2,410
CHROMIUM	1,570 *α	351 *	437 *	746 *α	318 *	307 *	193 α
CHROMIUM VI	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.07)
COBALT	157 α	45.1	43.6	208 α	63.5	40.5	20.0
COPPER	21.8	58.9	40.0	13.8	31.1	32.3	13.2
IRON	52,400	38,700	40,900	52,100	36,800	27,100	22,900
LEAD	0.67	40.7 α	23.4 α	3.7	17.7 α	20.7 α	2.9
MAGNESIUM	159,000	69,500	57,500	33,900	54,400	42,100	7,520
MANGANESE	814 *	2,730 *α	905 *	3,030 *α	1,920 *α	901 *	352
MERCURY	ND (0.10)	0.10	0.20	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
MOLYBDENUM	ND (1.4)	ND (1.3)	ND (1.3)	ND (1.5)	ND (1.4)	ND (1.4)	ND (1.6)
NICKEL	2,600 *	641 *	699 *	1,730 *α	925 *	614 *	287 *α
POTASSIUM	ND (88.4)	943	720	387	622	430	412
SELENIUM	ND (0.50)	ND (0.49)	ND (0.49)	ND (0.54)	ND (0.50)	ND (0.50)	ND (0.60)
SILVER	ND (0.59)	ND (0.58)	ND (0.58)	ND (0.64)	ND (0.59)	ND (0.59)	ND (0.71)
SODIUM	106	137	118	193	101	80.6	151
THALLIUM	ND (0.53)	ND (0.51)	ND (0.51)	ND (0.57)	ND (0.52)	ND (0.52)	ND (0.62)
VANADIUM	46.1	68.0	76.6	43.9	57.1	50.3	37.3
ZINC	40.5	80.5	68.9	46.5	66.0	73.4	35.2
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
2-BUTANONE	ND (11)	ND (11)	ND (11)	ND (12)	ND (11)	ND (11)	ND (14)
BENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
BROMOFORM	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
CARBON DISULFIDE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
ETHYLBENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
TETRACHLOROETHENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B018	IR06B019	IR06B019	IR06B019	IR06B020	IR06B020	IR06B020
Sampling Depth (feet bgs)	5.25	1.25	2.75	5.25	1.25	2.75	5.25
Sample Number	8945G134	8945H052	8945H053	8945H054	8945H048	8945H049	8945H050
Sample Date	11/06/89	11/07/89	11/07/89	11/07/89	11/07/89	11/07/89	11/07/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
TRICHLOROETHENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
VINYL ACETATE	ND (11)	ND (11)	ND (11)	ND (12)	ND (11)	ND (11)	ND (14)
XYLENE (TOTAL)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (7)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (380)	1,100	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
2-METHYLNAPHTHALENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
4-METHYLPHENOL	ND (380)	NA	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
4-NITROPHENOL	ND (1,800)	ND (35,000)	ND (1,800)	ND (2,000)	ND (36,000)	ND (3,600)	ND (2,200)
ACENAPHTHENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
ACENAPHTHYLENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
ANTHRACENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
BENZO(A)ANTHRACENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
BENZO(A)PYRENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
BENZO(B)FLUORANTHENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
BENZO(G,H,I)PERYLENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
BENZO(K)FLUORANTHENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
BENZOIC ACID	ND (1,800)	ND (35,000)	ND (1,800)	ND (2,000)	ND (36,000)	ND (3,600)	ND (2,200)
CHRYSENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
DI-N-BUTYLPHTHALATE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
DIBENZ(A,H)ANTHRACENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
DIBENZOFURAN	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
FLUORANTHENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
FLUORENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
INDENO(1,2,3-CD)PYRENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
N-NITROSODIPHENYLAMINE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
NAPHTHALENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
PENTACHLOROPHENOL	ND (1,800)	NA	ND (1,800)	ND (2,000)	ND (36,000)	ND (3,600)	ND (2,200)
PHENANTHRENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
PYRENE	ND (380)	ND (7,300)	ND (370)	ND (410)	ND (7,500)	ND (740)	ND (450)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (18)	ND (1,800)	ND (18)	ND (20)	ND (270)	ND (180)	ND (22)
ALDRIN	ND (9)	ND (88)	ND (9)	ND (6)	ND (140)	ND (90)	ND (11)
ENDOSULFAN I	ND (9)	ND (880)	ND (9)	ND (10)	ND (140)	ND (90)	ND (11)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B018	IR06B019	IR06B019	IR06B019	IR06B020	IR06B020	IR06B020
Sampling Depth (feet bgs)	5.25	1.25	2.75	5.25	1.25	2.75	5.25
Sample Number	8945G134	8945H052	8945H053	8945H054	8945H048	8945H049	8945H050
Sample Date	11/06/89	11/07/89	11/07/89	11/07/89	11/07/89	11/07/89	11/07/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (180)	ND (18,000)	ND (180)	ND (200)	ND (2,700)	ND (1,800)	ND (220)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (6)	ND (280)	ND (280)	ND (6)	ND (2,800)	ND (560)	ND (340)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	ND (57)	14,000	210	130	31,000	770	120
Percent Moisture (%)							
% SOLIDS	87.6	90.4	89.6	81.1	88.2	88.6	73.6
pH (pH units)							
PH	7.8	7.1	7.2	7.5	7.7	7.7	6.1

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B020	IR06B021	IR06B021	IR06B021	IR06B024	IR06B024	IR06B024
Sampling Depth (feet bgs)	7.75	0.75	2.75	7.25	1.25	3.25	5.75
Sample Number	8945H051	8945H057	8945H058	8945H059	8945G135	8945G136	8945G137
Sample Date	11/07/89	11/07/89	11/07/89	11/07/89	11/08/89	11/08/89	11/08/89
Metal (mg/kg)							
ALUMINUM	NA	11,300	7,410	NA	16,600	14,200	16,400
ANTIMONY	NA	ND (7.8)	9.9 a	NA	ND (7.7)	9.7 a	ND (7.7)
ARSENIC	NA	1.2 *	1.5 *	NA	2.8 *#	1.9 *	2.3 *#
BARIUM	NA	70.3	49.7	NA	188	113	134
BERYLLIUM	NA	0.55 *	0.55 *	NA	0.75 *a	0.71 *	0.74 *a
CADMIUM	NA	ND (0.91)	ND (0.94)	NA	ND (0.89)	ND (0.86)	ND (0.89)
CALCIUM	NA	3,800	1,580	NA	4,530	3,140	2,700
CHROMIUM	NA	469 *	765 *	NA	329 *	645 *a	260 *
CHROMIUM VI	NA	ND (0.06)	ND (0.06)	NA	ND (0.06)	ND (0.06)	0.09
COBALT	NA	67.6	87.1	NA	54.3	47.7 a	24.1
COPPER	NA	13.1	15.4	NA	27.1	16.1	16.9
IRON	NA	35,700	44,100	NA	35,700	40,500	37,800
LEAD	NA	4.0	2.4	NA	10.6 a	11.0 a	6.9
MAGNESIUM	NA	59,300	171,000	NA	62,100	15,500	18,800
MANGANESE	NA	752 *	869 *	NA	1,020 *	473 *	893 *
MERCURY	NA	ND (0.10)	ND (0.10)	NA	0.20	ND (0.10)	ND (0.10)
MOLYBDENUM	NA	ND (1.5)	ND (1.5)	NA	ND (1.4)	ND (1.4)	ND (1.4)
NICKEL	NA	1,090 *	1,770 *	NA	685 *	830 *a	368 *
POTASSIUM	NA	354	231	NA	718	563	747
SELENIUM	NA	ND (0.54)	ND (0.56)	NA	ND (0.53)	ND (0.51)	ND (0.53)
SILVER	NA	ND (0.64)	ND (0.66)	NA	ND (0.63)	ND (0.61)	ND (0.63)
SODIUM	NA	110	72.6	NA	263	278	179
THALLIUM	NA	ND (0.56)	ND (0.59)	NA	ND (0.55)	ND (0.54)	ND (0.56)
VANADIUM	NA	43.2	49.9	NA	64.6	69.1	85.9
ZINC	NA	37.8	42.1	NA	54.1	45.8	49.1
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	ND (6)	ND (6)	NA	ND (6)	ND (6)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	NA	ND (6)	ND (6)	NA	ND (6)	ND (6)	ND (6)
2-BUTANONE	NA	ND (12)	ND (11)	NA	4	9	3
BENZENE	ND (58)	ND (6)	ND (6)	ND (550)	ND (6)	ND (6)	ND (6)
BROMOFORM	NA	ND (6)	ND (6)	NA	ND (6)	ND (6)	ND (6)
CARBON DISULFIDE	NA	ND (6)	ND (6)	NA	ND (6)	ND (6)	ND (6)
ETHYLBENZENE	ND (58)	ND (6)	ND (6)	ND (2,700)	ND (6)	ND (6)	ND (6)
TETRACHLOROETHENE	NA	ND (6)	ND (6)	NA	ND (6)	ND (6)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B020	IR06B021	IR06B021	IR06B021	IR06B024	IR06B024	IR06B024
Sampling Depth (feet bgs)	7.75	0.75	2.75	7.25	1.25	3.25	5.75
Sample Number	8945H051	8945H057	8945H058	8945H059	8945G135	8945G136	8945G137
Sample Date	11/07/89	11/07/89	11/07/89	11/07/89	11/08/89	11/08/89	11/08/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (58)	ND (6)	ND (6)	ND (550)	ND (6)	ND (6)	ND (6)
TRICHLOROETHENE	NA	ND (6)	ND (6)	NA	ND (6)	ND (6)	ND (6)
VINYL ACETATE	NA	ND (12)	ND (11)	NA	ND (12)	ND (12)	ND (12)
XYLENE (TOTAL)	ND (120)	ND (6)	ND (6)	8,100	ND (6)	ND (6)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
2-METHYLNAPHTHALENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
4-METHYLPHENOL	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
4-NITROPHENOL	NA	ND (2,000)	ND (1,800)	NA	ND (1,900)	ND (1,900)	ND (1,900)
ACENAPHTHENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
ACENAPHTHYLENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
ANTHRACENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
BENZO(A)ANTHRACENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
BENZO(A)PYRENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
BENZO(B)FLUORANTHENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
BENZO(G,H,I)PERYLENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
BENZO(K)FLUORANTHENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
BENZOIC ACID	NA	ND (2,000)	ND (1,800)	NA	ND (1,900)	ND (1,900)	ND (1,900)
CHRYSENE	NA	ND (400)	ND (370)	NA	41	ND (390)	ND (400)
DI-N-BUTYLPHTHALATE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
DIBENZ(A,H)ANTHRACENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
DIBENZOFURAN	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
FLUORANTHENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
FLUORENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
INDENO(1,2,3-CD)PYRENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
N-NITROSODIPHENYLAMINE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
NAPHTHALENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
PENTACHLOROPHENOL	NA	ND (2,000)	ND (1,800)	NA	ND (1,900)	ND (1,900)	ND (1,900)
PHENANTHRENE	NA	ND (400)	ND (370)	NA	ND (400)	ND (390)	ND (400)
PYRENE	NA	ND (400)	ND (370)	NA	65	ND (390)	ND (400)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	ND (20)	ND (18)	NA	ND (19)	ND (19)	ND (19)
ALDRIN	NA	ND (10)	ND (9)	NA	ND (10)	ND (9)	ND (10)
ENDOSULFAN I	NA	ND (10)	ND (9)	NA	ND (10)	ND (9)	ND (10)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B020	IR06B021	IR06B021	IR06B021	IR06B024	IR06B024	IR06B024
Sampling Depth (feet bgs)	7.75	0.75	2.75	7.25	1.25	3.25	5.75
Sample Number	8945H051	8945H057	8945H058	8945H059	8945G135	8945G136	8945G137
Sample Date	11/07/89	11/07/89	11/07/89	11/07/89	11/08/89	11/08/89	11/08/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	ND (200)	ND (180)	NA	ND (190)	ND (190)	ND (190)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (58)	ND (61)	ND (28)	2,300	ND (60)	ND (29)	1,100
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	63	140	70	6,700	270	390	200
Percent Moisture (%)							
% SOLIDS	NA	81.6	78.6	NA	82.9	85.6	82.8
pH (pH units)							
PH	NA	7.5	7.8	NA	7.8	7.7	8.2

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B024	IR06B024	IR06B024	IR06B025	IR06B025	IR06B025	IR06B026
Sampling Depth (feet bgs)	7.75	10.25	14.75	1.25	5.25	10.25	1.25
Sample Number	8945G138	8945G139	8945G140	9022H234	9022H235	9022H236	8945G141
Sample Date	11/08/89	11/08/89	11/08/89	05/30/90	05/30/90	05/30/90	11/08/89
Metal (mg/kg)							
ALUMINUM	NA	NA	NA	19,500	19,300	NA	16,600
ANTIMONY	NA	NA	NA	ND (4.4)	ND (4.7)	NA	ND (7.6)
ARSENIC	NA	NA	NA	4.6 *#	2.4 *#	NA	2.2 *#
BARIUM	NA	NA	NA	172	105	NA	161
BERYLLIUM	NA	NA	NA	ND (0.35)	ND (0.25)	NA	0.73 *a
CADMIUM	NA	NA	NA	ND (0.81)	ND (0.86)	NA	ND (0.88)
CALCIUM	NA	NA	NA	12,800	10,100	NA	8,940
CHROMIUM	NA	NA	NA	193	233 *	NA	289 *
CHROMIUM VI	NA	NA	NA	ND (0.05)	ND (0.06)	NA	0.11
COBALT	NA	NA	NA	26.0	30.6	NA	32.4
COPPER	NA	NA	NA	49.2	32.0	NA	19.0
IRON	NA	NA	NA	35,400	33,400	NA	33,100
LEAD	NA	NA	NA	11.4 a	28.0 a	NA	9.3 a
MAGNESIUM	NA	NA	NA	18,400	24,600	NA	22,200
MANGANESE	NA	NA	NA	801 *	708 *	NA	756 *
MERCURY	NA	NA	NA	0.50	NA	NA	0.20
MOLYBDENUM	NA	NA	NA	NA	NA	NA	ND (1.4)
NICKEL	NA	NA	NA	234 *	276 *	NA	373 *
POTASSIUM	NA	NA	NA	1,770	1,570	NA	636
SELENIUM	NA	NA	NA	ND (0.48)	ND (0.51)	NA	ND (0.52)
SILVER	NA	NA	NA	0.59	0.31	NA	ND (0.62)
SODIUM	NA	NA	NA	436	331	NA	309
THALLIUM	NA	NA	NA	ND (0.37)	ND (0.40)	NA	ND (0.55)
VANADIUM	NA	NA	NA	73.7	80.7	NA	73.6
ZINC	NA	NA	NA	69.3	56.9	NA	50.4
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	NA	NA	ND (5)	ND (29)	NA	ND (6)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	ND (5)	ND (29)	NA	ND (6)
2-BUTANONE	NA	NA	NA	ND (11)	ND (58)	NA	23
BENZENE	ND (60)	100	ND (59)	ND (5)	ND (29)	ND (6)	ND (6)
BROMOFORM	NA	NA	NA	ND (5)	ND (29)	NA	ND (6)
CARBON DISULFIDE	NA	NA	NA	ND (5)	ND (29)	NA	3
ETHYLBENZENE	ND (60)	ND (60)	ND (59)	ND (5)	ND (29)	ND (6)	ND (6)
TETRACHLOROETHENE	NA	NA	NA	ND (5)	ND (29)	NA	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B024	IR06B024	IR06B024	IR06B025	IR06B025	IR06B025	IR06B026
Sampling Depth (feet bgs)	7.75	10.25	14.75	1.25	5.25	10.25	1.25
Sample Number	8945G138	8945G139	8945G140	9022H234	9022H235	9022H236	8945G141
Sample Date	11/08/89	11/08/89	11/08/89	05/30/90	05/30/90	05/30/90	11/08/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (60)	ND (60)	ND (59)	72	40	9	2
TRICHLOROETHENE	NA	NA	NA	ND (5)	ND (29)	NA	ND (6)
VINYL ACETATE	NA	NA	NA	ND (11)	ND (58)	NA	ND (12)
XYLENE (TOTAL)	ND (120)	ND (120)	ND (120)	ND (5)	ND (29)	ND (18)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
2-METHYLNAPHTHALENE	NA	NA	NA	ND (360)	670	NA	ND (390)
4-METHYLPHENOL	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
4-NITROPHENOL	NA	NA	NA	ND (1,700)	ND (19,000)	NA	ND (1,900)
ACENAPHTHENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
ACENAPHTHYLENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
ANTHRACENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
BENZO(A)ANTHRACENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
BENZO(A)PYRENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
BENZO(B)FLUORANTHENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
BENZO(G,H,I)PERYLENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
BENZO(K)FLUORANTHENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
BENZOIC ACID	NA	NA	NA	ND (1,700)	ND (19,000)	NA	ND (1,900)
CHRYSENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
DI-N-BUTYLPHTHALATE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
DIBENZOFURAN	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
FLUORANTHENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
FLUORENE	NA	NA	NA	ND (360)	720	NA	ND (390)
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
N-NITROSODIPHENYLAMINE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
NAPHTHALENE	NA	NA	NA	ND (360)	ND (3,800)	NA	ND (390)
PENTACHLOROPHENOL	NA	NA	NA	ND (1,700)	ND (19,000)	NA	ND (1,900)
PHENANTHRENE	NA	NA	NA	ND (360)	1,300	NA	ND (390)
PYRENE	NA	NA	NA	38	ND (3,800)	NA	40
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	ND (19)
ALDRIN	NA	NA	NA	NA	NA	NA	ND (10)
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	ND (10)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B024	IR06B024	IR06B024	IR06B025	IR06B025	IR06B025	IR06B026
Sampling Depth (feet bgs)	7.75	10.25	14.75	1.25	5.25	10.25	1.25
Sample Number	8945G138	8945G139	8945G140	9022H234	9022H235	9022H236	8945G141
Sample Date	11/08/89	11/08/89	11/08/89	05/30/90	05/30/90	05/30/90	11/08/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	NA	NA	ND (54)	ND (58)	NA	ND (190)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (6)	ND (60)	ND (30)	NA	11,000	280	ND (30)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	70	200	76	NA	4,300	140	180
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	84.2
pH (pH units)							
PH	NA	NA	NA	7.9	7.3	NA	8.2

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B026	IR06B026	IR06B026	IR06B026	IR06B028	IR06B028	IR06B028
Sampling Depth (feet bgs)	2.75	5.25	7.75	10.25	1.25	5.25	10.25
Sample Number	8945G142	8945G143	8945G144	8945G145	9023G284	9023G285	9023G286
Sample Date	11/08/89	11/08/89	11/08/89	11/08/89	06/06/90	06/06/90	06/06/90
Metal (mg/kg)							
ALUMINUM	17,600	23,100	NA	NA	22,500	18,400	NA
ANTIMONY	ND (7.6)	ND (6.4)	NA	NA	ND (4.4)	ND (4.6)	NA
ARSENIC	5.2 *#	1.0 *	NA	NA	3.5 *#	2.0 *	NA
BARIUM	140	94.7	NA	NA	179	96.2	NA
BERYLLIUM	0.69 *	0.71 *	NA	NA	ND (0.82)	ND (0.79)	NA
CADMIUM	ND (0.88)	ND (0.74)	NA	NA	ND (0.81)	ND (0.86)	NA
CALCIUM	7,250	4,010	NA	NA	14,700	4,860	NA
CHROMIUM	186	211 *	NA	NA	164	284 *	NA
CHROMIUM VI	0.10	0.08	NA	NA	ND (0.06)	ND (0.06)	NA
COBALT	36.4	28.7	NA	NA	30.1	24.3	NA
COPPER	31.3	31.8	NA	NA	29.3	27.6	NA
IRON	30,000	30,500	NA	NA	34,400	32,400	NA
LEAD	19.0 #	6.0	NA	NA	4.4	8.5	NA
MAGNESIUM	15,800	43,200	NA	NA	25,000	23,600	NA
MANGANESE	494 *	471 *	NA	NA	745 *	682 *	NA
MERCURY	ND (0.10)	0.10	NA	NA	0.10	ND (0.10)	NA
MOLYBDENUM	ND (1.4)	ND (1.2)	NA	NA	NA	NA	NA
NICKEL	236 *	370 *	NA	NA	268 *	273 *	NA
POTASSIUM	706	600	NA	NA	1,240	915	NA
SELENIUM	ND (0.52)	ND (0.44)	NA	NA	ND (0.48)	ND (0.51)	NA
SILVER	ND (0.62)	ND (0.52)	NA	NA	ND (0.24)	ND (0.42)	NA
SODIUM	267	166	NA	NA	274	217	NA
THALLIUM	ND (0.55)	ND (0.46)	NA	NA	ND (0.37)	ND (0.39)	NA
VANADIUM	73.0	44.7	NA	NA	81.3	74.0	NA
ZINC	71.9	55.7	NA	NA	60.6	45.6	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (5)	NA	NA	ND (6)	ND (6)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (5)	NA	NA	ND (6)	ND (6)	NA
2-BUTANONE	ND (12)	ND (10)	NA	NA	ND (11)	ND (12)	NA
BENZENE	ND (6)	ND (5)	ND (63)	ND (600)	ND (6)	ND (6)	ND (6)
BROMOFORM	ND (6)	ND (5)	NA	NA	ND (6)	ND (6)	NA
CARBON DISULFIDE	ND (6)	ND (5)	NA	NA	ND (6)	ND (6)	NA
ETHYLBENZENE	ND (6)	ND (5)	ND (63)	ND (600)	ND (6)	ND (6)	ND (6)
TETRACHLOROETHENE	ND (6)	ND (5)	NA	NA	ND (6)	ND (6)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B026	IR06B026	IR06B026	IR06B026	IR06B028	IR06B028	IR06B028
Sampling Depth (feet bgs)	2.75	5.25	7.75	10.25	1.25	5.25	10.25
Sample Number	8945G142	8945G143	8945G144	8945G145	9023G284	9023G285	9023G286
Sample Date	11/08/89	11/08/89	11/08/89	11/08/89	06/06/90	06/06/90	06/06/90
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	ND (5)	ND (63)	ND (600)	8	4	ND (6)
TRICHLOROETHENE	ND (6)	ND (5)	NA	NA	ND (6)	ND (6)	NA
VINYL ACETATE	ND (12)	ND (10)	NA	NA	ND (11)	ND (12)	NA
XYLENE (TOTAL)	ND (6)	ND (5)	ND (130)	ND (1,200)	ND (6)	ND (6)	ND (17)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
2-METHYLNAPHTHALENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
4-METHYLPHENOL	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
4-NITROPHENOL	ND (3,800)	ND (1,600)	NA	NA	ND (1,800)	ND (1,900)	NA
ACENAPHTHENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
ACENAPHTHYLENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
ANTHRACENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
BENZO(A)ANTHRACENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
BENZO(A)PYRENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
BENZO(B)FLUORANTHENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
BENZO(G,H,I)PERYLENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
BENZO(K)FLUORANTHENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
BENZOIC ACID	ND (3,800)	ND (1,600)	NA	NA	ND (1,800)	ND (1,900)	NA
CHRYSENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
DI-N-BUTYLPHTHALATE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
DIBENZ(A,H)ANTHRACENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
DIBENZOFURAN	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
FLUORANTHENE	150	ND (330)	NA	NA	ND (360)	ND (380)	NA
FLUORENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
INDENO(1,2,3-CD)PYRENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
N-NITROSODIPHENYLAMINE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
NAPHTHALENE	ND (790)	ND (330)	NA	NA	ND (360)	ND (380)	NA
PENTACHLOROPHENOL	ND (3,800)	ND (1,600)	NA	NA	ND (1,800)	ND (1,900)	NA
PHENANTHRENE	190	ND (330)	NA	NA	ND (360)	ND (380)	NA
PYRENE	190	ND (330)	NA	NA	ND (360)	ND (380)	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (19)	ND (16)	NA	NA	NA	NA	NA
ALDRIN	ND (10)	ND (8)	NA	NA	NA	NA	NA
ENDOSULFAN I	ND (10)	ND (8)	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B026	IR06B026	IR06B026	IR06B026	IR06B028	IR06B028	IR06B028
Sampling Depth (feet bgs)	2.75	5.25	7.75	10.25	1.25	5.25	10.25
Sample Number	8945G142	8945G143	8945G144	8945G145	9023G284	9023G285	9023G286
Sample Date	11/08/89	11/08/89	11/08/89	11/08/89	06/06/90	06/06/90	06/06/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (190)	ND (160)	NA	NA	ND (55)	ND (58)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	57	ND (5)	ND (63)	13,000	ND (11)	ND (12)	150
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	110	ND (500)	68	17,000	320	160	58
Percent Moisture (%)							
% SOLIDS	84.0		NA	NA	NA	NA	NA
pH (pH units)							
PH	8.1	7.6	NA	NA	8.4	7.9	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B028A	IR06B029	IR06B029	IR06B029	IR06B031	IR06B031	IR06B031
Sampling Depth (feet bgs)	1.25	1.25	5.25	10.25	0.75	4.75	10.75
Sample Number	9023G275	9022G265	9022G266	9022G267	9022G268	9022G269	9022G270
Sample Date	06/04/90	05/29/90	05/29/90	05/29/90	05/29/90	05/29/90	05/29/90
Metal (mg/kg)							
ALUMINUM	17,200	21,300	20,900	NA	21,100	15,300	NA
ANTIMONY	ND (4.6)	ND (4.9)	ND (5.1)	NA	ND (4.7)	ND (4.6)	NA
ARSENIC	3.6 *#	2.1 *#	2.9 *#	NA	3.5 *#	2.6 *#	NA
BARIUM	81.4	323 α	228	NA	157	83.6	NA
BERYLLIUM	ND (0.24)	ND (0.21)	ND (0.36)	NA	ND (0.42)	ND (0.37)	NA
CADMIUM	ND (0.85)	ND (0.91)	ND (0.95)	NA	ND (0.87)	ND (0.85)	NA
CALCIUM	2,750	12,400	4,560	NA	11,600	5,450	NA
CHROMIUM	582 *α	559 *	324 *	NA	264 *	210	NA
CHROMIUM VI	ND (0.06)	ND (0.12)	ND (0.13)	NA	ND (0.12)	ND (0.11)	NA
COBALT	28.1 α	63.3	92.6 α	NA	36.8	24.8	NA
COPPER	26.0	72.4	40.4	NA	126 α	49.2	NA
IRON	40,300	47,700	41,300	NA	34,000	33,300	NA
LEAD	3.7	8.2	5.1	NA	24.0 α	21.8 α	NA
MAGNESIUM	7,900	112,000	70,900	NA	54,100	24,500	NA
MANGANESE	396 *	1,430 *	1,760 *α	NA	717 *	563 *	NA
MERCURY	ND (0.10)	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	488 *α	971 *	806 *	NA	515 *	335 *	NA
POTASSIUM	714	1,450	651	NA	2,200	969	NA
SELENIUM	ND (0.50)	ND (0.54)	ND (0.56)	NA	ND (0.52)	ND (0.51)	NA
SILVER	ND (0.66)	1.1	0.60	NA	0.52	0.36	NA
SODIUM	234	386	214	NA	1,030	444	NA
THALLIUM	ND (0.39)	ND (0.42)	ND (0.44)	NA	ND (0.40)	0.39	NA
VANADIUM	75.2	87.8	80.7	NA	70.8	71.3	NA
ZINC	36.3	64.5	50.0	NA	280 α	106	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	2	ND (6)	ND (6)	NA	ND (29)	ND (29)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (6)	ND (6)	NA	41	13	NA
2-BUTANONE	ND (11)	ND (12)	ND (13)	NA	ND (59)	ND (57)	NA
BENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (29)	ND (29)	ND (6)
BROMOFORM	4	ND (6)	ND (6)	NA	ND (29)	ND (29)	NA
CARBON DISULFIDE	ND (6)	ND (6)	ND (6)	NA	ND (29)	ND (29)	NA
ETHYLBENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (29)	ND (29)	ND (6)
TETRACHLOROETHENE	ND (6)	ND (6)	ND (6)	NA	140	23	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B028A	IR06B029	IR06B029	IR06B029	IR06B031	IR06B031	IR06B031
Sampling Depth (feet bgs)	1.25	1.25	5.25	10.25	0.75	4.75	10.75
Sample Number	9023G275	9022G265	9022G266	9022G267	9022G268	9022G269	9022G270
Sample Date	06/04/90	05/29/90	05/29/90	05/29/90	05/29/90	05/29/90	05/29/90
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	17	140	14	10	11	12
TRICHLOROETHENE	ND (6)	ND (6)	ND (6)	NA	20	ND (29)	NA
VINYL ACETATE	ND (11)	ND (12)	ND (13)	NA	ND (59)	ND (57)	NA
XYLENE (TOTAL)	ND (6)	ND (6)	ND (6)	ND (19)	16	29	ND (19)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (380)	ND (400)	ND (420)	NA	2,300	650	NA
2-METHYLNAPHTHALENE	ND (380)	ND (400)	ND (420)	NA	7,600	2,300	NA
4-METHYLPHENOL	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
4-NITROPHENOL	ND (1,800)	ND (2,000)	ND (2,100)	NA	ND (3,800)	ND (3,700)	NA
ACENAPHTHENE	ND (380)	ND (400)	ND (420)	NA	320	ND (760)	NA
ACENAPHTHYLENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
ANTHRACENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
BENZO(A)ANTHRACENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
BENZO(A)PYRENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
BENZO(B)FLUORANTHENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
BENZO(G,H,I)PERYLENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
BENZO(K)FLUORANTHENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
BENZOIC ACID	ND (1,800)	ND (2,000)	ND (2,100)	NA	ND (3,800)	ND (3,700)	NA
CHRYSENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
DI-N-BUTYLPHTHALATE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
DIBENZ(A,H)ANTHRACENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
DIBENZOFURAN	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
FLUORANTHENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
FLUORENE	ND (380)	ND (400)	ND (420)	NA	520	110	NA
INDENO(1,2,3-CD)PYRENE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
N-NITROSODIPHENYLAMINE	ND (380)	ND (400)	ND (420)	NA	ND (770)	ND (760)	NA
NAPHTHALENE	ND (380)	ND (400)	ND (420)	NA	980	390	NA
PENTACHLOROPHENOL	ND (1,800)	ND (2,000)	ND (2,100)	NA	ND (3,800)	ND (3,700)	NA
PHENANTHRENE	ND (380)	ND (400)	ND (420)	NA	620	180	NA
PYRENE	ND (380)	ND (400)	ND (420)	NA	140	ND (760)	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B028A	IR06B029	IR06B029	IR06B029	IR06B031	IR06B031	IR06B031
Sampling Depth (feet bgs)	1.25	1.25	5.25	10.25	0.75	4.75	10.75
Sample Number	9023G275	9022G265	9022G266	9022G267	9022G268	9022G269	9022G270
Sample Date	06/04/90	05/29/90	05/29/90	05/29/90	05/29/90	05/29/90	05/29/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (57)	ND (61)	ND (64)	NA	150,000 **	310 *	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (11)	16	ND (13)	ND (12)	4,600	460	ND (12)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	83	390	ND (64)	ND (62)	3,300	750	ND (62)
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	7.5	8.2	7.6	NA	8.5	8.5	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B033	IR06B033	IR06B033	IR06B033	IR06B033	IR06B033	IR06B036
Sampling Depth (feet bgs)	1.25	2.75	5.25	7.75	10.25	14.75	1.25
Sample Number	8945H060	8945H061	8945H062	8945H063	8945H064	8945H065	8945G146
Sample Date	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/08/89
Metal (mg/kg)							
ALUMINUM	12,600	11,800	7,760	NA	NA	NA	5,600
ANTIMONY	ND (7.6)	ND (7.3)	ND (7.7)	NA	NA	NA	ND (6.8)
ARSENIC	4.0 *#	2.0 *	1.5 *	NA	NA	NA	4.7 *#
BARIUM	128	239	167	NA	NA	NA	30.2
BERYLLIUM	0.37 *	0.38 *	0.29 *	NA	NA	NA	0.35 *
CADMIUM	ND (0.87)	ND (0.84)	ND (0.89)	NA	NA	NA	ND (0.79)
CALCIUM	6,430	15,300	4,130	NA	NA	NA	121,000
CHROMIUM	169	184	178	NA	NA	NA	40.0
CHROMIUM VI	ND (0.06)	ND (0.06)	ND (0.06)	NA	NA	NA	ND (0.05)
COBALT	47.2	61.5	85.6	NA	NA	NA	8.2
COPPER	54.4	37.4	29.5	NA	NA	NA	19.1
IRON	29,600	33,300	30,400	NA	NA	NA	8,590
LEAD	32.5 *a	5.4	3.5	NA	NA	NA	2.9
MAGNESIUM	58,800	75,700	87,600	NA	NA	NA	4,150
MANGANESE	757 *	992 *	1,630 *a	NA	NA	NA	327
MERCURY	ND (0.10)	ND (0.10)	ND (0.10)	NA	NA	NA	ND (0.10)
MOLYBDENUM	ND (1.4)	ND (1.4)	ND (1.4)	NA	NA	NA	ND (1.3)
NICKEL	752 *	740 *	1,190 *	NA	NA	NA	21.7
POTASSIUM	583	798	721	NA	NA	NA	692
SELENIUM	ND (0.52)	0.71	ND (0.53)	NA	NA	NA	ND (0.47)
SILVER	ND (0.61)	ND (0.59)	ND (0.63)	NA	NA	NA	ND (0.55)
SODIUM	690	1,430	1,080	NA	NA	NA	1,380
THALLIUM	ND (0.54)	ND (0.52)	ND (0.55)	NA	NA	NA	ND (0.49)
VANADIUM	44.4	61.1	31.9	NA	NA	NA	22.0
ZINC	95.8	62.4	41.7	NA	NA	NA	16.7
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (5)
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (5)
2-BUTANONE	ND (12)	ND (11)	ND (12)	NA	NA	NA	ND (11)
BENZENE	ND (6)	ND (6)	ND (6)	ND (60)	ND (55)	ND (67)	ND (5)
BROMOFORM	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (5)
CARBON DISULFIDE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (5)
ETHYLBENZENE	ND (6)	ND (6)	ND (6)	ND (60)	ND (55)	ND (67)	ND (5)
TETRACHLOROETHENE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (5)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B033	IR06B033	IR06B033	IR06B033	IR06B033	IR06B033	IR06B036
Sampling Depth (feet bgs)	1.25	2.75	5.25	7.75	10.25	14.75	1.25
Sample Number	8945H060	8945H061	8945H062	8945H063	8945H064	8945H065	8945G146
Sample Date	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/08/89
Volatile Organic Compound (ug/kg)							
TOLUENE	1	ND (6)	ND (6)	ND (60)	ND (55)	ND (67)	ND (5)
TRICHLOROETHENE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (5)
VINYL ACETATE	ND (12)	ND (11)	ND (12)	NA	NA	NA	ND (11)
XYLENE (TOTAL)	ND (6)	ND (6)	ND (6)	230	ND (110)	ND (130)	ND (5)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
2-METHYLNAPHTHALENE	ND (390)	ND (380)	7,500	NA	NA	NA	ND (350)
4-METHYLPHENOL	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
4-NITROPHENOL	ND (1,900)	ND (1,800)	ND (230,000)	NA	NA	NA	ND (1,700)
ACENAPHTHENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
ACENAPHTHYLENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
ANTHRACENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
BENZO(A)ANTHRACENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
BENZO(A)PYRENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
BENZO(B)FLUORANTHENE	41	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
BENZO(G,H,I)PERYLENE	41	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
BENZO(K)FLUORANTHENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
BENZOIC ACID	ND (1,900)	ND (1,800)	ND (230,000)	NA	NA	NA	ND (1,700)
CHRYSENE	54	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
DI-N-BUTYLPHTHALATE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
DIBENZ(A,H)ANTHRACENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
DIBENZOFURAN	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
FLUORANTHENE	53	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
FLUORENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
INDENO(1,2,3-CD)PYRENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
N-NITROSODIPHENYLAMINE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
NAPHTHALENE	ND (390)	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
PENTACHLOROPHENOL	ND (1,900)	ND (1,800)	ND (230,000)	NA	NA	NA	ND (1,700)
PHENANTHRENE	93	ND (380)	7,900	NA	NA	NA	ND (350)
PYRENE	70	ND (380)	ND (48,000)	NA	NA	NA	ND (350)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (19)	ND (18)	ND (290)	NA	NA	NA	ND (17)
ALDRIN	ND (9)	ND (9)	ND (140)	NA	NA	NA	ND (9)
ENDOSULFAN I	ND (9)	ND (9)	ND (140)	NA	NA	NA	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B033	IR06B033	IR06B033	IR06B033	IR06B033	IR06B033	IR06B036
Sampling Depth (feet bgs)	1.25	2.75	5.25	7.75	10.25	14.75	1.25
Sample Number	8945H060	8945H061	8945H062	8945H063	8945H064	8945H065	8945G146
Sample Date	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/08/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	310 *	180 *	ND (2,900)	NA	NA	NA	ND (170)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (300)	ND (280)	6,500	3,000	15,000	230	ND (270)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	230	250	2,700	2,500	27,000	140	410
Percent Moisture (%)							
% SOLIDS	84.7	87.8	83.1	NA	NA	NA	93.8
pH (pH units)							
PH	8.2	8.7	7.8	NA	NA	NA	8.1

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B036	IR06B036	IR06B036	IR06B036	IR06B036	IR06B037	IR06B037
Sampling Depth (feet bgs)	3.75	5.25	7.75	10.75	15.25	0.75	7.75
Sample Number	8945G147	8945G148	8945G149	8945G150	8945G151	8945H066	8945H067
Sample Date	11/08/89	11/08/89	11/08/89	11/08/89	11/08/89	11/09/89	11/09/89
Metal (mg/kg)							
ALUMINUM	5,860	10,100	NA	NA	NA	17,000	NA
ANTIMONY	ND (7.0)	ND (7.6)	NA	NA	NA	ND (7.0)	NA
ARSENIC	3.4 *#	2.6 *#	NA	NA	NA	2.1 *#	NA
BARIUM	56.4	113	NA	NA	NA	177	NA
BERYLLIUM	0.27 *	0.36 *	NA	NA	NA	0.48 *	NA
CADMIUM	ND (0.81)	ND (0.88)	NA	NA	NA	ND (0.81)	NA
CALCIUM	50,600	2,730	NA	NA	NA	17,300	NA
CHROMIUM	49.3	222 *	NA	NA	NA	86.9	NA
CHROMIUM VI	ND (0.06)	ND (0.06)	NA	NA	NA	ND (0.06)	NA
COBALT	9.5	30.8	NA	NA	NA	32.5	NA
COPPER	21.1	17.6	NA	NA	NA	24.0	NA
IRON	12,600	24,200	NA	NA	NA	26,300	NA
LEAD	4.2	4.6	NA	NA	NA	4.9	NA
MAGNESIUM	6,290	16,800	NA	NA	NA	21,900	NA
MANGANESE	525 *	311	NA	NA	NA	810 *	NA
MERCURY	ND (0.10)	ND (0.10)	NA	NA	NA	ND (0.10)	NA
MOLYBDENUM	ND (1.3)	ND (1.4)	NA	NA	NA	ND (1.3)	NA
NICKEL	47.2	427 *#	NA	NA	NA	168 *	NA
POTASSIUM	947	673	NA	NA	NA	753	NA
SELENIUM	ND (0.48)	ND (0.52)	NA	NA	NA	ND (0.48)	NA
SILVER	ND (0.57)	ND (0.62)	NA	NA	NA	ND (0.57)	NA
SODIUM	1,130	1,790	NA	NA	NA	321	NA
THALLIUM	ND (0.50)	ND (0.55)	NA	NA	NA	ND (0.51)	NA
VANADIUM	26.8	47.6	NA	NA	NA	54.4	NA
ZINC	25.4	33.1	NA	NA	NA	53.6	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (27)	ND (30)	NA	NA	NA	ND (6)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (27)	ND (30)	NA	NA	NA	ND (6)	NA
2-BUTANONE	ND (55)	ND (59)	NA	NA	NA	ND (11)	NA
BENZENE	ND (27)	ND (30)	ND (60)	ND (60)	ND (67)	ND (6)	ND (62)
BROMOFORM	ND (27)	ND (30)	NA	NA	NA	ND (6)	NA
CARBON DISULFIDE	ND (27)	ND (30)	NA	NA	NA	ND (6)	NA
ETHYLBENZENE	ND (27)	ND (30)	ND (60)	ND (60)	ND (67)	ND (6)	ND (62)
TETRACHLOROETHENE	ND (27)	ND (30)	NA	NA	NA	ND (6)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B036	IR06B036	IR06B036	IR06B036	IR06B036	IR06B037	IR06B037
Sampling Depth (feet bgs)	3.75	5.25	7.75	10.75	15.25	0.75	7.75
Sample Number	8945G147	8945G148	8945G149	8945G150	8945G151	8945H066	8945H067
Sample Date	11/08/89	11/08/89	11/08/89	11/08/89	11/08/89	11/09/89	11/09/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (27)	ND (30)	ND (60)	ND (60)	ND (67)	2	ND (62)
TRICHLOROETHENE	ND (27)	ND (30)	NA	NA	NA	ND (6)	NA
VINYL ACETATE	ND (55)	ND (59)	NA	NA	NA	ND (11)	NA
XYLENE (TOTAL)	ND (27)	ND (30)	ND (120)	ND (120)	ND (130)	ND (6)	ND (120)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
2-METHYLNAPHTHALENE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
4-METHYLPHENOL	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
4-NITROPHENOL	ND (8,800)	ND (120,000)	NA	NA	NA	ND (1,800)	NA
ACENAPHTHENE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
ACENAPHTHYLENE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
ANTHRACENE	ND (1,800)	ND (24,000)	NA	NA	NA	63	NA
BENZO(A)ANTHRACENE	ND (1,800)	ND (24,000)	NA	NA	NA	180	NA
BENZO(A)PYRENE	ND (1,800)	ND (24,000)	NA	NA	NA	140 *	NA
BENZO(B)FLUORANTHENE	ND (1,800)	ND (24,000)	NA	NA	NA	140	NA
BENZO(G,H,I)PERYLENE	ND (1,800)	ND (24,000)	NA	NA	NA	73	NA
BENZO(K)FLUORANTHENE	ND (1,800)	ND (24,000)	NA	NA	NA	110	NA
BENZOIC ACID	ND (8,800)	ND (120,000)	NA	NA	NA	ND (1,800)	NA
CHRYSENE	ND (1,800)	ND (24,000)	NA	NA	NA	220	NA
DI-N-BUTYLPHTHALATE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
DIBENZ(A,H)ANTHRACENE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
DIBENZOFURAN	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
FLUORANTHENE	ND (1,800)	ND (24,000)	NA	NA	NA	320	NA
FLUORENE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
INDENO(1,2,3-CD)PYRENE	ND (1,800)	ND (24,000)	NA	NA	NA	74	NA
N-NITROSODIPHENYLAMINE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
NAPHTHALENE	ND (1,800)	ND (24,000)	NA	NA	NA	ND (360)	NA
PENTACHLOROPHENOL	ND (8,800)	ND (120,000)	NA	NA	NA	ND (1,800)	NA
PHENANTHRENE	ND (1,800)	3,100	NA	NA	NA	250	NA
PYRENE	ND (1,800)	ND (24,000)	NA	NA	NA	350	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (18)	ND (290)	NA	NA	NA	ND (18)	NA
ALDRIN	ND (88)	ND (140)	NA	NA	NA	ND (9)	NA
ENDOSULFAN I	ND (9)	ND (140)	NA	NA	NA	ND (9)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B036	IR06B036	IR06B036	IR06B036	IR06B036	IR06B037	IR06B037
Sampling Depth (feet bgs)	3.75	5.25	7.75	10.75	15.25	0.75	7.75
Sample Number	8945G147	8945G148	8945G149	8945G150	8945G151	8945H066	8945H067
Sample Date	11/08/89	11/08/89	11/08/89	11/08/89	11/08/89	11/09/89	11/09/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (180)	ND (2,900)	NA	NA	NA	ND (180)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	2,400	3,100	ND (300)	5,000	ND (33)	ND (550)	910
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	2,600	2,100	120	720	120	220	350
Percent Moisture (%)							
% SOLIDS	91.1	84.1	NA	NA	NA	90.9	NA
pH (pH units)							
PH	7.8	8.5	NA	NA	NA	8.7	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B037	IR06B037	IR06B038	IR06B038	IR06B038	IR06B038	IR06B038
Sampling Depth (feet bgs)	10.25	15.25	1.75	3.25	5.25	7.25	15.25
Sample Number	8945H068	8945H069	8945H070	8945H071	8945H072	8945H073	8945H075
Sample Date	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89
Metal (mg/kg)							
ALUMINUM	NA	NA	15,400	14,200	11,200	NA	NA
ANTIMONY	NA	NA	ND (6.8)	ND (7.0)	ND (7.5)	NA	NA
ARSENIC	NA	NA	2.6 *#	3.0 *#	1.7 *	NA	NA
BARIUM	NA	NA	408 a	219	130	NA	NA
BERYLLIUM	NA	NA	0.43 *	0.46 *	0.63 *	NA	NA
CADMIUM	NA	NA	0.92	ND (0.81)	ND (0.86)	NA	NA
CALCIUM	NA	NA	11,200	10,800	3,210	NA	NA
CHROMIUM	NA	NA	58.0	220 *	441 *a	NA	NA
CHROMIUM VI	NA	NA	ND (0.05)	ND (0.06)	ND (0.06)	NA	NA
COBALT	NA	NA	24.9	32.9	36.9 a	NA	NA
COPPER	NA	NA	30.7	36.9	21.2	NA	NA
IRON	NA	NA	24,200	27,500	27,500	NA	NA
LEAD	NA	NA	4.8	17.7 a	13.9 a	NA	NA
MAGNESIUM	NA	NA	14,400	32,200	10,000	NA	NA
MANGANESE	NA	NA	951 *	948 *	321	NA	NA
MERCURY	NA	NA	0.20	0.10	ND (0.10)	NA	NA
MOLYBDENUM	NA	NA	ND (1.3)	ND (1.3)	ND (1.4)	NA	NA
NICKEL	NA	NA	76.1	531 *	497 *a	NA	NA
POTASSIUM	NA	NA	757	839	546	NA	NA
SELENIUM	NA	NA	ND (0.47)	ND (0.48)	ND (0.51)	NA	NA
SILVER	NA	NA	ND (0.56)	ND (0.57)	ND (0.61)	NA	NA
SODIUM	NA	NA	780	552	256	NA	NA
THALLIUM	NA	NA	ND (0.49)	ND (0.51)	ND (0.54)	NA	NA
VANADIUM	NA	NA	60.0	48.4	59.3	NA	NA
ZINC	NA	NA	48.3	55.7	50.4	NA	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	NA	ND (5)	ND (6)	ND (6)	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (5)	ND (6)	ND (6)	NA	NA
2-BUTANONE	NA	NA	ND (11)	7	ND (12)	NA	NA
BENZENE	ND (63)	ND (61)	ND (5)	ND (6)	ND (6)	ND (61)	ND (60)
BROMOFORM	NA	NA	ND (5)	ND (6)	ND (6)	NA	NA
CARBON DISULFIDE	NA	NA	ND (5)	ND (6)	ND (6)	NA	NA
ETHYLBENZENE	ND (63)	ND (61)	ND (5)	ND (6)	ND (6)	ND (61)	ND (60)
TETRACHLOROETHENE	NA	NA	ND (5)	ND (6)	ND (6)	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B037	IR06B037	IR06B038	IR06B038	IR06B038	IR06B038	IR06B038
Sampling Depth (feet bgs)	10.25	15.25	1.75	3.25	5.25	7.25	15.25
Sample Number	8945H068	8945H069	8945H070	8945H071	8945H072	8945H073	8945H075
Sample Date	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (63)	ND (61)	2	11	ND (6)	ND (61)	ND (60)
TRICHLOROETHENE	NA	NA	ND (5)	ND (6)	ND (6)	NA	NA
VINYL ACETATE	NA	NA	ND (11)	ND (11)	ND (12)	NA	NA
XYLENE (TOTAL)	ND (130)	ND (120)	ND (5)	ND (6)	ND (6)	ND (120)	ND (120)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
2-METHYLNAPHTHALENE	NA	NA	ND (350)	130	ND (390)	NA	NA
4-METHYLPHENOL	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
4-NITROPHENOL	NA	NA	ND (1,700)	ND (1,800)	ND (1,900)	NA	NA
ACENAPHTHENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
ACENAPHTHYLENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
ANTHRACENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
BENZO(A)ANTHRACENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
BENZO(A)PYRENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
BENZOIC ACID	NA	NA	ND (1,700)	ND (1,800)	ND (1,900)	NA	NA
CHRYSENE	NA	NA	ND (350)	47	ND (390)	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
DIBENZOFURAN	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
FLUORANTHENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
FLUORENE	NA	NA	ND (350)	37	ND (390)	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
NAPHTHALENE	NA	NA	ND (350)	ND (360)	ND (390)	NA	NA
PENTACHLOROPHENOL	NA	NA	ND (1,700)	ND (1,800)	ND (1,900)	NA	NA
PHENANTHRENE	NA	NA	ND (350)	130	ND (390)	NA	NA
PYRENE	NA	NA	ND (350)	42	ND (390)	NA	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	ND (17)	ND (18)	ND (19)	NA	NA
ALDRIN	NA	NA	ND (9)	ND (9)	ND (9)	NA	NA
ENDOSULFAN I	NA	NA	ND (9)	ND (9)	ND (9)	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B037	IR06B037	IR06B038	IR06B038	IR06B038	IR06B038	IR06B038
Sampling Depth (feet bgs)	10.25	15.25	1.75	3.25	5.25	7.25	15.25
Sample Number	8945H068	8945H069	8945H070	8945H071	8945H072	8945H073	8945H075
Sample Date	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89	11/09/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	NA	ND (170)	ND (180)	ND (190)	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	21	ND (310)	ND (270)	ND (550)	ND (6)	ND (61)	ND (60)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	220	220	260	2,200	180	230	300
Percent Moisture (%)							
% SOLIDS	NA	NA	93.6	90.8	85.6	NA	NA
pH (pH units)							
PH	NA	NA	9.0	8.7	7.3	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B039	IR06B039	IR06B039	IR06B039	IR06B043	IR06B043	IR06B043
Sampling Depth (feet bgs)	0.75	5.75	10.25	14.25	1.25	5.25	10.75
Sample Number	9022H226	9022H227	9022H228	9022H229	9023H260	9023H261	9023H262
Sample Date	05/30/90	05/30/90	05/30/90	05/30/90	06/07/90	06/07/90	06/07/90
Metal (mg/kg)							
ALUMINUM	8,510	10,500	NA	NA	21,100	NA	NA
ANTIMONY	ND (4.6)	ND (5.1)	NA	NA	4.8	NA	NA
ARSENIC	1.9 *	0.95 *	NA	NA	5.0 *#	NA	NA
BARIUM	78.7	41.3	NA	NA	156	NA	NA
BERYLLIUM	ND (0.29)	ND (0.09)	NA	NA	ND (0.76)	NA	NA
CADMIUM	ND (0.85)	ND (0.95)	NA	NA	ND (0.76)	NA	NA
CALCIUM	6,270	1,270	NA	NA	15,100	NA	NA
CHROMIUM	66.5	1,190 *	NA	NA	112	NA	NA
CHROMIUM VI	ND (0.06)	ND (0.06)	NA	NA	ND (0.05)	ND (0.05)	NA
COBALT	15.5	159	NA	NA	19.5	NA	NA
COPPER	33.1	36.3	NA	NA	29.5	NA	NA
IRON	14,400	77,000	NA	NA	30,700	NA	NA
LEAD	5.7	1.3	NA	NA	4.2	NA	NA
MAGNESIUM	11,800	251,000	NA	NA	20,800	NA	NA
MANGANESE	471 *	1,250 *	NA	NA	785 *	NA	NA
MERCURY	NA	NA	NA	NA	0.10	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	143	3,390 *	NA	NA	167 *	NA	NA
POTASSIUM	891	325	NA	NA	1,120	NA	NA
SELENIUM	ND (0.50)	ND (0.56)	NA	NA	ND (0.45)	NA	NA
SILVER	ND (0.25)	1.5 #	NA	NA	ND (0.23)	NA	NA
SODIUM	304	319	NA	NA	942	NA	NA
THALLIUM	ND (0.39)	ND (0.44)	NA	NA	ND (0.35)	NA	NA
VANADIUM	31.7	64.5	NA	NA	77.5	NA	NA
ZINC	33.2	63.7	NA	NA	59.6	NA	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (29)	ND (32)	NA	NA	ND (5)	ND (5)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (29)	47	NA	NA	ND (5)	ND (5)	NA
2-BUTANONE	ND (57)	24	NA	NA	ND (10)	ND (10)	NA
BENZENE	ND (29)	140	32	ND (56)	ND (5)	ND (5)	ND (5)
BROMOFORM	ND (29)	ND (32)	NA	NA	ND (5)	ND (5)	NA
CARBON DISULFIDE	ND (29)	ND (32)	NA	NA	ND (5)	ND (5)	NA
ETHYLBENZENE	ND (29)	180	7	ND (56)	ND (5)	ND (5)	ND (5)
TETRACHLOROETHENE	ND (29)	2,200	NA	NA	ND (5)	ND (5)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B039	IR06B039	IR06B039	IR06B039	IR06B043	IR06B043	IR06B043
Sampling Depth (feet bgs)	0.75	5.75	10.25	14.25	1.25	5.25	10.75
Sample Number	9022H226	9022H227	9022H228	9022H229	9023H260	9023H261	9023H262
Sample Date	05/30/90	05/30/90	05/30/90	05/30/90	06/07/90	06/07/90	06/07/90
Volatile Organic Compound (ug/kg)							
TOLUENE	17	180	11	73	100	38	13
TRICHLOROETHENE	ND (29)	190	NA	NA	ND (5)	ND (5)	NA
VINYL ACETATE	ND (57)	14	NA	NA	ND (10)	ND (10)	NA
XYLENE (TOTAL)	19	1,200	34	290	ND (5)	1	ND (16)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (3,800)	NA	NA	NA	ND (340)	NA	NA
2-METHYLNAPHTHALENE	710	12,000	NA	NA	ND (340)	NA	NA
4-METHYLPHENOL	ND (3,800)	NA	NA	NA	ND (340)	NA	NA
4-NITROPHENOL	ND (18,000)	ND (4,100)	NA	NA	ND (1,600)	NA	NA
ACENAPHTHENE	ND (3,800)	2,400	NA	NA	ND (340)	NA	NA
ACENAPHTHYLENE	ND (3,800)	ND (850)	NA	NA	ND (340)	NA	NA
ANTHRACENE	ND (3,800)	620	NA	NA	ND (340)	NA	NA
BENZO(A)ANTHRACENE	ND (3,800)	440	NA	NA	ND (340)	NA	NA
BENZO(A)PYRENE	ND (3,800)	ND (850)	NA	NA	ND (340)	NA	NA
BENZO(B)FLUORANTHENE	ND (3,800)	150	NA	NA	ND (340)	NA	NA
BENZO(G,H,I)PERYLENE	ND (3,800)	ND (850)	NA	NA	ND (340)	NA	NA
BENZO(K)FLUORANTHENE	ND (3,800)	ND (850)	NA	NA	ND (340)	NA	NA
BENZOIC ACID	ND (18,000)	ND (4,100)	NA	NA	ND (1,600)	NA	NA
CHRYSENE	ND (3,800)	300	NA	NA	ND (340)	NA	NA
DI-N-BUTYLPHTHALATE	ND (3,800)	140	NA	NA	ND (340)	NA	NA
DIBENZ(A,H)ANTHRACENE	ND (3,800)	ND (850)	NA	NA	ND (340)	NA	NA
DIBENZOFURAN	ND (3,800)	2,400	NA	NA	ND (340)	NA	NA
FLUORANTHENE	ND (3,800)	2,400	NA	NA	ND (340)	NA	NA
FLUORENE	ND (3,800)	3,000	NA	NA	ND (340)	NA	NA
INDENO(1,2,3-CD)PYRENE	ND (3,800)	ND (850)	NA	NA	ND (340)	NA	NA
N-NITROSODIPHENYLAMINE	ND (3,800)	ND (850)	NA	NA	ND (340)	NA	NA
NAPHTHALENE	ND (3,800)	7,400	NA	NA	ND (340)	NA	NA
PENTACHLOROPHENOL	ND (18,000)	NA	NA	NA	ND (1,600)	NA	NA
PHENANTHRENE	800	8,200	NA	NA	ND (340)	NA	NA
PYRENE	ND (3,800)	1,300	NA	NA	ND (340)	NA	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06B039	IR06B039	IR06B039	IR06B039	IR06B043	IR06B043	IR06B043
Sampling Depth (feet bgs)	0.75	5.75	10.25	14.25	1.25	5.25	10.75
Sample Number	9022H226	9022H227	9022H228	9022H229	9023H260	9023H261	9023H262
Sample Date	05/30/90	05/30/90	05/30/90	05/30/90	06/07/90	06/07/90	06/07/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	77 *	4,900 *#	NA	NA	ND (51)	ND (50)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	1,400	1,500	ND (13)	2,000	ND (10)	45	47
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	76	2,100	94	1,800	ND (51)	NA	58
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	8.8	7.7	NA	NA	7.9	8.1	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sampling Depth (feet bgs)	1.25	5.25	10.25	1.25	5.25	9.75	14.75
Sample Number	9022F040	9022F041	9022F042	9022F043	9022F044	9022F045	9022F046
Sample Date	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90
Metal (mg/kg)							
ALUMINUM	27,000	12,700	NA	12,500	15,400	NA	NA
ANTIMONY	ND (5.0)	ND (5.0)	NA	ND (4.9)	ND (4.9)	NA	NA
ARSENIC	2.0 *	1.8 *	NA	2.0 *	2.0 *	NA	NA
BARIUM	77.4	69.4	NA	104	121	NA	NA
BERYLLIUM	ND (0.22)	ND (0.19)	NA	ND (0.16)	ND (0.27)	NA	NA
CADMIUM	ND (0.93)	ND (0.93)	NA	ND (0.90)	ND (0.90)	NA	NA
CALCIUM	8,050	2,330	NA	17,000	3,050	NA	NA
CHROMIUM	661 *	1,030 *	NA	240 *	496 *	NA	NA
CHROMIUM VI	ND (0.06)	ND (0.06)	NA	ND (0.06)	ND (0.06)	NA	NA
COBALT	95.5	106	NA	87.0	60.8	NA	NA
COPPER	38.7	21.1	NA	82.7	55.9	NA	NA
IRON	58,400	57,700	NA	47,900	42,700	NA	NA
LEAD	3.1	6.1	NA	14.6 a	18.8 a	NA	NA
MAGNESIUM	121,000	125,000	NA	81,700	83,300	NA	NA
MANGANESE	1,040 *	830 *	NA	782 *	786 *	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	1,650 *	1,770 *	NA	1,610 *	1,110 *	NA	NA
POTASSIUM	1,460	639	NA	646	381	NA	NA
SELENIUM	ND (0.55)	ND (0.55)	NA	ND (0.54)	ND (0.54)	NA	NA
SILVER	1.3	1.3	NA	ND (1.2)	ND (1.2)	NA	NA
SODIUM	511	204	NA	185	260	NA	NA
THALLIUM	ND (0.43)	ND (0.43)	NA	ND (0.42)	ND (0.41)	NA	NA
VANADIUM	84.1	74.0	NA	49.1	60.7	NA	NA
ZINC	66.3	48.0	NA	61.6	51.2	NA	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (630)	NA	ND (6)	ND (6)	NA	NA
1,2-DICHLOROETHENE (TOTAL)	4	ND (630)	NA	ND (6)	ND (6)	NA	NA
2-BUTANONE	ND (13)	ND (1,300)	NA	ND (12)	ND (12)	NA	NA
BENZENE	ND (6)	ND (630)	ND (6)	ND (6)	ND (6)	97	ND (6)
BROMOFORM	ND (6)	ND (630)	NA	ND (6)	ND (6)	NA	NA
CARBON DISULFIDE	7	ND (630)	NA	ND (6)	ND (6)	NA	NA
ETHYLBENZENE	ND (6)	ND (630)	ND (6)	ND (6)	ND (6)	10	ND (6)
TETRACHLOROETHENE	ND (6)	ND (630)	NA	ND (6)	ND (6)	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sampling Depth (feet bgs)	1.25	5.25	10.25	1.25	5.25	9.75	14.75
Sample Number	9022F040	9022F041	9022F042	9022F043	9022F044	9022F045	9022F046
Sample Date	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90
Volatile Organic Compound (ug/kg)							
TOLUENE	87	500	8	49	6	44	ND (6)
TRICHLOROETHENE	15	ND (630)	NA	ND (6)	ND (6)	NA	NA
VINYL ACETATE	ND (13)	ND (1,300)	NA	ND (12)	ND (12)	NA	NA
XYLENE (TOTAL)	ND (6)	4,100	ND (18)	ND (6)	ND (6)	ND (18)	ND (19)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (410)	NA	NA	ND (810)	ND (400)	NA	NA
2-METHYLNAPHTHALENE	ND (410)	16,000	NA	ND (810)	ND (400)	NA	NA
4-METHYLPHENOL	ND (410)	NA	NA	ND (810)	ND (400)	NA	NA
4-NITROPHENOL	ND (2,000)	ND (40,000)	NA	ND (3,900)	ND (2,000)	NA	NA
ACENAPHTHENE	ND (410)	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
ACENAPHTHYLENE	ND (410)	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
ANTHRACENE	46	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
BENZO(A)ANTHRACENE	ND (410)	ND (8,300)	NA	ND (810)	87	NA	NA
BENZO(A)PYRENE	ND (410)	ND (8,300)	NA	ND (810)	120 *	NA	NA
BENZO(B)FLUORANTHENE	ND (410)	ND (8,300)	NA	ND (810)	150	NA	NA
BENZO(G,H,I)PERYLENE	ND (410)	ND (8,300)	NA	ND (810)	100	NA	NA
BENZO(K)FLUORANTHENE	ND (410)	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
BENZOIC ACID	ND (2,000)	ND (40,000)	NA	ND (3,900)	ND (2,000)	NA	NA
CHRYSENE	ND (410)	ND (8,300)	NA	ND (810)	110	NA	NA
DI-N-BUTYLPHTHALATE	ND (410)	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
DIBENZ(A,H)ANTHRACENE	ND (410)	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
DIBENZOFURAN	43	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
FLUORANTHENE	63	ND (8,300)	NA	ND (810)	130	NA	NA
FLUORENE	ND (410)	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
INDENO(1,2,3-CD)PYRENE	ND (410)	ND (8,300)	NA	ND (810)	77	NA	NA
N-NITROSODIPHENYLAMINE	ND (410)	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
NAPHTHALENE	ND (410)	7,300	NA	ND (810)	ND (400)	NA	NA
PENTACHLOROPHENOL	ND (2,000)	NA	NA	ND (3,900)	ND (2,000)	NA	NA
PHENANTHRENE	130	ND (8,300)	NA	ND (810)	ND (400)	NA	NA
PYRENE	140	ND (8,300)	NA	ND (810)	210	NA	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sampling Depth (feet bgs)	1.25	5.25	10.25	1.25	5.25	9.75	14.75
Sample Number	9022F040	9022F041	9022F042	9022F043	9022F044	9022F045	9022F046
Sample Date	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90	05/31/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (63)	520 *#	NA	ND (61)	ND (61)	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	16	1,900	ND (12)	ND (12)	ND (12)	23	ND (12)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	78	2,400	66	280	100	140	75
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	8.4	7.9	NA	8.5	8.3	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sampling Depth (feet bgs)	1.25	5.25	10.25	1.25	5.25	10.25	15.25
Sample Number	9022H239	9022H240	9022H241	9022H230	9022H231	9022H232	9022H233
Sample Date	06/01/90	06/01/90	06/01/90	05/30/90	05/30/90	05/30/90	05/30/90
Metal (mg/kg)							
ALUMINUM	36,400	17,300	NA	25,400	18,300	NA	NA
ANTIMONY	ND (5.3)	ND (4.8)	NA	ND (5.2)	ND (5.2)	NA	NA
ARSENIC	ND (2.7)	3.4 *#	NA	2.3 *#	3.1 *#	NA	NA
BARIUM	159	141	NA	154	116	NA	NA
BERYLLIUM	ND (0.09)	ND (0.37)	NA	ND (0.44)	ND (0.25)	NA	NA
CADMIUM	ND (0.99)	ND (0.90)	NA	ND (0.95)	ND (0.96)	NA	NA
CALCIUM	17,000	3,560	NA	14,800	4,990	NA	NA
CHROMIUM	377 *	246 *α	NA	335 *	309 *	NA	NA
CHROMIUM VI	ND (0.07)	ND (0.06)	NA	ND (0.07)	ND (0.07)	NA	NA
COBALT	86.2 α	16.7	NA	82.3 α	36.2	NA	NA
COPPER	74.0	27.0	NA	33.8	27.6	NA	NA
IRON	58,200	36,400	NA	56,700	39,000	NA	NA
LEAD	1.4	5.4	NA	3.4	4.9	NA	NA
MAGNESIUM	66,600	6,020	NA	52,000	44,400	NA	NA
MANGANESE	1,230 *	252	NA	988 *	549 *	NA	NA
MERCURY	NA	NA	NA	0.10	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	1,310 *	143	NA	1,590 *α	568 *	NA	NA
POTASSIUM	307	622	NA	1,570	1,010	NA	NA
SELENIUM	ND (0.59)	ND (0.53)	NA	ND (0.57)	ND (0.57)	NA	NA
SILVER	ND (1.3)	ND (0.60)	NA	1.0	0.51	NA	NA
SODIUM	765	301	NA	393	286	NA	NA
THALLIUM	ND (0.45)	ND (0.41)	NA	ND (0.44)	ND (0.44)	NA	NA
VANADIUM	102	88.8	NA	77.3	71.4	NA	NA
ZINC	61.6	40.9	NA	70.5	78.8	NA	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (33)	ND (30)	NA	ND (7)	ND (7)	NA	NA
1,2-DICHLOROETHENE (TOTAL)	ND (33)	ND (30)	NA	ND (7)	8	NA	NA
2-BUTANONE	ND (67)	ND (61)	NA	ND (13)	ND (13)	NA	NA
BENZENE	ND (33)	ND (30)	ND (6)	ND (7)	ND (7)	ND (6)	ND (7)
BROMOFORM	ND (33)	ND (30)	NA	ND (7)	ND (7)	NA	NA
CARBON DISULFIDE	ND (33)	ND (30)	NA	ND (7)	ND (7)	NA	NA
ETHYLBENZENE	ND (33)	ND (30)	130	ND (7)	ND (7)	ND (6)	ND (7)
TETRACHLOROETHENE	ND (33)	ND (30)	NA	57	ND (7)	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sampling Depth (feet bgs)	1.25	5.25	10.25	1.25	5.25	10.25	15.25
Sample Number	9022H239	9022H240	9022H241	9022H230	9022H231	9022H232	9022H233
Sample Date	06/01/90	06/01/90	06/01/90	05/30/90	05/30/90	05/30/90	05/30/90
Volatile Organic Compound (ug/kg)							
TOLUENE	23	ND (30)	56	2	ND (7)	ND (6)	ND (7)
TRICHLOROETHENE	ND (33)	ND (30)	NA	ND (7)	ND (7)	NA	NA
VINYL ACETATE	ND (67)	ND (61)	NA	ND (13)	ND (13)	NA	NA
XYLENE (TOTAL)	ND (33)	ND (30)	ND (120)	ND (7)	ND (7)	ND (19)	ND (21)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
2-METHYLNAPHTHALENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
4-METHYLPHENOL	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
4-NITROPHENOL	ND (4,300)	ND (1,900)	NA	ND (2,100)	ND (2,100)	NA	NA
ACENAPHTHENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
ACENAPHTHYLENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
ANTHRACENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
BENZO(A)ANTHRACENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
BENZO(A)PYRENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
BENZO(B)FLUORANTHENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
BENZO(G,H,I)PERYLENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
BENZO(K)FLUORANTHENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
BENZOIC ACID	ND (4,300)	ND (1,900)	NA	ND (2,100)	ND (2,100)	NA	NA
CHRYSENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
DI-N-BUTYLPHTHALATE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
DIBENZ(A,H)ANTHRACENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
DIBENZOFURAN	99	ND (400)	NA	ND (430)	ND (430)	NA	NA
FLUORANTHENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
FLUORENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
INDENO(1,2,3-CD)PYRENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
N-NITROSODIPHENYLAMINE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
NAPHTHALENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
PENTACHLOROPHENOL	ND (4,300)	ND (1,900)	NA	ND (2,100)	ND (2,100)	NA	NA
PHENANTHRENE	570	ND (400)	NA	ND (430)	ND (430)	NA	NA
PYRENE	ND (880)	ND (400)	NA	ND (430)	ND (430)	NA	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sampling Depth (feet bgs)	1.25	5.25	10.25	1.25	5.25	10.25	15.25
Sample Number	9022H239	9022H240	9022H241	9022H230	9022H231	9022H232	9022H233
Sample Date	06/01/90	06/01/90	06/01/90	05/30/90	05/30/90	05/30/90	05/30/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (67)	ND (61)	NA	ND (65)	ND (65)	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	470	ND (12)	3,500	ND (13)	ND (13)	ND (13)	ND (14)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	150	73	1,500	70	96	95	110
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	8.3	7.6	NA	7.6	8.0	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW34A	IR06MW34A	IR06MW34A
Sampling Depth (feet bgs)	0.75	5.75	10.25	15.25	1.25	5.25	10.75
Sample Number	9022H242	9022H243	9022H244	9022H245	9023H256	9023H257	9023H258
Sample Date	06/01/90	06/01/90	06/01/90	06/01/90	06/07/90	06/07/90	06/07/90
Metal (mg/kg)							
ALUMINUM	23,400	29,400	NA	NA	27,300	18,200	NA
ANTIMONY	ND (4.3)	ND (5.2)	NA	NA	ND (4.5)	ND (6.2)	NA
ARSENIC	4.7 *#	ND (2.6)	NA	NA	0.85 *	1.2 *	NA
BARIUM	228	254	NA	NA	136	114	NA
BERYLLIUM	ND (0.39)	ND (0.31)	NA	NA	ND (0.71)	ND (0.50)	NA
CADMIUM	ND (0.79)	ND (0.97)	NA	NA	ND (0.83)	ND (1.1)	NA
CALCIUM	17,600	12,800	NA	NA	5,580	4,980	NA
CHROMIUM	97.4	243 *	NA	NA	438 *	1,780 *#α	NA
CHROMIUM VI	ND (0.05)	ND (0.07)	NA	NA	ND (0.06)	ND (0.08)	NA
COBALT	24.5	41.1	NA	NA	69.6	130 α	NA
COPPER	46.7	95.7	NA	NA	53.9	84.0	NA
IRON	33,500	46,100	NA	NA	53,400	68,900	NA
LEAD	8.9	9.3 α	NA	NA	1.6	9.8 α	NA
MAGNESIUM	23,900	30,100	NA	NA	76,200	49,000	NA
MANGANESE	1,300 *	1,960 *α	NA	NA	1,060 *	1,140 *	NA
MERCURY	0.10	NA	NA	NA	0.10	0.20	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	148	321 *	NA	NA	1,200 *	2,130 *α	NA
POTASSIUM	1,030	1,030	NA	NA	1,090	718	NA
SELENIUM	ND (0.47)	ND (0.58)	NA	NA	ND (0.49)	ND (0.68)	NA
SILVER	ND (0.97)	ND (1.0)	NA	NA	ND (0.25)	ND (0.34)	NA
SODIUM	512	802	NA	NA	505	472	NA
THALLIUM	ND (0.36)	ND (0.44)	NA	NA	ND (0.38)	ND (0.53)	NA
VANADIUM	83.7	79.0	NA	NA	71.5	60.7	NA
ZINC	62.5	78.7	NA	NA	68.0	67.1	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (5)	ND (33)	NA	NA	ND (6)	ND (8)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (5)	ND (33)	NA	NA	ND (6)	ND (8)	NA
2-BUTANONE	ND (11)	ND (65)	NA	NA	ND (11)	ND (16)	NA
BENZENE	ND (5)	ND (33)	ND (7)	ND (8)	ND (6)	ND (8)	ND (6)
BROMOFORM	ND (5)	ND (33)	NA	NA	ND (6)	ND (8)	NA
CARBON DISULFIDE	ND (5)	ND (33)	NA	NA	ND (6)	ND (8)	NA
ETHYLBENZENE	ND (5)	8	ND (7)	ND (8)	ND (6)	ND (8)	ND (6)
TETRACHLOROETHENE	5	ND (33)	NA	NA	ND (6)	ND (8)	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW34A	IR06MW34A	IR06MW34A
Sampling Depth (feet bgs)	0.75	5.75	10.25	15.25	1.25	5.25	10.75
Sample Number	9022H242	9022H243	9022H244	9022H245	9023H256	9023H257	9023H258
Sample Date	06/01/90	06/01/90	06/01/90	06/01/90	06/07/90	06/07/90	06/07/90
Volatile Organic Compound (ug/kg)							
TOLUENE	89	24	9	ND (8)	63	40	71
TRICHLOROETHENE	ND (5)	ND (33)	NA	NA	ND (6)	ND (8)	NA
VINYL ACETATE	ND (11)	ND (65)	NA	NA	ND (11)	ND (16)	NA
XYLENE (TOTAL)	ND (5)	ND (33)	64	ND (24)	ND (6)	ND (8)	ND (18)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
2-METHYLNAPHTHALENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
4-METHYLPHENOL	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
4-NITROPHENOL	ND (5,100)	ND (130,000)	NA	NA	ND (1,800)	ND (2,500)	NA
ACENAPHTHENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
ACENAPHTHYLENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
ANTHRACENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
BENZO(A)ANTHRACENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
BENZO(A)PYRENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
BENZO(B)FLUORANTHENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
BENZO(G,H,I)PERYLENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
BENZO(K)FLUORANTHENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
BENZOIC ACID	ND (5,100)	ND (130,000)	NA	NA	ND (1,800)	ND (2,500)	NA
CHRYSENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
DI-N-BUTYLPHTHALATE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
DIBENZ(A,H)ANTHRACENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
DIBENZOFURAN	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
FLUORANTHENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
FLUORENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
INDENO(1,2,3-CD)PYRENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
N-NITROSODIPHENYLAMINE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
NAPHTHALENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
PENTACHLOROPHENOL	ND (5,100)	ND (130,000)	NA	NA	ND (1,800)	ND (2,500)	NA
PHENANTHRENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
PYRENE	ND (1,100)	ND (26,000)	NA	NA	ND (370)	ND (510)	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW34A	IR06MW34A	IR06MW34A
Sampling Depth (feet bgs)	0.75	5.75	10.25	15.25	1.25	5.25	10.75
Sample Number	9022H242	9022H243	9022H244	9022H245	9023H256	9023H257	9023H258
Sample Date	06/01/90	06/01/90	06/01/90	06/01/90	06/07/90	06/07/90	06/07/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (53)	ND (65)	NA	NA	ND (56)	ND (78)	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (11)	970	2,500	110	ND (11)	ND (16)	ND (12)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	390	1,100	950	130	ND (56)	ND (78)	ND (59)
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	8.4	7.5	NA	NA	7.7	7.5	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW34A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW40A	IR06MW40A
Sampling Depth (feet bgs)	13.75	1.25	5.25	10.75	15.25	1.25	5.75
Sample Number	9023H259	9023G271	9023G272	9023G273	9023G274	9023G277	9023G278
Sample Date	06/07/90	06/04/90	06/04/90	06/04/90	06/04/90	06/06/90	06/06/90
Metal (mg/kg)							
ALUMINUM	NA	26,200	12,700	NA	NA	25,300	16,300
ANTIMONY	NA	ND (4.8)	ND (4.8)	NA	NA	ND (4.4)	ND (4.7)
ARSENIC	NA	3.1 *#	3.3 *#	NA	NA	4.0 *#	5.2 *#
BARIUM	NA	137	67.3	NA	NA	151	135
BERYLLIUM	NA	ND (0.37)	ND (0.22)	NA	NA	ND (0.88)	ND (0.60)
CADMIUM	NA	ND (0.89)	ND (0.89)	NA	NA	ND (0.81)	ND (0.86)
CALCIUM	NA	13,900	2,510	NA	NA	20,100	3,110
CHROMIUM	NA	429 *	366 *a	NA	NA	229 *	349 *a
CHROMIUM VI	NA	ND (0.06)	ND (0.06)	NA	NA	ND (0.06)	ND (0.06)
COBALT	NA	53.0	20.5	NA	NA	40.8	40.2 a
COPPER	NA	45.0	21.5	NA	NA	39.4	36.1
IRON	NA	39,500	35,600	NA	NA	36,600	40,000
LEAD	NA	4.4	3.1	NA	NA	6.5	13.8 a
MAGNESIUM	NA	119,000	22,800	NA	NA	44,000	14,100
MANGANESE	NA	847 *	278	NA	NA	825 *	1,250 *
MERCURY	NA	ND (0.10)	ND (0.10)	NA	NA	ND (0.10)	ND (0.10)
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	848 *	683 *a	NA	NA	404 *	489 *a
POTASSIUM	NA	1,070	437	NA	NA	1,270	703
SELENIUM	NA	ND (0.53)	ND (0.53)	NA	NA	ND (0.48)	ND (0.51)
SILVER	NA	ND (1.4)	ND (0.64)	NA	NA	ND (0.24)	ND (0.26)
SODIUM	NA	484	325	NA	NA	460	333
THALLIUM	NA	ND (0.41)	ND (0.41)	NA	NA	ND (0.37)	ND (0.40)
VANADIUM	NA	68.2	44.1	NA	NA	83.7	82.4
ZINC	NA	54.8	37.2	NA	NA	63.6	48.7
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	ND (6)	ND (6)	NA	NA	ND (6)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	NA	37	ND (6)	NA	NA	ND (6)	ND (6)
2-BUTANONE	NA	ND (12)	ND (12)	NA	NA	ND (11)	ND (12)
BENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
BROMOFORM	NA	ND (6)	ND (6)	NA	NA	ND (6)	ND (6)
CARBON DISULFIDE	NA	ND (6)	ND (6)	NA	NA	ND (6)	ND (6)
ETHYLBENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
TETRACHLOROETHENE	NA	ND (6)	ND (6)	NA	NA	ND (6)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW34A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW40A	IR06MW40A
Sampling Depth (feet bgs)	13.75	1.25	5.25	10.75	15.25	1.25	5.75
Sample Number	9023H259	9023G271	9023G272	9023G273	9023G274	9023G277	9023G278
Sample Date	06/07/90	06/04/90	06/04/90	06/04/90	06/04/90	06/06/90	06/06/90
Volatile Organic Compound (ug/kg)							
TOLUENE	14	2	ND (6)	ND (6)	ND (6)	190	4
TRICHLOROETHENE	NA	ND (6)	ND (6)	NA	NA	ND (6)	ND (6)
VINYL ACETATE	NA	ND (12)	ND (12)	NA	NA	ND (11)	ND (12)
XYLENE (TOTAL)	ND (17)	ND (6)	ND (6)	ND (19)	ND (18)	ND (6)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
2-METHYLNAPHTHALENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
4-METHYLPHENOL	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
4-NITROPHENOL	NA	ND (1,900)	ND (1,900)	NA	NA	ND (1,700)	ND (1,900)
ACENAPHTHENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
ACENAPHTHYLENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
ANTHRACENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
BENZO(A)ANTHRACENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
BENZO(A)PYRENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
BENZO(B)FLUORANTHENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
BENZO(G,H,I)PERYLENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
BENZO(K)FLUORANTHENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
BENZOIC ACID	NA	ND (1,900)	ND (1,900)	NA	NA	ND (1,700)	ND (1,900)
CHRYSENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
DI-N-BUTYLPHTHALATE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
DIBENZ(A,H)ANTHRACENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
DIBENZOFURAN	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
FLUORANTHENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
FLUORENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
INDENO(1,2,3-CD)PYRENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
N-NITROSODIPHENYLAMINE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
NAPHTHALENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
PENTACHLOROPHENOL	NA	ND (1,900)	ND (1,900)	NA	NA	ND (1,700)	ND (1,900)
PHENANTHRENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
PYRENE	NA	ND (400)	ND (400)	NA	NA	ND (360)	ND (390)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW34A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW40A	IR06MW40A
Sampling Depth (feet bgs)	13.75	1.25	5.25	10.75	15.25	1.25	5.75
Sample Number	9023H259	9023G271	9023G272	9023G273	9023G274	9023G277	9023G278
Sample Date	06/07/90	06/04/90	06/04/90	06/04/90	06/04/90	06/06/90	06/06/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	ND (60)	ND (60)	NA	NA	ND (55)	ND (58)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	ND (58)	87	100	80	83	NA	ND (58)
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	7.9	6.9	NA	NA	8.9	8.2

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW42A
Sampling Depth (feet bgs)	10.75	15.75	30.75	1.25	5.25	15.25	0.75
Sample Number	9023G279	9023G280	9023G283	9023H246	9023H247	9023H249	9023H252
Sample Date	06/06/90	06/06/90	06/06/90	06/05/90	06/05/90	06/05/90	06/05/90
Metal (mg/kg)							
ALUMINUM	NA	NA	NA	19,100	21,100	NA	27,900
ANTIMONY	NA	NA	NA	ND (4.3)	ND (5.0)	NA	ND (4.2)
ARSENIC	NA	NA	NA	5.8 *#	1.8 *	NA	3.7 *#
BARIUM	NA	NA	NA	834 a	128	NA	444 a
BERYLLIUM	NA	NA	NA	ND (0.50)	ND (0.26)	NA	ND (1.2)
CADMIUM	NA	NA	NA	ND (0.79)	ND (0.92)	NA	ND (0.77)
CALCIUM	NA	NA	NA	17,300	9,110	NA	20,400
CHROMIUM	NA	NA	NA	68.4	621 *	NA	84.3
CHROMIUM VI	NA	NA	NA	ND (0.05)	ND (0.06)	NA	ND (0.05)
COBALT	NA	NA	NA	18.6	63.6	NA	24.7
COPPER	NA	NA	NA	101	84.7	NA	54.6
IRON	NA	NA	NA	31,200	44,200	NA	36,500
LEAD	NA	NA	NA	13.6 a	4.3	NA	8.1
MAGNESIUM	NA	NA	NA	13,700	102,000	NA	16,700
MANGANESE	NA	NA	NA	3,200 *a	753 *	NA	1,290 *
MERCURY	NA	NA	NA	0.10	ND (0.10)	NA	0.10
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	115	1,260 *	NA	107
POTASSIUM	NA	NA	NA	1,690	815	NA	2,000
SELENIUM	NA	NA	NA	ND (0.47)	ND (0.55)	NA	ND (0.46)
SILVER	NA	NA	NA	ND (0.89)	ND (1.2)	NA	ND (0.27)
SODIUM	NA	NA	NA	632	435	NA	648
THALLIUM	NA	NA	NA	ND (0.37)	ND (0.42)	NA	ND (0.35)
VANADIUM	NA	NA	NA	85.0	58.4	NA	97.4
ZINC	NA	NA	NA	81.7	52.8	NA	75.4
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	NA	NA	NA	ND (5)	ND (6)	NA	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	ND (5)	ND (6)	NA	ND (5)
2-BUTANONE	NA	NA	NA	ND (11)	ND (12)	NA	ND (10)
BENZENE	ND (6)	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)
BROMOFORM	NA	NA	NA	ND (5)	ND (6)	NA	ND (5)
CARBON DISULFIDE	NA	NA	NA	ND (5)	ND (6)	NA	ND (5)
ETHYLBENZENE	ND (6)	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)
TETRACHLOROETHENE	NA	NA	NA	ND (5)	ND (6)	NA	ND (5)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW42A
Sampling Depth (feet bgs)	10.75	15.75	30.75	1.25	5.25	15.25	0.75
Sample Number	9023G279	9023G280	9023G283	9023H246	9023H247	9023H249	9023H252
Sample Date	06/06/90	06/06/90	06/06/90	06/05/90	06/05/90	06/05/90	06/05/90
Volatile Organic Compound (ug/kg)							
TOLUENE	160	96	61	ND (5)	ND (6)	ND (6)	5
TRICHLOROETHENE	NA	NA	NA	ND (5)	ND (6)	NA	ND (5)
VINYL ACETATE	NA	NA	NA	ND (11)	ND (12)	NA	ND (10)
XYLENE (TOTAL)	ND (19)	ND (19)	ND (18)	ND (5)	ND (6)	ND (18)	ND (5)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
2-METHYLNAPHTHALENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
4-METHYLPHENOL	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
4-NITROPHENOL	NA	NA	NA	ND (1,700)	ND (2,000)	NA	ND (3,300)
ACENAPHTHENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
ACENAPHTHYLENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
ANTHRACENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
BENZO(A)ANTHRACENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
BENZO(A)PYRENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
BENZO(B)FLUORANTHENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
BENZO(G,H,I)PERYLENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
BENZO(K)FLUORANTHENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
BENZOIC ACID	NA	NA	NA	ND (1,700)	ND (2,000)	NA	ND (3,300)
CHRYSENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
DI-N-BUTYLPHTHALATE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
DIBENZOFURAN	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
FLUORANTHENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
FLUORENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
N-NITROSODIPHENYLAMINE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
NAPHTHALENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
PENTACHLOROPHENOL	NA	NA	NA	ND (1,700)	ND (2,000)	NA	ND (3,300)
PHENANTHRENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
PYRENE	NA	NA	NA	ND (350)	ND (410)	NA	ND (690)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW42A
Sampling Depth (feet bgs)	10.75	15.75	30.75	1.25	5.25	15.25	0.75
Sample Number	9023G279	9023G280	9023G283	9023H246	9023H247	9023H249	9023H252
Sample Date	06/06/90	06/06/90	06/06/90	06/05/90	06/05/90	06/05/90	06/05/90
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	NA	NA	ND (54)	ND (62)	NA	ND (52)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)	18	ND (10)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	ND (62)	ND (62)	ND (61)	410	92	160	NA
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	8.7	8.0	NA	7.2

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW44A
Sampling Depth (feet bgs)	5.75	11.25	2.25	6.25	11.25	16.25	21.25
Sample Number	9023H253	9023H254	9138M192	9138M193	9138M194	9138M195	9138M196
Sample Date	06/05/90	06/05/90	09/19/91	09/19/91	09/19/91	09/19/91	09/19/91
Metal (mg/kg)							
ALUMINUM	13,300	NA	NA	NA	NA	NA	NA
ANTIMONY	ND (4.4)	NA	NA	NA	NA	NA	NA
ARSENIC	2.1 *#	NA	NA	NA	NA	NA	NA
BARIUM	161	NA	NA	NA	NA	NA	NA
BERYLLIUM	ND (0.48)	NA	NA	NA	NA	NA	NA
CADMIUM	ND (0.82)	NA	NA	NA	NA	NA	NA
CALCIUM	3,050	NA	NA	NA	NA	NA	NA
CHROMIUM	132	NA	NA	NA	NA	NA	NA
CHROMIUM VI	ND (0.06)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
COBALT	12.7	NA	NA	NA	NA	NA	NA
COPPER	33.2	NA	NA	NA	NA	NA	NA
IRON	22,800	NA	NA	NA	NA	NA	NA
LEAD	15.9 #	NA	NA	NA	NA	NA	NA
MAGNESIUM	6,430	NA	NA	NA	NA	NA	NA
MANGANESE	314	NA	NA	NA	NA	NA	NA
MERCURY	0.60	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	80.8	NA	NA	NA	NA	NA	NA
POTASSIUM	493	NA	NA	NA	NA	NA	NA
SELENIUM	ND (0.49)	NA	NA	NA	NA	NA	NA
SILVER	ND (0.24)	NA	NA	NA	NA	NA	NA
SODIUM	234	NA	NA	NA	NA	NA	NA
THALLIUM	ND (0.38)	NA	NA	NA	NA	NA	NA
VANADIUM	56.7	NA	NA	NA	NA	NA	NA
ZINC	67.3	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	NA	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	ND (6)	NA	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
2-BUTANONE	ND (11)	NA	ND (13)	ND (12)	ND (12)	ND (12)	ND (12)
BENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
BROMOFORM	ND (6)	NA	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
CARBON DISULFIDE	ND (6)	NA	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
ETHYLBENZENE	ND (6)	28	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
TETRACHLOROETHENE	ND (6)	NA	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW44A
Sampling Depth (feet bgs)	5.75	11.25	2.25	6.25	11.25	16.25	21.25
Sample Number	9023H253	9023H254	9138M192	9138M193	9138M194	9138M195	9138M196
Sample Date	06/05/90	06/05/90	09/19/91	09/19/91	09/19/91	09/19/91	09/19/91
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	23	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
TRICHLOROETHENE	ND (6)	NA	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
VINYL ACETATE	ND (11)	NA	ND (13)	ND (12)	ND (12)	ND (12)	ND (12)
XYLENE (TOTAL)	ND (6)	53	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (370)	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	ND (370)	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	ND (370)	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	ND (1,800)	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	ND (370)	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	ND (370)	NA	NA	NA	NA	NA	NA
ANTHRACENE	ND (370)	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	ND (370)	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	ND (370)	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	ND (370)	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	ND (370)	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	ND (370)	NA	NA	NA	NA	NA	NA
BENZOIC ACID	ND (1,800)	NA	NA	NA	NA	NA	NA
CHRYSENE	ND (370)	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	ND (370)	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	ND (370)	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	ND (370)	NA	NA	NA	NA	NA	NA
FLUORANTHENE	ND (370)	NA	NA	NA	NA	NA	NA
FLUORENE	ND (370)	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	ND (370)	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	ND (370)	NA	NA	NA	NA	NA	NA
NAPHTHALENE	ND (370)	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	ND (1,800)	NA	NA	NA	NA	NA	NA
PHENANTHRENE	ND (370)	NA	NA	NA	NA	NA	NA
PYRENE	ND (370)	NA	NA	NA	NA	NA	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW44A
Sampling Depth (feet bgs)	5.75	11.25	2.25	6.25	11.25	16.25	21.25
Sample Number	9023H253	9023H254	9138M192	9138M193	9138M194	9138M195	9138M196
Sample Date	06/05/90	06/05/90	09/19/91	09/19/91	09/19/91	09/19/91	09/19/91
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (55)	NA	NA	NA	NA	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (11)	130	ND (13)	ND (12)	ND (12)	ND (12)	ND (12)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	ND (25)	ND (24)	ND (25)	ND (24)	ND (23)
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	73	100	ND (63)	ND (59)	ND (62)	ND (61)	ND (210)
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	7.3	NA	7.4	7.6	7.9	7.4	7.9

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW45A	IR06MW45A	IR06MW45A	IR06MW46A
Sampling Depth (feet bgs)	26.25	31.25	36.25	2.25	3.25	11.25	2.75
Sample Number	9138M197	9138M198	9138M199	9138M186	9138M187	9138M188	9138M183
Sample Date	09/19/91	09/19/91	09/19/91	09/17/91	09/17/91	09/17/91	09/17/91
Metal (mg/kg)							
ALUMINUM	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA
CHROMIUM VI	ND (0.05)	ND (0.05)	ND (0.05)	NA	NA	NA	ND (0.05)
COBALT	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (6)
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (6)
2-BUTANONE	ND (12)	ND (12)	ND (12)	NA	NA	NA	ND (12)
BENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
BROMOFORM	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (6)
CARBON DISULFIDE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (6)
ETHYLBENZENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
TETRACHLOROETHENE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW45A	IR06MW45A	IR06MW45A	IR06MW46A
Sampling Depth (feet bgs)	26.25	31.25	36.25	2.25	3.25	11.25	2.75
Sample Number	9138M197	9138M198	9138M199	9138M186	9138M187	9138M188	9138M183
Sample Date	09/19/91	09/19/91	09/19/91	09/17/91	09/17/91	09/17/91	09/17/91
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
TRICHLOROETHENE	ND (6)	ND (6)	ND (6)	NA	NA	NA	ND (6)
VINYL ACETATE	ND (12)	ND (12)	ND (12)	NA	NA	NA	ND (12)
XYLENE (TOTAL)	ND (6)	ND (6)	ND (6)	ND (17)	ND (17)	ND (17)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYLPHTHALATE	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW44A	IR06MW44A	IR06MW44A	IR06MW45A	IR06MW45A	IR06MW45A	IR06MW46A
Sampling Depth (feet bgs)	26.25	31.25	36.25	2.25	3.25	11.25	2.75
Sample Number	9138M197	9138M198	9138M199	9138M186	9138M187	9138M188	9138M183
Sample Date	09/19/91	09/19/91	09/19/91	09/17/91	09/17/91	09/17/91	09/17/91
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (12)	ND (12)	ND (13)	ND (11)	ND (11)	ND (12)	ND (12)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	ND (24)	ND (24)	ND (25)	51	52	ND (23)	ND (25)
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	ND (60)	ND (60)	ND (63)	ND (68)	ND (150)	ND (58)	ND (94)
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	8.8	8.1	7.8	8.0	7.9	6.9	7.6

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW46A	IR06MW46A	IR06MW49F	IR06SS01	IR06SS01	IR06SS02	IR06SS02
Sampling Depth (feet bgs)	5.75	10.75	5.75	0.25	1.25	0.25	1.12
Sample Number	9138M184	9138M185	9143G635	8902A127	8902A128	8902A129	8902A130
Sample Date	09/17/91	09/17/91	10/22/91	01/09/89	01/09/89	01/09/89	01/09/89
Metal (mg/kg)							
ALUMINUM	NA	NA	NA	11,900	22,400	14,900	14,100
ANTIMONY	NA	NA	NA	ND (10.0)	9.7 α	ND (8.8)	ND (9.6)
ARSENIC	NA	NA	NA	ND (2.9)	5.8 *#	ND (1.7)	3.2 *#
BARIUM	NA	NA	NA	193	428 α	217	200
BERYLLIUM	NA	NA	NA	ND (0.26)	0.56 *	0.50 *	0.28 *
CADMIUM	NA	NA	NA	1.0	ND (0.95)	ND (0.88)	ND (0.96)
CALCIUM	NA	NA	NA	3,550	6,810	1,670	3,300
CHROMIUM	NA	NA	NA	183	326 *	47.0	167
CHROMIUM VI	ND (0.05)	ND (0.05)	NA	ND (0.57)	ND (0.55)	ND (0.52)	ND (0.55)
COBALT	NA	NA	NA	25.0	53.0	ND (9.3)	23.0
COPPER	NA	NA	NA	41.0	50.0	40.0	31.0
IRON	NA	NA	NA	23,400	41,200	27,400	29,600
LEAD	NA	NA	NA	465 *α	43.0 α	744 *α	291 *α
MAGNESIUM	NA	NA	NA	17,300	65,700	8,250	25,200
MANGANESE	NA	NA	NA	697 *	4,640 *α	508 *	656 *
MERCURY	NA	NA	NA	0.17	ND (0.10)	0.10	0.12
MOLYBDENUM	NA	NA	NA	ND (1.7)	ND (1.7)	ND (1.6)	ND (1.7)
NICKEL	NA	NA	NA	325 *	702 *	50.0	357 *
POTASSIUM	NA	NA	NA	ND (551)	1,140	ND (483)	882
SELENIUM	NA	NA	NA	ND (1.6)	ND (1.6)	ND (1.4)	ND (1.5)
SILVER	NA	NA	NA	ND (1.0)	ND (0.95)	ND (0.88)	ND (0.96)
SODIUM	NA	NA	NA	ND (675)	ND (599)	ND (387)	ND (438)
THALLIUM	NA	NA	NA	ND (0.40)	0.40	ND (0.37)	ND (0.39)
VANADIUM	NA	NA	NA	35.0	66.0	40.0	44.0
ZINC	NA	NA	NA	214 α	115 α	287 α	180 α
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
2-BUTANONE	ND (12)	ND (12)	ND (11)	ND (12)	ND (11)	ND (11)	ND (11)
BENZENE	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
BROMOFORM	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
CARBON DISULFIDE	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
ETHYLBENZENE	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
TETRACHLOROETHENE	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW46A	IR06MW46A	IR06MW49F	IR06SS01	IR06SS01	IR06SS02	IR06SS02
Sampling Depth (feet bgs)	5.75	10.75	5.75	0.25	1.25	0.25	1.12
Sample Number	9138M184	9138M185	9143G635	8902A127	8902A128	8902A129	8902A130
Sample Date	09/17/91	09/17/91	10/22/91	01/09/89	01/09/89	01/09/89	01/09/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	ND (6)	ND (5)	3	7	23	27
TRICHLOROETHENE	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
VINYL ACETATE	ND (12)	ND (12)	ND (11)	ND (12)	ND (11)	ND (11)	ND (11)
XYLENE (TOTAL)	ND (6)	ND (6)	ND (5)	ND (6)	ND (6)	ND (5)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	NA	NA	NA	270	81	ND (690)	ND (370)
2-METHYLNAPHTHALENE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
4-METHYLPHENOL	NA	NA	NA	220	ND (740)	ND (690)	ND (370)
4-NITROPHENOL	NA	NA	NA	ND (3,700)	ND (3,600)	ND (3,400)	ND (1,800)
ACENAPHTHENE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
ACENAPHTHYLENE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
ANTHRACENE	NA	NA	NA	ND (770)	ND (740)	93	ND (370)
BENZO(A)ANTHRACENE	NA	NA	NA	380	ND (740)	250	ND (370)
BENZO(A)PYRENE	NA	NA	NA	ND (770)	ND (740)	ND (690)	130 *
BENZO(B)FLUORANTHENE	NA	NA	NA	1,200 *	ND (740)	950 *	330
BENZO(G,H,I)PERYLENE	NA	NA	NA	ND (770)	ND (740)	410	160
BENZO(K)FLUORANTHENE	NA	NA	NA	1,200 *	ND (740)	950 *	330
BENZOIC ACID	NA	NA	NA	ND (3,700)	ND (3,600)	ND (3,400)	140
CHRYSENE	NA	NA	NA	530	ND (740)	730	140
DI-N-BUTYLPHTHALATE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
DIBENZ(A,H)ANTHRACENE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
DIBENZOFURAN	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
FLUORANTHENE	NA	NA	NA	1,400	ND (740)	1,200	250
FLUORENE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	ND (770)	ND (740)	320	120
N-NITROSODIPHENYLAMINE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
NAPHTHALENE	NA	NA	NA	ND (770)	ND (740)	ND (690)	ND (370)
PENTACHLOROPHENOL	NA	NA	NA	ND (3,700)	ND (3,600)	ND (3,400)	90
PHENANTHRENE	NA	NA	NA	670	ND (740)	490	120
PYRENE	NA	NA	NA	1,000	ND (740)	1,600	200
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	NA	NA	NA	19	ND (18)	ND (17)	ND (18)
ALDRIN	NA	NA	NA	ND (9)	ND (9)	ND (8)	ND (9)
ENDOSULFAN I	NA	NA	NA	ND (9)	ND (9)	ND (8)	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW46A	IR06MW46A	IR06MW49F	IR06SS01	IR06SS01	IR06SS02	IR06SS02
Sampling Depth (feet bgs)	5.75	10.75	5.75	0.25	1.25	0.25	1.12
Sample Number	9138M184	9138M185	9143G635	8902A127	8902A128	8902A129	8902A130
Sample Date	09/17/91	09/17/91	10/22/91	01/09/89	01/09/89	01/09/89	01/09/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	NA	NA	NA	ND (190)	ND (180)	ND (170)	ND (180)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (13)	ND (12)	250	14,000	ND (1,000)	ND (1,000)	ND (1,000)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	ND (25)	ND (23)	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	ND (78)	ND (63)	210	NA	NA	NA	NA
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	0.86	0.89	0.95	0.89
pH (pH units)							
PH	7.1	8.0	NA	6.5	7.6	5.9	7.4

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS03	IR06SS03	IR06SS04	IR06SS04	IR06SS05	IR06SS06	IR06SS07
Sampling Depth (feet bgs)	0.25	1.25	0.25	1.25	0.25	0.25	0.25
Sample Number	8902A131	8902A132	8902A133	8902A134	8902A135	8902A136	8902A137
Sample Date	01/09/89	01/09/89	01/09/89	01/09/89	01/09/89	01/10/89	01/10/89
Metal (mg/kg)							
ALUMINUM	10,300	19,300	6,660	10,600	6,030	6,050	4,710
ANTIMONY	ND (8.7)	ND (9.9)	ND (9.8)	ND (10.0)	ND (10.0)	ND (9.8)	ND (9.3)
ARSENIC	3.2 *#	5.5 *#	ND (2.6)	ND (2.6)	ND (2.3)	ND (2.9)	ND (1.6)
BARIUM	136	155	52.0	65.0	54.0	52.0	23.0
BERYLLIUM	0.34 *	0.42 *	ND (0.25)	ND (0.27)	ND (0.26)	ND (0.25)	ND (0.24)
CADMIUM	ND (0.87)	ND (0.99)	ND (0.98)	ND (1.0)	ND (1.0)	1.4	ND (0.93)
CALCIUM	1,300	7,210	2,270	3,820	1,950	2,120	1,240
CHROMIUM	48.0	317 *	126	147	247 *α	356 *	468 *α
CHROMIUM VI	ND (0.52)	ND (0.57)	ND (0.56)	ND (0.58)	ND (0.59)	ND (0.57)	ND (0.55)
COBALT	ND (7.9)	48.0	ND (11.0)	24.0	ND (15.0)	19.0	ND (11.0)
COPPER	56.0	35.0	26.0	8.1	23.0	43.0	29.0
IRON	20,500	43,200	17,000	24,000	14,900	20,200	20,000
LEAD	830 *α	140 *α	1,870 *#α	9.9 α	2,300 *#α	973 *α	2,580 *#α
MAGNESIUM	6,290	63,500	6,300	7,660	5,530	26,300	13,400
MANGANESE	368	884 *	236	742 *	207	364	274
MERCURY	0.13	0.28	0.10	ND (0.12)	ND (0.12)	ND (0.10)	ND (0.11)
MOLYBDENUM	ND (1.6)	ND (1.8)	ND (1.7)	ND (1.8)	ND (1.8)	ND (1.7)	ND (1.7)
NICKEL	37.0	916 *	144	250 *α	179 *α	415 *	251 *
POTASSIUM	1,130	2,650	2,410	ND (569)	1,280	ND (541)	ND (509)
SELENIUM	ND (1.4)	ND (1.6)	ND (1.6)	ND (1.6)	3.3 α	ND (0.31)	ND (1.5)
SILVER	ND (0.87)	ND (0.99)	ND (0.98)	ND (1.0)	ND (1.0)	ND (0.98)	ND (0.93)
SODIUM	ND (385)	ND (1,060)	ND (960)	ND (660)	ND (716)	ND (433)	ND (407)
THALLIUM	ND (0.37)	0.43	0.43	0.48	0.48	ND (0.40)	0.48
VANADIUM	32.0	57.0	29.0	43.0	23.0	19.0	13.0
ZINC	185 α	112 α	177 α	46.0	128 α	355 α	227 α
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (5)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	ND (5)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
2-BUTANONE	ND (11)	ND (12)	ND (11)	ND (12)	ND (12)	ND (12)	ND (11)
BENZENE	ND (5)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
BROMOFORM	ND (5)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
CARBON DISULFIDE	ND (5)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
ETHYLBENZENE	ND (5)	ND (6)	ND (6)	6	ND (6)	ND (6)	ND (6)
TETRACHLOROETHENE	ND (5)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS03	IR06SS03	IR06SS04	IR06SS04	IR06SS05	IR06SS06	IR06SS07
Sampling Depth (feet bgs)	0.25	1.25	0.25	1.25	0.25	0.25	0.25
Sample Number	8902A131	8902A132	8902A133	8902A134	8902A135	8902A136	8902A137
Sample Date	01/09/89	01/09/89	01/09/89	01/09/89	01/09/89	01/10/89	01/10/89
Volatile Organic Compound (ug/kg)							
TOLUENE	6	13	ND (6)	27	3	2	ND (6)
TRICHLOROETHENE	ND (5)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)
VINYL ACETATE	ND (11)	ND (12)	ND (11)	ND (12)	ND (12)	ND (12)	ND (11)
XYLENE (TOTAL)	ND (5)	ND (6)	ND (6)	45	ND (6)	ND (6)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (350)	ND (390)	ND (760)	ND (2,000)	270	ND (770)	ND (740)
2-METHYLNAPHTHALENE	ND (350)	ND (390)	ND (760)	14,000	180	ND (770)	ND (740)
4-METHYLPHENOL	37	ND (390)	ND (760)	ND (2,000)	290	ND (770)	ND (740)
4-NITROPHENOL	55	ND (1,900)	ND (3,700)	ND (9,600)	ND (3,900)	ND (3,700)	ND (3,600)
ACENAPHTHENE	ND (350)	ND (390)	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
ACENAPHTHYLENE	52	ND (390)	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
ANTHRACENE	46	ND (390)	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
BENZO(A)ANTHRACENE	200	ND (390)	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
BENZO(A)PYRENE	310 *#	200 *	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
BENZO(B)FLUORANTHENE	280	550	ND (760)	ND (2,000)	ND (800)	ND (770)	110
BENZO(G,H,I)PERYLENE	350	130	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
BENZO(K)FLUORANTHENE	280	550	ND (760)	ND (2,000)	ND (800)	ND (770)	110
BENZOIC ACID	ND (1,700)	ND (1,900)	ND (3,700)	ND (9,600)	ND (3,900)	ND (3,700)	ND (3,600)
CHRYSENE	350	110	ND (760)	ND (2,000)	ND (800)	240	150
DI-N-BUTYLPHTHALATE	ND (350)	64	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
DIBENZ(A,H)ANTHRACENE	84 *	60	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
DIBENZOFURAN	ND (350)	ND (390)	ND (760)	1,400	ND (800)	ND (770)	ND (740)
FLUORANTHENE	680	120	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
FLUORENE	ND (350)	ND (390)	ND (760)	3,500	ND (800)	ND (770)	ND (740)
INDENO(1,2,3-CD)PYRENE	200	130	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
N-NITROSODIPHENYLAMINE	ND (350)	ND (390)	ND (760)	ND (2,000)	ND (800)	ND (770)	ND (740)
NAPHTHALENE	ND (350)	ND (390)	ND (760)	2,500	ND (800)	ND (770)	ND (740)
PENTACHLOROPHENOL	ND (1,700)	ND (1,900)	ND (3,700)	ND (9,600)	ND (3,900)	ND (3,700)	ND (3,600)
PHENANTHRENE	310	54	ND (760)	4,300	ND (800)	ND (770)	ND (740)
PYRENE	900	190	ND (760)	570	670	590	200
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (17)	ND (19)	ND (18)	ND (19)	ND (20)	ND (19)	ND (18)
ALDRIN	ND (8)	ND (9)	ND (9)	ND (10)	ND (10)	ND (9)	ND (9)
ENDOSULFAN I	ND (8)	ND (9)	ND (9)	ND (10)	ND (10)	ND (9)	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS03	IR06SS03	IR06SS04	IR06SS04	IR06SS05	IR06SS06	IR06SS07
Sampling Depth (feet bgs)	0.25	1.25	0.25	1.25	0.25	0.25	0.25
Sample Number	8902A131	8902A132	8902A133	8902A134	8902A135	8902A136	8902A137
Sample Date	01/09/89	01/09/89	01/09/89	01/09/89	01/09/89	01/10/89	01/10/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (170)	ND (190)	ND (180)	ND (190)	ND (200)	ND (190)	ND (180)
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (1,000)	ND (1,000)	24,000	22,000	22,000	14,000	3,700
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (%)							
% SOLIDS	0.95	0.85	0.87	0.83	0.82	0.86	0.89
pH (pH units)							
PH	5.6	8.3	5.4	8.3	7.8	6.2	7.8

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS07	IR06SS08	IR06SS08	IR06SS09	IR06SS09	IR06SS10	IR06SS11
Sampling Depth (feet bgs)	1.75	0.25	1.75	0.25	1.25	0.25	0.25
Sample Number	8902A138	8902A139	8902A140	8902A141	8902A142	8902A143	8902A144
Sample Date	01/10/89	01/10/89	01/10/89	01/10/89	01/10/89	01/10/89	01/11/89
Metal (mg/kg)							
ALUMINUM	20,900	21,900	11,000	10,500	5,900	14,500	12,300
ANTIMONY	ND (11.0)	ND (9.5)	ND (10.0)	ND (12.0)	ND (11.0)	ND (11.0)	ND (11.0)
ARSENIC	ND (1.7)	ND (2.7)	ND (2.0)	ND (2.6)	ND (0.78)	ND (2.3)	ND (3.0)
BARIUM	122	172	69.0	118	39.0	100	126
BERYLLIUM	0.47 *	0.51 *	0.28 *	ND (0.31)	ND (0.28)	0.29 *	ND (0.27)
CADMIUM	ND (1.1)	1.4	ND (1.0)	1.8	ND (1.1)	ND (1.1)	1.5
CALCIUM	3,400	14,200	3,820	5,630	845	4,220	5,000
CHROMIUM	243 *α	201	190	210	913 *	962 *α	382 *
CHROMIUM VI	ND (0.61)	ND (0.57)	ND (0.58)	ND (0.64)	ND (0.61)	ND (0.64)	ND (0.60)
COBALT	20.0	38.0	28.0	ND (20.0)	134	75.0	39.0
COPPER	18.0	91.0	7.4	140 α	59.0	27.0	131 α
IRON	41,400	44,400	26,300	26,700	63,200	52,500	28,800
LEAD	4.4	357 *α	3.1	1,900 *#α	12.0 α	164 *α	1,610 *#α
MAGNESIUM	11,900	37,400	15,100	12,600	176,000	57,500	52,800
MANGANESE	381	1,410 *	279	373	1,190 *	799 *	534 *
MERCURY	ND (0.13)	0.11	ND (0.10)	0.98	0.16	ND (0.12)	ND (0.12)
MOLYBDENUM	ND (2.0)	ND (1.7)	ND (1.8)	ND (2.1)	ND (2.0)	ND (2.1)	ND (1.9)
NICKEL	346 *α	419 *	369 *α	281 *	3,100 *	1,580 *α	633 *
POTASSIUM	1,350	1,560	2,690	3,920	4,340	5,660	4,200
SELENIUM	ND (1.8)	ND (1.6)	ND (1.6)	ND (0.39)	ND (0.35)	ND (0.34)	ND (0.34)
SILVER	ND (1.1)	ND (0.95)	ND (1.0)	ND (1.2)	ND (1.1)	ND (1.1)	ND (1.1)
SODIUM	ND (1,140)	ND (633)	ND (1,000)	ND (1,060)	ND (2,240)	ND (2,150)	ND (1,800)
THALLIUM	ND (0.46)	ND (0.40)	ND (0.41)	ND (0.50)	ND (0.45)	ND (0.44)	ND (0.44)
VANADIUM	55.0	79.0	41.0	52.0	29.0	50.0	53.0
ZINC	77.0	476 α	47.0	597 α	69.0	82.0	339 α
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (6)	ND (6)	ND (7)	ND (32)	ND (7)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (6)	ND (6)	ND (7)	ND (32)	ND (7)	ND (6)
2-BUTANONE	ND (13)	ND (12)	ND (12)	ND (14)	ND (65)	ND (14)	ND (13)
BENZENE	ND (6)	ND (6)	4	ND (7)	ND (32)	ND (7)	ND (6)
BROMOFORM	ND (6)	ND (6)	ND (6)	ND (7)	ND (32)	ND (7)	ND (6)
CARBON DISULFIDE	ND (6)	ND (6)	ND (6)	ND (7)	ND (32)	ND (7)	ND (6)
ETHYLBENZENE	ND (6)	ND (6)	260	ND (7)	76	ND (7)	ND (6)
TETRACHLOROETHENE	ND (6)	ND (6)	ND (6)	ND (7)	ND (32)	ND (7)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS07	IR06SS08	IR06SS08	IR06SS09	IR06SS09	IR06SS10	IR06SS11
Sampling Depth (feet bgs)	1.75	0.25	1.75	0.25	1.25	0.25	0.25
Sample Number	8902A138	8902A139	8902A140	8902A141	8902A142	8902A143	8902A144
Sample Date	01/10/89	01/10/89	01/10/89	01/10/89	01/10/89	01/10/89	01/11/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	ND (6)	44	8	12	ND (7)	ND (6)
TRICHLOROETHENE	ND (6)	ND (6)	1	ND (7)	ND (32)	ND (7)	ND (6)
VINYL ACETATE	ND (13)	ND (12)	ND (12)	ND (14)	ND (65)	ND (14)	ND (13)
XYLENE (TOTAL)	ND (6)	ND (6)	570	ND (7)	170	ND (7)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
2-METHYLNAPHTHALENE	ND (430)	ND (1,900)	34,000	ND (4,600)	14,000	ND (460)	ND (4,100)
4-METHYLPHENOL	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
4-NITROPHENOL	ND (2,100)	ND (9,300)	ND (19,000)	ND (22,000)	ND (4,200)	ND (2,300)	ND (20,000)
ACENAPHTHENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
ACENAPHTHYLENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
ANTHRACENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
BENZO(A)ANTHRACENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
BENZO(A)PYRENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
BENZO(B)FLUORANTHENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
BENZO(G,H,I)PERYLENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
BENZO(K)FLUORANTHENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
BENZOIC ACID	ND (2,100)	ND (9,300)	ND (19,000)	ND (22,000)	ND (4,200)	ND (2,300)	ND (20,000)
CHRYSENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
DI-N-BUTYLPHTHALATE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
DIBENZ(A,H)ANTHRACENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
DIBENZOFURAN	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
FLUORANTHENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
FLUORENE	ND (430)	ND (1,900)	6,300	ND (4,600)	2,200	ND (460)	ND (4,100)
INDENO(1,2,3-CD)PYRENE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
N-NITROSODIPHENYLAMINE	ND (430)	ND (1,900)	ND (4,000)	ND (4,600)	ND (860)	ND (460)	ND (4,100)
NAPHTHALENE	ND (430)	ND (1,900)	10,000	ND (4,600)	2,600	ND (460)	ND (4,100)
PENTACHLOROPHENOL	ND (2,100)	ND (9,300)	ND (19,000)	ND (22,000)	ND (4,200)	ND (2,300)	ND (20,000)
PHENANTHRENE	ND (430)	ND (1,900)	8,700	ND (4,600)	3,700	ND (460)	ND (4,100)
PYRENE	ND (430)	620	ND (4,000)	ND (4,600)	240	ND (460)	1,700
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (21)	ND (19)	ND (19)	ND (220)	ND (21)	ND (22)	ND (80)
ALDRIN	ND (10)	ND (9)	ND (10)	130 [illegible]	ND (10)	ND (11)	ND (40)
ENDOSULFAN I	ND (10)	ND (9)	ND (10)	ND (110)	ND (10)	ND (11)	56

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS07	IR06SS08	IR06SS08	IR06SS09	IR06SS09	IR06SS10	IR06SS11
Sampling Depth (feet bgs)	1.75	0.25	1.75	0.25	1.25	0.25	0.25
Sample Number	8902A138	8902A139	8902A140	8902A141	8902A142	8902A143	8902A144
Sample Date	01/10/89	01/10/89	01/10/89	01/10/89	01/10/89	01/10/89	01/11/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (210)	ND (190)	ND (190)	ND (2,200)	ND (210)	ND (220)	ND (800)
TPH-Extractable (mg/kg)							
TPH-DIESEL	75	17,000	21,000	24,000	11,000	7,600	21,000
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (%)							
% SOLIDS	0.77	0.86	0.83	0.72	0.77	0.71	0.80
pH (pH units)							
PH	7.7	6.3	6.6	6.7	8.8	7.9	7.0

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS11	IR06SS12	IR06SS12	IR06SS13	IR06SS13	IR06SS14	IR06SS14
Sampling Depth (feet bgs)	1.50	0.25	1.75	0.25	1.75	0.25	2.25
Sample Number	8902A145	8902A146	8902A147	8902A148	8902A149	8902A150	8902A151
Sample Date	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89
Metal (mg/kg)							
ALUMINUM	18,300	16,300	13,200	14,300	12,600	7,210	14,600
ANTIMONY	ND (10.0)	ND (10.0)	ND (10.0)	ND (9.1)	ND (9.6)	ND (9.4)	ND (10.0)
ARSENIC	ND (3.0)	4.1 *#	ND (1.4)	ND (2.0)	ND (2.2)	ND (2.8)	ND (2.6)
BARIUM	172	114	65.0	229	261	77.0	85.0
BERYLLIUM	0.46 *	0.29 *	0.26 *	0.42 *	0.31 *	ND (0.24)	0.31 *
CADMIUM	ND (1.0)	ND (1.0)	ND (1.0)	1.6	ND (0.96)	ND (0.94)	ND (1.0)
CALCIUM	5,670	6,060	5,870	2,210	2,960	12,400	4,320
CHROMIUM	492 *	292 *	451 *	125	379 *	160	428 *
CHROMIUM VI	ND (0.60)	ND (0.59)	ND (0.59)	ND (0.52)	ND (0.55)	ND (0.56)	ND (0.57)
COBALT	43.0	41.0	71.0	17.0	35.0	ND (12.0)	57.0
COPPER	66.0	51.0	23.0	54.0	22.0	49.0	22.0
IRON	35,400	31,600	46,100	28,000	29,300	16,200	39,200
LEAD	470 *α	218 *α	40.0 α	561 *α	126 α	2,160 *#α	8.0
MAGNESIUM	72,400	36,900	84,600	13,300	50,400	9,300	91,600
MANGANESE	678 *	640 *	824 *	636 *	515 *	260	658 *
MERCURY	0.39	ND (0.10)	ND (0.12)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.10)
MOLYBDENUM	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.6)	ND (1.7)	ND (1.7)	ND (1.7)
NICKEL	712 *	523 *	1,580 *	143	576 *	156 *	1,130 *
POTASSIUM	653	1,270	2,600	1,730	ND (527)	ND (514)	ND (551)
SELENIUM	ND (1.8)	ND (1.7)	ND (0.35)	ND (0.29)	ND (1.5)	ND (1.6)	ND (1.6)
SILVER	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.91)	ND (0.96)	ND (0.94)	ND (1.0)
SODIUM	ND (816)	ND (1,090)	ND (1,350)	ND (841)	ND (594)	ND (412)	ND (693)
THALLIUM	ND (0.45)	ND (0.44)	ND (0.45)	ND (0.37)	ND (0.39)	0.41	ND (0.41)
VANADIUM	58.0	54.0	46.0	41.0	40.0	29.0	45.0
ZINC	207 α	145 α	71.0	472 α	102	287 α	85.0
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (6)	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	3	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
2-BUTANONE	ND (13)	ND (12)	ND (62)	ND (11)	ND (11)	ND (11)	ND (12)
BENZENE	ND (6)	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
BROMOFORM	ND (6)	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
CARBON DISULFIDE	ND (6)	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
ETHYLBENZENE	7	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
TETRACHLOROETHENE	ND (6)	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS11	IR06SS12	IR06SS12	IR06SS13	IR06SS13	IR06SS14	IR06SS14
Sampling Depth (feet bgs)	1.50	0.25	1.75	0.25	1.75	0.25	2.25
Sample Number	8902A145	8902A146	8902A147	8902A148	8902A149	8902A150	8902A151
Sample Date	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89
Volatile Organic Compound (ug/kg)							
TOLUENE	ND (6)	ND (6)	ND (31)	2	2	10	ND (6)
TRICHLOROETHENE	ND (6)	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
VINYL ACETATE	ND (13)	ND (12)	ND (62)	ND (11)	ND (11)	ND (11)	ND (12)
XYLENE (TOTAL)	ND (6)	ND (6)	ND (31)	ND (5)	ND (6)	ND (6)	ND (6)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	ND (760)	ND (380)
2-METHYLNAPHTHALENE	13,000	ND (810)	8,200	ND (1,700)	ND (730)	ND (760)	ND (380)
4-METHYLPHENOL	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	ND (760)	ND (380)
4-NITROPHENOL	ND (10,000)	ND (4,000)	ND (4,000)	ND (8,400)	ND (3,600)	ND (3,700)	ND (1,900)
ACENAPHTHENE	ND (2,100)	ND (810)	700	ND (1,700)	ND (730)	ND (760)	ND (380)
ACENAPHTHYLENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	110	ND (380)
ANTHRACENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	ND (760)	ND (380)
BENZO(A)ANTHRACENE	ND (2,100)	ND (810)	ND (810)	830 *	280	180	ND (380)
BENZO(A)PYRENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	1,300 *#	ND (380)
BENZO(B)FLUORANTHENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	2,500 *	ND (380)
BENZO(G,H,I)PERYLENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	830	ND (380)
BENZO(K)FLUORANTHENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	2,500 *	ND (380)
BENZOIC ACID	ND (10,000)	ND (4,000)	ND (4,000)	ND (8,400)	ND (3,600)	ND (3,700)	ND (1,900)
CHRYSENE	ND (2,100)	ND (810)	100	1,900	470	940	ND (380)
DI-N-BUTYLPHTHALATE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	ND (760)	ND (380)
DIBENZ(A,H)ANTHRACENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	ND (760)	ND (380)
DIBENZOFURAN	ND (2,100)	ND (810)	760	ND (1,700)	ND (730)	ND (760)	ND (380)
FLUORANTHENE	ND (2,100)	ND (810)	ND (810)	2,300	740	1,400	ND (380)
FLUORENE	820	ND (810)	1,600	ND (1,700)	ND (730)	ND (760)	ND (380)
INDENO(1,2,3-CD)PYRENE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	570	ND (380)
N-NITROSODIPHENYLAMINE	ND (2,100)	ND (810)	ND (810)	ND (1,700)	ND (730)	ND (760)	ND (380)
NAPHTHALENE	2,900	ND (810)	ND (810)	ND (1,700)	ND (730)	ND (760)	ND (380)
PENTACHLOROPHENOL	ND (10,000)	ND (4,000)	ND (4,000)	ND (8,400)	ND (3,600)	ND (3,700)	ND (1,900)
PHENANTHRENE	2,800	ND (810)	2,900	950	320	1,000	ND (380)
PYRENE	690	ND (810)	250	1,300	710	1,700	ND (380)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (20)	ND (20)	ND (20)	ND (17)	ND (18)	ND (18)	ND (19)
ALDRIN	ND (10)	ND (10)	ND (10)	ND (8)	ND (9)	ND (9)	ND (9)
ENDOSULFAN I	ND (10)	ND (10)	ND (10)	ND (8)	ND (9)	ND (9)	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS11	IR06SS12	IR06SS12	IR06SS13	IR06SS13	IR06SS14	IR06SS14
Sampling Depth (feet bgs)	1.50	0.25	1.75	0.25	1.75	0.25	2.25
Sample Number	8902A145	8902A146	8902A147	8902A148	8902A149	8902A150	8902A151
Sample Date	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89	01/11/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (200)	ND (200)	ND (200)	ND (170)	ND (180)	570 *#	ND (190)
TPH-Extractable (mg/kg)							
TPH-DIESEL	9,100	10,000	4,100	1,000	1,000	450	100
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (%)							
% SOLIDS	0.80	0.81	0.81	0.95	0.90	0.87	0.86
pH (pH units)							
PH	8.1	7.5	7.7	6.3	7.1	7.7	8.5

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS15	IR06SS15	IR06SS16	IR06SS16	IR06SS17	IR06SS17	IR06SS18
Sampling Depth (feet bgs)	0.25	1.75	0.25	1.75	0.25	1.75	0.25
Sample Number	8902A152	8902A153	8902A154	8902A155	8902A156	8902A157	8902A158
Sample Date	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89
Metal (mg/kg)							
ALUMINUM	20,500	27,700	17,500	12,200	10,600	12,200	15,200
ANTIMONY	ND (9.2)	ND (10.0)	ND (9.0)	ND (9.6)	ND (9.0)	ND (9.4)	ND (9.1)
ARSENIC	5.0 *#	3.9 *#	3.6 *#	3.4 *#	3.6 *#	6.8 *#	4.5 *#
BARIUM	266	333 α	130	63.0	69.0	163	97.0
BERYLLIUM	0.59 *	0.68 *	0.41 *	ND (0.25)	0.29 *	0.27 *	0.44 *
CADMIUM	ND (0.92)	ND (1.0)	ND (0.90)	ND (0.96)	ND (0.90)	ND (0.94)	ND (0.91)
CALCIUM	14,600	5,930	16,500	46,400	18,500	12,400	10,900
CHROMIUM	151	311 *	117	67.0	97.0	88.0	42.0
CHROMIUM VI	ND (0.53)	ND (0.59)	ND (0.53)	ND (0.56)	ND (0.53)	ND (0.55)	ND (0.52)
COBALT	26.0	100 α	24.0	ND (15.0)	16.0	17.0	17.0
COPPER	35.0	40.0	36.0	37.0	17.0	30.0	25.0
IRON	31,400	44,400	26,700	16,800	19,200	22,300	22,100
LEAD	6.9	6.3	62.0 α	55.0 α	8.9	4.5	6.2
MAGNESIUM	17,900	58,900	21,200	9,680	12,400	12,300	9,540
MANGANESE	1,290 *	2,500 *α	588 *	421 *	507 *	702 *	446 *
MERCURY	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)
MOLYBDENUM	2.0	ND (1.8)	ND (1.6)	ND (1.7)	ND (1.6)	ND (1.7)	ND (1.6)
NICKEL	158 *	919 *	227 *	83.0	150	92.0	57.0
POTASSIUM	990	838	1,230	1,030	840	2,210	2,500
SELENIUM	ND (1.5)	ND (1.7)	ND (1.5)	ND (1.6)	ND (1.4)	ND (1.5)	ND (1.5)
SILVER	ND (0.92)	ND (1.0)	ND (0.90)	ND (0.96)	ND (0.90)	ND (0.94)	ND (0.91)
SODIUM	ND (851)	ND (1,330)	ND (1,810)	ND (1,940)	ND (823)	ND (1,200)	ND (1,400)
THALLIUM	ND (0.38)	ND (0.43)	0.38	ND (0.41)	ND (0.37)	ND (0.39)	ND (0.38)
VANADIUM	66.0	66.0	57.0	37.0	36.0	47.0	49.0
ZINC	90.0	117 α	120 α	108	69.0	64.0	69.0
Volatile Organic Compound (ug/kg)							
1,1,2-TRICHLOROETHANE	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
2-BUTANONE	ND (11)	ND (12)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)
BENZENE	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
BROMOFORM	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
CARBON DISULFIDE	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
ETHYLBENZENE	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
TETRACHLOROETHENE	4	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS15	IR06SS15	IR06SS16	IR06SS16	IR06SS17	IR06SS17	IR06SS18
Sampling Depth (feet bgs)	0.25	1.75	0.25	1.75	0.25	1.75	0.25
Sample Number	8902A152	8902A153	8902A154	8902A155	8902A156	8902A157	8902A158
Sample Date	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89
Volatile Organic Compound (ug/kg)							
TOLUENE	10	ND (6)	9	1	5	ND (6)	9
TRICHLOROETHENE	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
VINYL ACETATE	ND (11)	ND (12)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)
XYLENE (TOTAL)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)	ND (6)	ND (5)
Semivolatile Organic Compound (ug/kg)							
2,4-DIMETHYLPHENOL	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
2-METHYLNAPHTHALENE	ND (710)	ND (400)	820	6,000	ND (710)	4,700	ND (690)
4-METHYLPHENOL	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
4-NITROPHENOL	ND (3,400)	ND (2,000)	ND (3,400)	ND (3,700)	ND (3,400)	ND (3,600)	ND (3,400)
ACENAPHTHENE	ND (710)	ND (400)	ND (710)	720	ND (710)	1,100	ND (690)
ACENAPHTHYLENE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
ANTHRACENE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
BENZO(A)ANTHRACENE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
BENZO(A)PYRENE	ND (710)	ND (400)	ND (710)	91 *	ND (710)	ND (730)	ND (690)
BENZO(B)FLUORANTHENE	ND (710)	ND (400)	ND (710)	170	ND (710)	ND (730)	ND (690)
BENZO(G,H,I)PERYLENE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
BENZO(K)FLUORANTHENE	ND (710)	ND (400)	ND (710)	170	ND (710)	ND (730)	ND (690)
BENZOIC ACID	ND (3,400)	ND (2,000)	ND (3,400)	ND (3,700)	ND (3,400)	ND (3,600)	ND (3,400)
CHRYSENE	250	ND (400)	220	200	140	96	330
DI-N-BUTYLPHTHALATE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	110
DIBENZ(A,H)ANTHRACENE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
DIBENZOFURAN	ND (710)	ND (400)	ND (710)	900	ND (710)	1,200	ND (690)
FLUORANTHENE	75	ND (400)	ND (710)	ND (760)	ND (710)	360	ND (690)
FLUORENE	ND (710)	ND (400)	ND (710)	1,400	ND (710)	2,000	ND (690)
INDENO(1,2,3-CD)PYRENE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
N-NITROSODIPHENYLAMINE	ND (710)	ND (400)	ND (710)	ND (760)	ND (710)	ND (730)	ND (690)
NAPHTHALENE	ND (710)	ND (400)	180	2,500	ND (710)	1,100	ND (690)
PENTACHLOROPHENOL	ND (3,400)	ND (2,000)	ND (3,400)	ND (3,700)	ND (3,400)	ND (3,600)	ND (3,400)
PHENANTHRENE	130	ND (400)	440	1,400	85	1,400	ND (690)
PYRENE	72	ND (400)	310	430	87	330	78
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (17)	ND (20)	17	ND (18)	ND (17)	ND (18)	ND (17)
ALDRIN	ND (9)	ND (10)	12	18	ND (9)	ND (9)	ND (8)
ENDOSULFAN I	ND (9)	ND (10)	ND (9)	ND (9)	ND (9)	ND (9)	ND (8)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS15	IR06SS15	IR06SS16	IR06SS16	IR06SS17	IR06SS17	IR06SS18
Sampling Depth (feet bgs)	0.25	1.75	0.25	1.75	0.25	1.75	0.25
Sample Number	8902A152	8902A153	8902A154	8902A155	8902A156	8902A157	8902A158
Sample Date	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89	01/12/89
Pesticide/Polychlorinated Biphenyl (ug/kg)							
AROCLOR-1260	ND (170)	ND (200)	ND (170)	ND (180)	ND (170)	ND (180)	ND (170)
TPH-Extractable (mg/kg)							
TPH-DIESEL	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (%)							
% SOLIDS	0.93	0.82	0.93	0.87	0.93	0.90	0.95
pH (pH units)							
PH	8.8	7.8	9.0	9.3	8.5	9.0	8.8

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS18	IR06SS19	IR06SS19
Sampling Depth (feet bgs)	1.75	0.25	1.75
Sample Number	8902A159	8902A160	8902A161
Sample Date	01/12/89	01/12/89	01/12/89
Metal (mg/kg)			
ALUMINUM	8,640	21,100	19,000
ANTIMONY	ND (10.0)	ND (8.9)	ND (9.5)
ARSENIC	4.0 *#	4.3 *#	4.5 *#
BARIUM	61.0	116	143
BERYLLIUM	ND (0.26)	0.52 *	0.64 *
CADMIUM	ND (1.0)	ND (0.89)	ND (0.95)
CALCIUM	53,300	17,500	14,600
CHROMIUM	67.0	77.0	209
CHROMIUM VI	ND (0.57)	ND (0.52)	ND (0.55)
COBALT	ND (16.0)	25.0	38.0
COPPER	24.0	22.0	30.0
IRON	16,400	31,400	34,000
LEAD	4.5	4.7	6.2
MAGNESIUM	10,500	16,500	37,100
MANGANESE	623 *	806 *	922 *
MERCURY	ND (0.10)	ND (0.11)	0.14
MOLYBDENUM	ND (1.8)	ND (1.6)	ND (1.7)
NICKEL	92.0	100	458 *
POTASSIUM	1,790	1,180	ND (519)
SELENIUM	ND (1.6)	ND (1.4)	ND (1.6)
SILVER	ND (1.0)	ND (0.89)	ND (0.95)
SODIUM	ND (1,380)	ND (976)	ND (754)
THALLIUM	ND (0.42)	ND (0.37)	0.57
VANADIUM	38.0	64.0	59.0
ZINC	50.0	89.0	88.0
Volatile Organic Compound (ug/kg)			
1,1,2-TRICHLOROETHANE	ND (6)	ND (5)	ND (6)
1,2-DICHLOROETHENE (TOTAL)	ND (6)	ND (5)	ND (6)
2-BUTANONE	ND (12)	ND (11)	ND (11)
BENZENE	ND (6)	ND (5)	ND (6)
BROMOFORM	ND (6)	ND (5)	ND (6)
CARBON DISULFIDE	ND (6)	ND (5)	ND (6)
ETHYLBENZENE	ND (6)	ND (5)	ND (6)
TETRACHLOROETHENE	ND (6)	ND (5)	ND (6)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS18	IR06SS19	IR06SS19
Sampling Depth (feet bgs)	1.75	0.25	1.75
Sample Number	8902A159	8902A160	8902A161
Sample Date	01/12/89	01/12/89	01/12/89
Volatile Organic Compound (ug/kg)			
TOLUENE	ND (6)	4	2
TRICHLOROETHENE	ND (6)	ND (5)	ND (6)
VINYL ACETATE	ND (12)	ND (11)	ND (11)
XYLENE (TOTAL)	ND (6)	ND (5)	ND (6)
Semivolatile Organic Compound (ug/kg)			
2,4-DIMETHYLPHENOL	ND (780)	ND (690)	ND (730)
2-METHYLNAPHTHALENE	ND (780)	ND (690)	ND (730)
4-METHYLPHENOL	ND (780)	ND (690)	ND (730)
4-NITROPHENOL	ND (3,800)	ND (3,400)	ND (3,600)
ACENAPHTHENE	ND (780)	ND (690)	ND (730)
ACENAPHTHYLENE	ND (780)	ND (690)	ND (730)
ANTHRACENE	ND (780)	ND (690)	ND (730)
BENZO(A)ANTHRACENE	ND (780)	ND (690)	ND (730)
BENZO(A)PYRENE	ND (780)	ND (690)	ND (730)
BENZO(B)FLUORANTHENE	ND (780)	95	ND (730)
BENZO(G,H,I)PERYLENE	ND (780)	ND (690)	ND (730)
BENZO(K)FLUORANTHENE	ND (780)	95	ND (730)
BENZOIC ACID	ND (3,800)	ND (3,400)	ND (3,600)
CHRYSENE	ND (780)	88	ND (730)
DI-N-BUTYLPHTHALATE	ND (780)	ND (690)	ND (730)
DIBENZ(A,H)ANTHRACENE	ND (780)	ND (690)	ND (730)
DIBENZOFURAN	ND (780)	ND (690)	ND (730)
FLUORANTHENE	ND (780)	ND (690)	ND (730)
FLUORENE	ND (780)	ND (690)	ND (730)
INDENO(1,2,3-CD)PYRENE	ND (780)	ND (690)	ND (730)
N-NITROSODIPHENYLAMINE	ND (780)	ND (690)	ND (730)
NAPHTHALENE	ND (780)	ND (690)	ND (730)
PENTACHLOROPHENOL	ND (3,800)	ND (3,400)	ND (3,600)
PHENANTHRENE	ND (780)	ND (690)	98
PYRENE	88	ND (690)	ND (730)
Pesticide/Polychlorinated Biphenyl (ug/kg)			
4,4'-DDD	ND (19)	ND (17)	ND (18)
ALDRIN	ND (9)	ND (8)	ND (9)
ENDOSULFAN I	ND (9)	ND (8)	ND (9)

TABLE 4.4-3 (Continued)

SOIL ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06SS18	IR06SS19	IR06SS19
Sampling Depth (feet bgs)	1.75	0.25	1.75
Sample Number	8902A159	8902A160	8902A161
Sample Date	01/12/89	01/12/89	01/12/89
Pesticide/Polychlorinated Biphenyl (ug/kg)			
AROCLOR-1260	ND (190)	ND (170)	ND (180)
TPH-Extractable (mg/kg)			
TPH-DIESEL	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (mg/kg)			
TRPH	NA	NA	NA
Oil and Grease (mg/kg)			
TOTAL OIL & GREASE	NA	NA	NA
Percent Moisture (%)			
% SOLIDS	0.85	0.95	0.90
pH (pH units)			
PH	7.8	8.6	8.3

Notes:

%	Percent
bgs	Below ground surface
mg/kg	Milligram per kilogram
NA	Not analyzed
ND()	Not detected (detection limit in parentheses)
µg/kg	Microgram per kilogram
*	Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for residential use
#	Detected concentration greater than U.S. Environmental Protection Agency Region IX PRG for industrial use
α	Detected concentration greater than the Hunters Point ambient level.
▒	Detected concentration greater than at least one screening criterion.

TABLE 4.4-4

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW22A	9024J012	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW22A	9101X031																			√
IR06MW22A	9101X032						√													
IR06MW22A	9102G583									√										
IR06MW22A	9102X039		√					√												
IR06MW22A	9102X047												√							
IR06MW22A	9129X109	√	√				√	√		√			√	√			√			√
IR06MW22A	9202X364		√		√		√	√					√	√			√			√
IR06MW22A	9344X034																			√
IR06MW22A	9344X039																√			
IR06MW22A	9344X048				√		√						√							
IR06MW22A	9407X190				√		√						√				√			√
IR06MW22A	9420X300																			√
IR06MW22A	9420X308				√		√						√				√			
IR06MW22A	9434H624																			√
IR06MW22A	9435K060				√		√						√				√			
IR06MW22A	9529X839						√													
IR06MW23A	9024J022	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW23A	9024J024	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW23A	9102X040	√	√				√	√		√			√	√			√			√
IR06MW23A	9102X041	√	√				√	√		√			√	√			√			√
IR06MW23A	9129X116	√	√				√	√		√			√	√			√			√
IR06MW23A	9129X117	√	√				√	√		√			√	√			√			√
IR06MW23A	9141X214											√		√						
IR06MW23A	9141X215											√		√						
IR06MW23A	9202X372		√		√		√	√					√	√			√			√
IR06MW23A	9202X373		√		√		√	√					√	√			√			√
IR06MW23A	9204Z031											√		√						
IR06MW23A	9344X032				√		√						√				√			√
IR06MW23A	9344X033				√		√						√				√			√
IR06MW23A	9407X199				√		√						√				√			√
IR06MW23A	9420X309				√		√						√				√			√
IR06MW23A	9420X310				√		√						√				√			√
IR06MW23A	9433N585				√		√						√				√			√
IR06MW27A	9024J014	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW27A	9101X027																			√
IR06MW27A	9101X033						√	√		√			√				√			

TABLE 4.4-4 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW27A	9129X110	✓	✓				✓	✓		✓			✓	✓			✓			✓
IR06MW27A	9202X365																			✓
IR06MW27A	9202X374		✓		✓		✓	✓					✓	✓			✓			
IR06MW27A	9344X035																			✓
IR06MW27A	9344X040																✓			
IR06MW27A	9344X049				✓		✓						✓							
IR06MW27A	9407X191																			✓
IR06MW27A	9407X195				✓		✓						✓				✓			
IR06MW27A	9420X299																			✓
IR06MW27A	9420X307				✓		✓						✓				✓			
IR06MW27A	9434H622																			✓
IR06MW27A	9435E161																✓			
IR06MW27A	9435K061				✓		✓						✓							
IR06MW30A	9024J016	✓	✓		✓		✓	✓		✓	✓		✓	✓			✓	✓		✓
IR06MW30A	9024J017	✓	✓		✓		✓	✓		✓	✓		✓	✓			✓	✓		✓
IR06MW30A	9101X034	✓	✓				✓	✓		✓			✓	✓			✓			✓
IR06MW30A	9101X035	✓	✓				✓	✓		✓			✓	✓			✓			✓
IR06MW30A	9129X111	✓	✓				✓	✓		✓			✓	✓			✓			✓
IR06MW30A	9129X112	✓	✓				✓	✓		✓			✓	✓			✓			✓
IR06MW30A	9202X386		✓		✓		✓	✓					✓	✓			✓			✓
IR06MW30A	9202X387		✓		✓		✓	✓					✓	✓			✓			✓
IR06MW30A	9344X036				✓		✓						✓				✓			✓
IR06MW30A	9407X197				✓		✓						✓				✓			✓
IR06MW30A	9407X198				✓		✓						✓				✓			✓
IR06MW30A	9420X317				✓		✓						✓				✓			✓
IR06MW30A	9434K033				✓		✓						✓				✓			✓
IR06MW32A	9024J018	✓	✓		✓		✓	✓		✓	✓		✓	✓			✓	✓		✓
IR06MW32A	9102X042	✓	✓				✓	✓		✓			✓	✓			✓			✓
IR06MW32A	9129X123	✓	✓				✓	✓		✓			✓	✓			✓			✓
IR06MW32A	9202X391		✓		✓		✓	✓					✓	✓			✓			✓
IR06MW32A	9344X041				✓		✓						✓				✓			✓
IR06MW32A	9407X196				✓		✓						✓				✓			✓
IR06MW32A	9420X315				✓		✓						✓				✓			✓
IR06MW32A	9420X316				✓		✓						✓				✓			✓
IR06MW32A	9434K038				✓		✓						✓				✓			✓
IR06MW34A	9024J026	✓	✓		✓		✓	✓		✓	✓		✓	✓			✓	✓		✓

TABLE 4.4-4 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW34A	9101J134	√	√				√	√		√			√	√			√			√
IR06MW34A	9129X113	√	√				√	√		√			√	√			√			√
IR06MW34A	9202X388		√		√		√	√					√	√			√			√
IR06MW34A	9313J412				√	√	√			√			√		√		√	√	√	√
IR06MW34A	9344X042				√		√						√				√			√
IR06MW34A	9407X210				√		√						√				√			√
IR06MW34A	9420X314				√		√						√				√			√
IR06MW34A	9433N586				√		√						√				√			√
IR06MW35A	9024J007	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW35A	9101J131	√	√				√	√		√			√	√			√			√
IR06MW35A	9129X122	√	√				√	√		√			√	√			√			√
IR06MW35A	9202X384		√		√		√	√					√	√			√			√
IR06MW35A	9344X043				√		√						√				√			√
IR06MW35A	9407X201				√		√						√				√			√
IR06MW35A	9419X292				√		√						√				√			√
IR06MW35A	9433K020				√		√						√				√			√
IR06MW40A	9024J020	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW40A	9101X036	√	√				√	√		√			√	√			√			√
IR06MW40A	9129X120	√	√				√	√		√			√	√			√			√
IR06MW40A	9129X121	√	√				√	√		√			√	√			√			√
IR06MW40A	9141X219											√		√						
IR06MW40A	9202X389		√		√		√	√					√	√			√			√
IR06MW40A	9204Z023											√		√						
IR06MW40A	9345X057				√		√						√				√			√
IR06MW40A	9407X204				√		√						√				√			√
IR06MW40A	9419X290				√		√						√				√			√
IR06MW40A	9433N581				√		√						√				√			√
IR06MW41A	9024J008	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW41A	9024J009	√	√		√		√	√		√	√		√	√			√	√		√
IR06MW41A	9101X029	√	√				√	√		√			√	√			√			√
IR06MW41A	9129X119	√	√				√	√		√			√	√			√			√
IR06MW41A	9202X380		√		√		√	√					√	√			√			√
IR06MW41A	9202X381		√		√		√	√					√	√			√			√
IR06MW41A	9345X059				√		√						√				√			√
IR06MW41A	9407X206				√		√						√				√			√
IR06MW41A	9407X207				√		√						√				√			√

TABLE 4.4-4 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW41A	9419X291				√		√						√				√			√
IR06MW41A	9433K019				√		√						√				√			√
IR06MW42A	9024J025	√	√		√		√	√		√	√		√	√	---		√	√		√
IR06MW42A	9102G584						√													
IR06MW42A	9102X043		√																	√
IR06MW42A	9102X046	√						√		√			√	√			√			
IR06MW42A	9129X114	√	√				√	√		√			√	√			√			√
IR06MW42A	9141M210											√		√						
IR06MW42A	9202X392		√		√		√	√					√	√			√			√
IR06MW42A	9202X393		√		√		√	√					√	√			√			√
IR06MW42A	9204Z030											√		√						
IR06MW42A	9345X060				√		√						√				√			√
IR06MW42A	9407X192				√		√						√				√			√
IR06MW42A	9420X301				√		√						√				√			√
IR06MW42A	9434K044																			√
IR06MW42A	9434K049				√		√						√				√			
IR06MW44A	9144X236		√		√		√	√					√	√			√			√
IR06MW44A	9202X370																			√
IR06MW44A	9202X375		√		√		√	√					√	√			√			
IR06MW44A	9434H623				√		√						√				√			
IR06MW44A	9434K039																			√
IR06MW45A	9144X237		√		√		√	√					√	√			√			√
IR06MW45A	9203X395		√		√		√	√					√	√			√			√
IR06MW45A	9434H620				√		√						√				√			√
IR06MW46A	9144X244		√		√		√	√					√	√			√			√
IR06MW46A	9144X245		√		√		√	√					√	√			√			√
IR06MW46A	9202X371																			√
IR06MW46A	9202X378		√		√		√	√					√	√			√			
IR06MW46A	9434H621				√		√						√				√			
IR06MW46A	9434K040																			√
IR06MW47F	9145H913		√		√		√	√					√	√			√			√
IR06MW47F	9202X385		√		√		√	√					√	√			√			√
IR06MW47F	9345X058				√		√						√				√			√
IR06MW47F	9407X203				√		√						√				√			√
IR06MW47F	9420X313				√		√						√				√			√
IR06MW47F	9435K054				√		√						√				√			√

TABLE 4.4-4 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW48F	9145H910		√		√		√	√					√	√			√			√
IR06MW48F	9202X379		√		√		√	√					√	√			√			√
IR06MW48F	9345X062				√		√						√				√			√
IR06MW48F	9407X188				√		√						√				√			√
IR06MW48F	9407X189				√		√						√				√			√
IR06MW48F	9420X304				√		√						√				√			√
IR06MW48F	9433K021				√		√						√				√			√
IR06MW49F	9144X243		√		√		√	√					√	√			√			√
IR06MW49F	9202X366		√		√		√	√					√	√			√			√
IR06MW49F	9202X367		√		√		√	√					√	√			√			√
IR06MW49F	9345X061				√		√						√				√			√
IR06MW49F	9407X208				√		√						√				√			√
IR06MW49F	9420X302				√		√						√				√			√
IR06MW49F	9420X303				√		√						√				√			√
IR06MW49F	9433N583				√		√						√				√			√
IR06MW49F	9433N584				√		√						√				√			√
IR06MW50F	9350X097						√			√	√		√				√	√	√	√
IR06MW50F	9350X098						√			√	√		√				√	√	√	√
IR06MW50F	9433K010						√			√	√		√				√	√	√	√
IR06MW50F	9521X613																	√		√
IR06MW50F	9521X620		√				√			√	√		√	√			√		√	
IR06MW51F	9351X107						√			√			√				√	√	√	√
IR06MW51F	9351X108						√			√			√				√	√	√	√
IR06MW51F	9433E118																	√		√
IR06MW51F	9433E119																	√		√
IR06MW51F	9433E121						√			√	√		√				√		√	
IR06MW51F	9433E122						√			√	√		√				√		√	
IR06MW51F	9530X883						√													
IR06MW51F	9531X906																	√		√
IR06MW51F	9531X911		√							√	√		√	√			√		√	
IR06MW52F	9352X114						√			√			√				√	√	√	√
IR06MW52F	9352X115						√			√			√				√	√	√	√
IR06MW52F	9432E109																	√		√
IR06MW52F	9432E113						√			√	√		√				√		√	
IR06MW52F	9521X614																	√		√
IR06MW52F	9521X621		√				√			√	√		√	√			√		√	

TABLE 4.4-4 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TM1CROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW53F	9411M506						√			√	√		√				√	√	√	√
IR06MW53F	9432E110																	√		√
IR06MW53F	9432E114						√			√	√		√				√		√	
IR06MW53F	9521X615																	√		√
IR06MW53F	9521X622		√				√			√	√		√	√			√		√	
IR06MW54F	9350X100						√			√	√		√				√	√	√	√
IR06MW54F	9350X101						√			√	√		√				√	√	√	√
IR06MW54F	9433K012						√			√	√		√				√	√	√	√
IR06MW54F	9521X626		√				√			√	√		√	√			√	√	√	√
IR06MW55F	9352X116																	√		√
IR06MW55F	9352X118						√			√			√				√		√	
IR06MW55F	9433E123																	√		√
IR06MW55F	9433E124																	√		√
IR06MW55F	9433N574						√			√	√		√				√		√	
IR06MW55F	9433N575						√			√	√		√				√		√	
IR06MW55F	9521X617																	√		√
IR06MW55F	9521X618																	√		√
IR06MW55F	9521X624		√				√			√	√		√	√			√		√	
IR06MW55F	9521X625		√				√			√	√		√	√			√		√	
IR06MW56F	9401X134																	√		√
IR06MW56F	9401X150						√			√			√				√		√	
IR06MW56F	9433K011																	√		√
IR06MW56F	9433N573						√			√	√		√				√		√	
IR06MW56F	9521X616																	√		√
IR06MW56F	9521X623		√				√			√	√		√	√			√		√	
IR06MW57F	9437K147																√			
IR06MW57F	9437K155									√										
IR06MW57F	9437K172										√									
IR06MW57F	9437X470																	√		√
IR06MW57F	9437X479												√							
IR06MW57F	9438X486						√												√	
IR06MW57F	9521X604																	√		√
IR06MW57F	9521X611		√				√			√	√		√	√			√		√	
IR06MW57F	9537W018																	√		√
IR06MW57F	9538W020				√		√			√	√		√				√		√	
IR06MW58F	9425E022																	√		√

TABLE 4.4-4 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR06MW58F	9425E023						√			√	√		√				√		√	
IR06MW58F	9426X390																√			
IR06MW58F	9426X391																√			
IR06MW58F	9433E125																	√		√
IR06MW58F	9433E130						√			√	√		√				√		√	
IR06MW58F	9521X605																	√		√
IR06MW58F	9521X612		√				√			√	√		√	√			√		√	

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-5A

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
METAL	ALUMINUM	15.7	23.1	20.4	UG/L	16.9	48	3	37,000	0				
	ANTIMONY	10.8	40.1	25.5	UG/L	23.3	48	8	15.0	7	6.0	8	500	0
	ARSENIC	1.5	14.3	5.6	UG/L	2.1	91	67	0.04	67	50.0	0	36.0	0
	BARIUM	13.9	924	268	UG/L	0.63	48	48	2,600	0	1,000	0		
	BERYLLIUM	0.27	0.56	0.39	UG/L	0.33	91	5	0.02	5	4.0	0		
	CADMIUM	4.0	6.4	5.2	UG/L	3.0	48	2	18.0	0	5.0	1	9.3	0
	CALCIUM	6,770	230,000	77,500	UG/L	22.6	48	48						
	CHROMIUM	0.90	1.3	1.1	UG/L	0.70	91	2			50.0	0		
	COBALT	5.0	16.7	10.2	UG/L	7.7	48	14						
	COPPER	1.3	58.2	9.2	UG/L	1.5	48	9	1,400	0			2.4	3
	IRON	85.6	11,900	3,080	UG/L	12.6	48	30						
	LEAD	1.3	9.9	4.5	UG/L	1.2	48	3	4.0	1	50.0	0	8.1	1
	MAGNESIUM	26,000	915,000	279,000	UG/L	31.0	48	48						
	MANGANESE	26.8	8,860	2,310	UG/L	0.45	48	48	180	43				
	MERCURY	0.14	0.14	0.14	UG/L	0.05	48	1	11.0	0	2.0	0	0.03	1
	MOLYBDENUM	5.1	25.4	17.5	UG/L	3.2	28	5	180	0				
	NICKEL	13.6	117	37.1	UG/L	16.9	49	24	730	0	100	1	8.2	24
	POTASSIUM	1,510	63,800	15,900	UG/L	485	48	48						
	SELENIUM	2.3	3.1	2.6	UG/L	2.3	48	3	180	0	50.0	0	71.0	0
	SODIUM	43,200	2,120,000	506,000	UG/L	73.6	48	48						
	THALLIUM	2.5	2.5	2.5	UG/L	2.0	47	1			2.0	1		
	VANADIUM	1.1	56.7	13.5	UG/L	2.1	48	19	260	0				

TABLE 4.4-5A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
	ZINC	5.7	49.8	17.6	UG/L	3.0	48	26	11,000	0			81.0	0
CYAN	CYANIDE	0.76	0.76	0.76	UG/L	0.40	1	1	730	0	200	0		
VOC	1,1-DICHLOROETHANE	2	2	2	UG/L	5	90	1	810	0				
	1,2-DICHLOROETHANE	1	1	1	UG/L	5	90	1	0.1	1	0.5	1		
	1,2-DICHLOROETHENE (TOTAL)	1	130	22	UG/L	5	47	13	55	1				
	2-BUTANONE	6	29	18	UG/L	10	90	2	1,900	0				
	BENZENE	0.7	72	17	UG/L	5	90	32	0.4	32	1	30		
	CHLOROETHANE	81	81	81	UG/L	10	90	1	710	0				
	CHLOROFORM	0.3	24	7	UG/L	4	90	5	0.2	5	100	0		
	CIS-1,2-DICHLOROETHENE	0.6	340	80	UG/L	3	43	13	61	4	6	8		
	ETHYLBENZENE	1	14	7	UG/L	4	90	13	1,300	0	700	0		
	METHYLENE CHLORIDE	1	17	9	UG/L	5	90	3	4	2	5	2		
	STYRENE	1	1	1	UG/L	5	47	1	1,600	0	100	0		
	TETRACHLOROETHENE	1	5	3	UG/L	4	90	4	1	4	5	0		
	TOLUENE	0.6	20	5	UG/L	5	90	15	720	0	150	0		
	TRICHLOROETHENE	0.3	20	5	UG/L	5	90	17	2	11	5	4		
	TRICHLOROFLUOROMETHANE	0.8	120	51	UG/L	1	43	3	1,300	0				
	TRICHLOROTRIFLUOROETHANE	20	73	40	UG/L	7	43	7	59,000	0				
	VINYL CHLORIDE	0.7	62	18	UG/L	5	90	25	0.02	25	0.5	25		
	XYLENE (TOTAL)	0.7	56	19	UG/L	3	90	13	1,400	0	1,800	0		
SVOC	1,2-DICHLOROBENZENE	1	18	5	UG/L	3	100	10	370	0	600	0		
	1,4-DICHLOROBENZENE	5	5	5	UG/L	10	100	1	0.5	1	5	0		

TABLE 4.4-5A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
	2,4-DIMETHYLPHENOL	8	35	16	UG/L	13	79	6	730	0				
	2-METHYLNAPHTHALENE	0.5	240	40	UG/L	22	90	15	240	0				
	2-METHYLPHENOL	4	4	4	UG/L	10	79	1	1,800	0				
	4-METHYLPHENOL	1	4	2	UG/L	10	79	3	180	0				
	ACENAPHTHENE	0.6	230	48	UG/L	28	90	38	370	0				
	ACENAPHTHYLENE	3	3	3	UG/L	10	90	1	370	0				
	ANTHRACENE	0.2	21	5	UG/L	15	90	15	1,800	0				
	BENZOIC ACID	15	15	15	UG/L	50	46	1	150,000	0				
	BIS(2-ETHYLHEXYL)PHTHALATE	5	20	13	UG/L	10	90	2	5	2	4	2	360	0
	BUTYLBENZYLPHTHALATE	6	6	6	UG/L	10	90	1	7,300	0				
	CARBAZOLE	3	53	34	UG/L	20	44	4	3	3				
	DIBENZOFURAN	2	140	30	UG/L	17	90	30	150	0				
	DIETHYLPHTHALATE	6	6	6	UG/L	10	90	1	29,000	0				
	FLUORANTHENE	0.9	36	8	UG/L	20	90	21	1,500	0				
	FLUORENE	0.7	160	35	UG/L	18	90	26	240	0				
	NAPHTHALENE	2	1,700	300	UG/L	28	90	19	240	7				
	PENTACHLOROPHENOL	3	3	3	UG/L	50	79	1	0.6	1	1	1	8	0
	PHENANTHRENE	0.5	160	28	UG/L	17	90	31	240	0			5	20
	PYRENE	0.7	16	5	UG/L	21	90	20	1,100	0				
TPHEXT	TPH-DIESEL	86	11,000	1,600	UG/L	430	89	49	100	46i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	1,600	7,300	3,900	UG/L	630	6	3	100	3i				
	TPH-MOTOR OIL	120	3,100	740	UG/L	170	33	30	100	30i				

TABLE 4.4-5A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
O&G	TOTAL OIL & GREASE	260	6,000	2,100	UG/L	800	46	8	100	8i				
ANION	CHLORIDE	61,600	3,490,000	1,090,000	UG/L	118,000	45	45						
	NITRATE	61.0	3,200	977	UG/L	258	45	13	58,000	0				
	NITRITE	470	470	470	UG/L	50.0	16	1	3,700	0				
	ORTHOPHOSPHATE	330	1,500	965	UG/L	200	45	4						
	SULFATE	1,500	4,340,000	403,000	UG/L	30,700	45	34						
SOLIDS	TOTAL DISSOLVED SOLIDS	440,000	9,300,000	2,700,000	UG/L	19,000	50	50						
AMMON	AMMONIA	120	2,000	960	UG/L	100	28	27						
SALIN	SALINITY	0.35	5.1	1.9	UG/L	0	6	6						

TABLE 4.4-5A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures.
Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

j Most probable number of organisms per 100 milliliters (mpn/100 mL)

TABLE 4.4-5B

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
METAL	ALUMINUM	36.6	46.5	41.5	UG/L	35.3	33	2	37,000	0				
	ANTIMONY	3.6	10.8	5.2	UG/L	2.2	33	8	15.0	0	6.0	1	500	0
	ARSENIC	1.7	8.2	5.0	UG/L	2.2	45	17	0.04	17	50.0	0	36.0	0
	BARIUM	3.8	115	29.0	UG/L	2.3	33	28	2,600	0	1,000	0		
	CADMIUM	1.1	9.2	4.6	UG/L	0.20	33	3	18.0	0	5.0	1	9.3	0
	CALCIUM	3,090	98,800	21,100	UG/L	45.9	33	30						
	CHROMIUM	2.1	117	50.5	UG/L	1.5	45	22			50.0	12		
	CHROMIUM VI	80.9	115	92.9	UG/L	10.0	19	6	0.16	6			50.0	6
	COBALT	0.71	10.7	5.7	UG/L	5.5	33	2						
	COPPER	1.6	31.2	7.9	UG/L	1.1	33	15	1,400	0			2.4	13
	IRON	29.9	119	64.7	UG/L	21.7	33	3						
	MAGNESIUM	3,160	316,000	82,800	UG/L	35.4	33	33						
	MANGANESE	0.62	728	88.9	UG/L	0.37	33	21	180	5				
	MERCURY	0.12	0.30	0.21	UG/L	0.10	33	3	11.0	0	2.0	0	0.03	3
	MOLYBDENUM	13.1	258	126	UG/L	1.3	33	7	180	3				
	NICKEL	3.5	95.4	23.2	UG/L	4.9	33	5	730	0	100	0	8.2	1
	POTASSIUM	798	45,000	12,300	UG/L	407	33	28						
	SELENIUM	11.7	11.7	11.7	UG/L	27.0	33	1	180	0	50.0	0	71.0	0
	SODIUM	35,800	1,630,000	372,000	UG/L	103	33	33						
	THALLIUM	0.32	2.5	1.4	UG/L	2.0	31	2			2.0	1		
	VANADIUM	1.3	12.7	5.5	UG/L	1.5	33	23	260	0				
	ZINC	3.8	48.1	20.5	UG/L	0.81	33	11	11,000	0			81.0	0

TABLE 4.4-5B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[g] PRG	MCL Value[f]	Above[g] MCL	NAVOC Value	Above[h] NAVOC
VOC	1,2-DICHLOROETHENE (TOTAL)	2	2	2	UG/L	5	31	1	55	0				
	BENZENE	1	2	1	UG/L	2	45	5	0.4	5	1	1		
	CARBON TETRACHLORIDE	28	28	28	UG/L	10	45	1	0.2	1	0.5	1		
	CHLOROFORM	1	11	3	UG/L	5	45	6	0.2	6	100	0		
	CIS-1,2-DICHLOROETHENE	0.4	3	2	UG/L	0.9	14	4	61	0	6	0		
	TRANS-1,2-DICHLOROETHENE	0.3	0.3	0.3	UG/L	1	14	2	120	0	10	0		
	TRICHLOROETHENE	0.3	14	4	UG/L	3	45	10	2	8	5	1		
	TRICHLOROTRIFLUOROETHANE	2	2	2	UG/L	0.5	14	1	59,000	0				
	VINYL CHLORIDE	6	12	8	UG/L	3	45	5	0.02	5	0.5	5		
SVOC	2-METHYLNAPHTHALENE	4	4	4	UG/L	10	45	2	240	0				
	NAPHTHALENE	0.6	2	1	UG/L	10	45	2	240	0				
	PHENANTHRENE	3	3	3	UG/L	10	45	2	240	0			5	0
PEST	HEPTACHLOR EPOXIDE	0.03	0.03	0.03	UG/L	0.05	27	1	0.007	1	0.01	1		
TPHPRG	TPH-GASOLINE	27	31	29	UG/L	50	27	3	100	0i				
TPHEXT	TPH-DIESEL	84	2,300	910	UG/L	260	46	9	100	7i				
	TPH-MOTOR OIL	70	2,200	550	UG/L	110	31	25	100	23i				
TRPH	TRPH	500	800	650	UG/L	1,000	27	2	100	2i				
ANION	CHLORIDE	61,700	2,230,000	531,000	UG/L	21,000	15	15						
	NITRATE	74.0	9,900	3,310	UG/L	155	15	11	58,000	0				
	ORTHOPHOSPHATE	75.0	470	186	UG/L	71.4	15	7						
	SULFATE	5,950	670,000	143,000	UG/L	9,420	15	15						
SOLIDS	TOTAL DISSOLVED SOLIDS	360,000	5,400,000	1,600,000	UG/L	10,000	15	15						

TABLE 4.4-5B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures.
Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.4-6

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A
Sample Number	9024J012	9101X031	9101X032	9102X039	9129X109	9202X364	9344X034
Sample Date	06/12/90	01/03/91	01/04/91	01/07/91	07/15/91	01/06/92	11/03/93
Metal (ug/L)							
ALUMINUM	ND (21.3)	NA	ND (14.6)	NA	ND (25.7)	ND (15.3)	NA
ANTIMONY	ND (20.1)	NA	ND (23.8)	NA	ND (14.3)	ND (27.6)	NA
ARSENIC	4.9 *	NA	ND (2.9)	NA	12.1 *	5.0 *	NA
BARIUM	61.9	NA	125	NA	67.2	82.9	NA
BERYLLIUM	0.37 *	NA	ND (1.6)	NA	ND (0.24)	ND (0.35)	NA
CADMIUM	ND (3.7)	NA	ND (4.1)	NA	ND (3.4)	ND (2.3)	NA
CALCIUM	33,800	NA	36,300	NA	34,200	31,700	NA
CHROMIUM	ND (1.7)	NA	ND (2.8)	NA	ND (2.1)	ND (3.0)	NA
CHROMIUM VI	ND (10.0)	NA	NA	NA	NA	ND (10.0)	NA
COBALT	ND (7.0)	NA	ND (8.4)	NA	5.3	16.0	NA
COPPER	ND (1.7)	NA	ND (2.3)	NA	ND (2.4)	ND (3.0)	NA
IRON	ND (37.8)	NA	429	NA	1,460	ND (11.3)	NA
LEAD	ND (1.6)	NA	ND (2.1)	NA	2.4	ND (2.0)	NA
MAGNESIUM	129,000	NA	144,000	NA	228,000	196,000	NA
MANGANESE	644 *	NA	1,150 *	NA	1,750 *	1,170 *	NA
MERCURY	ND (0.20)	NA	ND (0.20)	NA	ND (0.20)	ND (0.20)	NA
MOLYBDENUM	NA	NA	NA	NA	ND (3.3)	ND (3.1)	NA
NICKEL	ND (20.2)	NA	ND (22.9)	NA	17.8 B	45.9 B	NA
POTASSIUM	10,300	NA	7,460	NA	5,980	4,500	NA
SELENIUM	ND (2.2)	NA	ND (2.3)	NA	ND (2.9)	ND (2.5)	NA
SODIUM	163,000	NA	262,000	NA	106,000	88,200	NA
THALLIUM	ND (1.7)	NA	ND (2.5)	NA	ND (7.5)	ND (2.0)	NA
VANADIUM	6.9	NA	ND (9.9)	NA	ND (1.6)	ND (3.9)	NA
ZINC	6.9	NA	10.1	NA	ND (12.6)	43.0	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (5)	ND (5)	NA	NA	2	ND (5)	ND (10)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	ND (10)
1,2-DICHLOROETHANE	ND (5)	ND (5)	NA	NA	1 *6	ND (5)	ND (10)
1,2-DICHLOROETHENE (TOTAL)	3	6	NA	NA	8	ND (5)	NA
2-BUTANONE	ND (10)	ND (10)	NA	NA	29	ND (10)	ND (50)
BENZENE	55 *6	42 *6	NA	NA	72 *6	4 *6	32 *6
CARBON TETRACHLORIDE	ND (5)	ND (5)	NA	NA	ND (5)	ND (5)	ND (10)
CHLOROETHANE	ND (10)	ND (10)	NA	NA	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A
Sample Number	9024J012	9101X031	9101X032	9102X039	9129X109	9202X364	9344X034
Sample Date	06/12/90	01/03/91	01/04/91	01/07/91	07/15/91	01/06/92	11/03/93
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (5)	ND (5)	NA	NA	ND (5)	ND (5)	ND (10)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	ND (10)
ETHYLBENZENE	14	1	NA	NA	12	ND (5)	ND (10)
METHYLENE CHLORIDE	ND (5)	ND (8)	NA	NA	ND (10)	ND (2)	8 *6
STYRENE	ND (5)	ND (5)	NA	NA	ND (5)	ND (5)	NA
TETRACHLOROETHENE	ND (5)	ND (5)	NA	NA	ND (5)	ND (5)	ND (10)
TOLUENE	12	6	NA	NA	20	ND (5)	6
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	ND (10)
TRICHLOROETHENE	1	3 *	NA	NA	3 *	ND (5)	ND (10)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	ND (10)
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	30
VINYL CHLORIDE	ND (10)	12 *6	NA	NA	24 *6	ND (10)	17 *6
XYLENE (TOTAL)	56	35	NA	NA	40	ND (5)	ND (10)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
1,4-DICHLOROBENZENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
2,4-DIMETHYLPHENOL	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
2-METHYLNAPHTHALENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
2-METHYLPHENOL	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
4-METHYLPHENOL	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
ACENAPHTHENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
ACENAPHTHYLENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
ANTHRACENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
BENZOIC ACID	ND (50)	NA	NA	NA	ND (50)	ND (50)	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (6)	NA	NA	NA	ND (4)	ND (10)	NA
BUTYLBENZYLPHTHALATE	ND (7)	NA	NA	NA	ND (10)	ND (10)	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
DIETHYLPHTHALATE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
FLUORANTHENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
FLUORENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
NAPHTHALENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
PENTACHLOROPHENOL	ND (50)	NA	NA	NA	ND (50)	3 *6	NA
PHENANTHRENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA
PYRENE	ND (10)	NA	NA	NA	ND (10)	ND (10)	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A
Sample Number	9024J012	9101X031	9101X032	9102X039	9129X109	9202X364	9344X034
Sample Date	06/12/90	01/03/91	01/04/91	01/07/91	07/15/91	01/06/92	11/03/93
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	ND (500)	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	NA	NA	NA	1,500	ND (3,000)	NA
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	7,300	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	NA	NA	6,000	460	ND (5,000)	NA
Anion (ug/L)							
CHLORIDE	210,000	NA	NA	150,000	81,800	82,800	NA
NITRATE	ND (50.0)	NA	NA	ND (50.0)	ND (50.0)	ND (50.0)	NA
NITRITE	NA	NA	NA	NA	NA	ND (50.0)	NA
ORTHOPHOSPHATE	ND (200)	NA	NA	ND (2,000)	ND (200)	ND (200)	NA
SULFATE	30,800	NA	NA	37,100	1,500	23,300	NA
Ammonia (ug/L)							
AMMONIA	150	NA	NA	NA	350	NA	NA
pH (pH units)							
PH	7.6	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	970,000	NA	NA	NA	1,100,000	950,000	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A
Sample Number	9344X039	9344X048	9407X190	9420X300	9420X308	9434H624	9435K060
Sample Date	11/04/93	11/05/93	02/14/94	05/16/94	05/17/94	08/25/94	08/30/94
Metal (ug/L)							
ALUMINUM	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	11.9 *	ND (13.4)	NA	7.7 *	NA	14.3 *
BARIUM	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	ND (0.20)	ND (0.20)	NA	ND (0.10)	NA	ND (0.10)
CADMIUM	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	ND (2.5)	ND (2.3)	NA	ND (0.90)	NA	ND (1.4)
CHROMIUM VI	NA	ND (79.2)	ND (11.0)	NA	ND (10.0)	NA	ND (10.0)
COBALT	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	NA	ND (2)	NA
1,2-DICHLOROBENZENE	NA	NA	ND (5)	ND (5)	NA	4	NA
1,2-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	NA	ND (2)	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	ND (25)	ND (50)	NA	ND (50)	NA
BENZENE	NA	NA	41 *&	39 *&	NA	31 *&	NA
CARBON TETRACHLORIDE	NA	NA	ND (5)	ND (5)	NA	ND (2)	NA
CHLOROETHANE	NA	NA	ND (5)	ND (5)	NA	ND (2)	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A
Sample Number	9344X039	9344X048	9407X190	9420X300	9420X308	9434H624	9435K060
Sample Date	11/04/93	11/05/93	02/14/94	05/16/94	05/17/94	08/25/94	08/30/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	NA	ND (5)	ND (5)	NA	2 *	NA
CIS-1,2-DICHLOROETHENE	NA	NA	5	ND (5)	NA	4	NA
ETHYLBENZENE	NA	NA	6	ND (5)	NA	3	NA
METHYLENE CHLORIDE	NA	NA	ND (6)	ND (3)	NA	ND (13)	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	ND (5)	ND (5)	NA	ND (2)	NA
TOLUENE	NA	NA	8	8	NA	4	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	ND (5)	ND (5)	NA	ND (2)	NA
TRICHLOROETHENE	NA	NA	ND (5)	ND (5)	NA	2 *	NA
TRICHLOROFLUOROMETHANE	NA	NA	120	ND (5)	NA	ND (2)	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	73	ND (5)	NA	25	NA
VINYL CHLORIDE	NA	NA	46 *&	ND (5)	NA	10 *&	NA
XYLENE (TOTAL)	NA	NA	11	ND (15)	NA	ND (7)	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	ND (20)	NA	NA	ND (5)	NA	ND (5)
1,4-DICHLOROBENZENE	NA	ND (20)	NA	NA	ND (5)	NA	ND (5)
2,4-DIMETHYLPHENOL	NA	ND (20)	10	NA	24	NA	8
2-METHYLNAPHTHALENE	NA	ND (20)	ND (10)	NA	1	NA	ND (10)
2-METHYLPHENOL	NA	ND (20)	ND (10)	NA	4	NA	ND (10)
4-METHYLPHENOL	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
ACENAPHTHENE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
ACENAPHTHYLENE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
ANTHRACENE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	ND (7)	ND (10)	NA	ND (9)	NA	ND (40)
BUTYLBENZYLPHTHALATE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
CARBAZOLE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
DIBENZOFURAN	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
DIETHYLPHTHALATE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
FLUORANTHENE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
FLUORENE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
NAPHTHALENE	NA	ND (20)	6	NA	5	NA	ND (10)
PENTACHLOROPHENOL	NA	ND (50)	ND (25)	NA	ND (25)	NA	ND (25)
PHENANTHRENE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)
PYRENE	NA	ND (20)	ND (10)	NA	ND (10)	NA	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A	IR06MW22A
Sample Number	9344X039	9344X048	9407X190	9420X300	9420X308	9434H624	9435K060
Sample Date	11/04/93	11/05/93	02/14/94	05/16/94	05/17/94	08/25/94	08/30/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	11,000	NA	1,800	NA	2,700	NA	3,100
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	2,200	NA	1,400	NA	1,500
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sample Number	9529X839	9024J022	9024J024	9102X040	9102X041	9129X116	9129X117
Sample Date	07/20/95	06/13/90	06/13/90	01/07/91	01/07/91	07/16/91	07/16/91
Metal (ug/L)							
ALUMINUM	ND (21.5)	ND (21.3)	ND (21.3)	ND (14.6)	ND (14.6)	ND (25.7)	ND (25.7)
ANTIMONY	ND (2.1)	ND (20.1)	23.6 *&	ND (23.8)	ND (23.8)	ND (14.3)	ND (14.3)
ARSENIC	7.7 *	2.1 *	2.6 *	3.9 *	3.4 *	ND (2.5)	2.5 *
BARIUM	100	94.1	94.5	114	114	246	254
BERYLLIUM	ND (0.10)	0.37 *	ND (0.33)	ND (1.6)	ND (1.6)	ND (1.4)	ND (0.56)
CADMIUM	ND (0.20)	ND (3.7)	ND (3.7)	ND (4.1)	ND (4.1)	ND (3.4)	ND (3.4)
CALCIUM	34,400	28,000	28,400	23,400	23,500	31,000	31,500
CHROMIUM	ND (1.8)	ND (2.7)	ND (2.6)	ND (2.8)	ND (2.8)	ND (2.1)	ND (2.1)
CHROMIUM VI	NA	ND (10.0)	ND (10.0)	NA	NA	NA	NA
COBALT	ND (0.50)	ND (7.0)	ND (7.0)	ND (8.4)	ND (8.4)	ND (4.9)	ND (4.9)
COPPER	ND (3.8)	ND (17.5)	ND (12.0)	ND (2.3)	ND (2.3)	ND (1.3)	3.1 &
IRON	2,910	87.4	118	ND (46.4)	ND (33.4)	329	365
LEAD	ND (1.5)	ND (1.6)	ND (1.6)	ND (2.1)	ND (2.1)	1.9	ND (1.2)
MAGNESIUM	290,000	102,000	103,000	78,600	79,400	107,000	110,000
MANGANESE	1,240 *	633 *	638 *	626 *	630 *	770 *	788 *
MERCURY	ND (0.10)	ND (0.20)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.40)
MOLYBDENUM	ND (1.6)	NA	NA	NA	NA	ND (3.3)	ND (3.3)
NICKEL	ND (7.9)	ND (20.2)	ND (20.2)	ND (22.9)	ND (22.9)	18.4 &	30.8 &
POTASSIUM	2,790	4,370	4,590	1,680	1,800	1,030	1,990
SELENIUM	ND (3.4)	ND (2.2)	ND (2.2)	ND (2.3)	ND (2.3)	ND (2.9)	ND (2.9)
SODIUM	111,000	65,200	67,000	43,400	43,000	51,300	53,300
THALLIUM	2.5 &	ND (1.7)	ND (1.7)	ND (2.5)	ND (2.5)	ND (7.5)	ND (7.5)
VANADIUM	1.1	5.3	4.9	ND (12.3)	ND (12.0)	ND (7.1)	ND (4.8)
ZINC	ND (20.8)	11.9	11.2	20.4	21.3	15.9	19.0
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	ND (5)	1	ND (5)	ND (5)	2	1
2-BUTANONE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZENE	NA	ND (5)	17 *&	ND (5)	ND (5)	ND (12)	ND (11)
CARBON TETRACHLORIDE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
CHLOROETHANE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sample Number	9529X839	9024J022	9024J024	9102X040	9102X041	9129X116	9129X117
Sample Date	07/20/95	06/13/90	06/13/90	01/07/91	01/07/91	07/16/91	07/16/91
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
METHYLENE CHLORIDE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (6)	ND (5)
STYRENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
TETRACHLOROETHENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
TOLUENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	1	2
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	ND (10)	ND (10)	ND (10)	ND (10)	6 *&	5 *&
XYLENE (TOTAL)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,4-DICHLOROBENZENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (3)	ND (10)
BUTYLBENZYLPHTHALATE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	NA	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)
PHENANTHRENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW22A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sample Number	9529X839	9024J022	9024J024	9102X040	9102X041	9129X116	9129X117
Sample Date	07/20/95	06/13/90	06/13/90	01/07/91	01/07/91	07/16/91	07/16/91
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	ND (500)	ND (500)	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	NA	ND (500)	ND (500)	ND (500)	ND (500)	500	620
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	ND (5,000)	ND (5,000)	260	250	ND (200)	ND (200)
Anion (ug/L)							
CHLORIDE	NA	104,000	100,000	77,000	76,500	83,600	82,100
NITRATE	NA	230	280	220	270	650	700
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)
SULFATE	NA	10,600	12,300	11,800	13,400	5,400	5,400
Ammonia (ug/L)							
AMMONIA	NA	190	200	170	160	120	130
pH (pH units)							
PH	NA	7.2	7.1	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	630,000	610,000	450,000	430,000	620,000	610,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sample Number	9141X214	9141X215	9202X372	9202X373	92042031	9344X032	9344X033
Sample Date	10/10/91	10/10/91	01/07/92	01/07/92	01/24/92	11/03/93	11/03/93
Metal (ug/L)							
ALUMINUM	NA	NA	ND (15.3)	ND (15.3)	NA	NA	NA
ANTIMONY	NA	NA	ND (27.6)	ND (27.6)	NA	NA	NA
ARSENIC	NA	NA	ND (1.4)	ND (1.4)	NA	4.6 *	3.5 *
BARIUM	NA	NA	210	205	NA	NA	NA
BERYLLIUM	NA	NA	ND (0.35)	ND (0.35)	NA	ND (0.20)	ND (0.20)
CADMIUM	NA	NA	ND (2.3)	ND (2.3)	NA	NA	NA
CALCIUM	NA	NA	27,900	26,800	NA	NA	NA
CHROMIUM	NA	NA	ND (3.0)	ND (3.0)	NA	ND (2.5)	ND (2.5)
CHROMIUM VI	NA	NA	ND (10.0)	ND (10.0)	NA	ND (10.0)	ND (10.0)
COBALT	NA	NA	ND (10.4)	ND (10.4)	NA	NA	NA
COPPER	NA	NA	ND (1.6)	ND (1.6)	NA	NA	NA
IRON	NA	NA	193	151	NA	NA	NA
LEAD	NA	NA	ND (2.0)	ND (2.0)	NA	NA	NA
MAGNESIUM	NA	NA	103,000	99,800	NA	NA	NA
MANGANESE	NA	NA	719 *	689 *	NA	NA	NA
MERCURY	NA	NA	ND (0.20)	ND (0.20)	NA	NA	NA
MOLYBDENUM	NA	NA	ND (3.1)	ND (3.1)	NA	NA	NA
NICKEL	NA	NA	ND (17.8)	ND (17.8)	NA	NA	NA
POTASSIUM	NA	NA	1,910	1,740	NA	NA	NA
SELENIUM	NA	NA	ND (2.5)	ND (2.5)	NA	NA	NA
SODIUM	NA	NA	50,100	48,400	NA	NA	NA
THALLIUM	NA	NA	ND (2.0)	ND (2.0)	NA	NA	NA
VANADIUM	NA	NA	ND (3.9)	ND (3.9)	NA	NA	NA
ZINC	NA	NA	ND (6.1)	8.3	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	ND (1)	ND (1)
1,2-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (5)	ND (5)	NA	NA	NA
2-BUTANONE	NA	NA	ND (10)	ND (10)	NA	ND (5)	ND (5)
BENZENE	NA	NA	7 *&	7 *&	NA	5 *&	4 *&
CARBON TETRACHLORIDE	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
CHLOROETHANE	NA	NA	ND (10)	ND (10)	NA	ND (1)	ND (1)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sample Number	9141X214	9141X215	9202X372	9202X373	9204Z031	9344X032	9344X033
Sample Date	10/10/91	10/10/91	01/07/92	01/07/92	01/24/92	11/03/93	11/03/93
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	ND (1)	ND (1)
ETHYLBENZENE	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
METHYLENE CHLORIDE	NA	NA	ND (5)	ND (5)	NA	1	1
STYRENE	NA	NA	ND (5)	ND (5)	NA	NA	NA
TETRACHLOROETHENE	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
TOLUENE	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	ND (1)	ND (1)
TRICHLOROETHENE	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	ND (1)	ND (1)
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	ND (1)	ND (1)
VINYL CHLORIDE	NA	NA	ND (10)	ND (10)	NA	3 *6	3 *6
XYLENE (TOTAL)	NA	NA	ND (5)	ND (5)	NA	ND (1)	ND (1)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	ND (10)	ND (10)	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	ND (10)	ND (10)	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
2-METHYLNAPHTHALENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
2-METHYLPHENOL	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
4-METHYLPHENOL	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
ACENAPHTHENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
ACENAPHTHYLENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
ANTHRACENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
BENZOIC ACID	NA	NA	ND (50)	ND (50)	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	ND (10)	ND (10)	NA	ND (7)	ND (8)
BUTYLBENZYLPHTHALATE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
CARBAZOLE	NA	NA	NA	NA	NA	ND (10)	ND (10)
DIBENZOFURAN	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
DIETHYLPHTHALATE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
FLUORANTHENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
FLUORENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
NAPHTHALENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
PENTACHLOROPHENOL	NA	NA	ND (50)	ND (50)	NA	ND (25)	ND (25)
PHENANTHRENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)
PYRENE	NA	NA	ND (10)	ND (10)	NA	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A
Sample Number	9141X214	9141X215	9202X372	9202X373	9204Z031	9344X032	9344X033
Sample Date	10/10/91	10/10/91	01/07/92	01/07/92	01/24/92	11/03/93	11/03/93
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	NA	NA	ND (500)	ND (500)	NA	540	650
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	ND (5,000)	ND (5,000)	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	NA	83,000	82,000	NA	NA	NA
NITRATE	NA	NA	480	490	NA	NA	NA
NITRITE	NA	NA	ND (50.0)	ND (50.0)	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	ND (200)	ND (200)	NA	NA	NA
SULFATE	NA	NA	8,000	8,100	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	0.52	0.45	NA	NA	0.35	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	440,000	660,000	520,000	540,000	520,000	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW27A	IR06MW27A	IR06MW27A
Sample Number	9407X199	9420X309	9420X310	9433N585	9024J014	9101X033	9129X110
Sample Date	02/15/94	05/17/94	05/17/94	08/19/94	06/12/90	01/04/91	07/16/91
Metal (ug/L)							
ALUMINUM	NA	NA	NA	NA	ND (21.3)	ND (14.6)	ND (25.7)
ANTIMONY	NA	NA	NA	NA	ND (20.1)	ND (23.8)	ND (14.3)
ARSENIC	ND (3.3)	ND (1.3)	ND (1.3)	1.5 *	3.2 *	5.9 *	11.1 *
BARIUM	NA	NA	NA	NA	198	197	166
BERYLLIUM	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	0.37 *	ND (1.6)	ND (0.24)
CADMIUM	NA	NA	NA	NA	ND (3.7)	ND (4.1)	ND (3.4)
CALCIUM	NA	NA	NA	NA	38,000	32,200	34,100
CHROMIUM	ND (2.3)	ND (0.90)	ND (0.90)	ND (0.70)	ND (3.0)	ND (2.8)	ND (2.1)
CHROMIUM VI	ND (12.1)	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)	NA	NA
COBALT	NA	NA	NA	NA	ND (7.0)	ND (8.4)	6.6
COPPER	NA	NA	NA	NA	ND (5.3)	ND (2.3)	2.0
IRON	NA	NA	NA	NA	ND (29.3)	987	1,210
LEAD	NA	NA	NA	NA	ND (1.6)	ND (2.1)	ND (1.2)
MAGNESIUM	NA	NA	NA	NA	104,000	109,000	127,000
MANGANESE	NA	NA	NA	NA	997 *	2,380 *	2,480 *
MERCURY	NA	NA	NA	NA	ND (0.20)	ND (0.20)	ND (0.20)
MOLYBDENUM	NA	NA	NA	NA	NA	NA	ND (4.3)
NICKEL	NA	NA	NA	NA	37.2 B	ND (53.2)	71.6 B
POTASSIUM	NA	NA	NA	NA	10,400	3,800	3,650
SELENIUM	NA	NA	NA	NA	2.4	ND (2.3)	ND (2.9)
SODIUM	NA	NA	NA	NA	237,000	215,000	208,000
THALLIUM	NA	NA	NA	NA	ND (8.5)	ND (2.5)	ND (7.5)
VANADIUM	NA	NA	NA	NA	10.7	ND (10.4)	ND (6.8)
ZINC	NA	NA	NA	NA	7.9	15.6	11.0
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	ND (5)
1,2-DICHLOROBENZENE	2	2	NA	2	NA	NA	NA
1,2-DICHLOROETHANE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	ND (5)	NA	ND (5)
2-BUTANONE	ND (5)	ND (10)	ND (5)	ND (10)	ND (10)	NA	ND (10)
BENZENE	12 *6	14 *6	16 *6	7 *6	ND (5)	NA	ND (5)
CARBON TETRACHLORIDE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	ND (5)
CHLOROETHANE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	NA	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW27A	IR06MW27A	IR06MW27A
Sample Number	9407X199	9420X309	9420X310	9433N585	9024J014	9101X033	9129X110
Sample Date	02/15/94	05/17/94	05/17/94	08/19/94	06/12/90	01/04/91	07/16/91
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	ND (5)
CIS-1,2-DICHLOROETHENE	0.9	0.6	0.6	0.9	NA	NA	NA
ETHYLBENZENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	NA	ND (5)
METHYLENE CHLORIDE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	ND (5)
STYRENE	NA	NA	NA	NA	ND (5)	NA	ND (5)
TETRACHLOROETHENE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (5)	NA	ND (5)
TOLUENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	NA	4
TRANS-1,2-DICHLOROETHENE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	NA
TRICHLOROETHENE	ND (1)	0.4	ND (0.5)	0.3	ND (5)	NA	ND (5)
TRICHLOROFLUOROMETHANE	0.8	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	NA
VINYL CHLORIDE	6 *6	8 *6	7 *6	4 *6	ND (10)	NA	ND (10)
XYLENE (TOTAL)	ND (1)	ND (3)	ND (1)	ND (1)	ND (5)	NA	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	ND (5)	NA	ND (10)	ND (10)	ND (10)
1,4-DICHLOROBENZENE	NA	ND (5)	ND (5)	NA	ND (10)	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	0.5	0.4	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	0.6	0.5	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	NA	NA	ND (50)	ND (50)	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	ND (0.6)	ND (86)	ND (5)	ND (4)	ND (10)	ND (2)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (8)	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	NA
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	0.2	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	ND (25)	ND (25)	ND (50)	ND (50)	ND (50)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	0.2	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW23A	IR06MW27A	IR06MW27A	IR06MW27A
Sample Number	9407X199	9420X309	9420X310	9433N585	9024J014	9101X033	9129X110
Sample Date	02/15/94	05/17/94	05/17/94	08/19/94	06/12/90	01/04/91	07/16/91
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	ND (500)	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	170	410	430	100	640	ND (500)	1,200
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	ND (100)	420	340	360	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	ND (5,000)	ND (200)	ND (200)
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	207,000	NA	61,600
NITRATE	NA	NA	NA	NA	ND (50.0)	NA	ND (50.0)
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	NA	NA	ND (200)	NA	ND (200)
SULFATE	NA	NA	NA	NA	33,500	NA	ND (1,000)
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	940	NA	1,800
pH (pH units)							
PH	NA	NA	NA	NA	7.4	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	1,200,000	NA	1,100,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A
Sample Number	9202X374	9344X040	9344X049	9407X195	9420X307	9434H622	9435E161
Sample Date	01/07/92	11/04/93	11/05/93	02/15/94	05/17/94	08/25/94	09/01/94
Metal (ug/L)							
ALUMINUM	ND (15.3)	NA	NA	NA	NA	NA	NA
ANTIMONY	ND (27.6)	NA	NA	NA	NA	NA	NA
ARSENIC	11.4 *	NA	7.7 *	ND (13.4)	11.2 *	NA	NA
BARIUM	191	NA	NA	NA	NA	NA	NA
BERYLLIUM	ND (0.35)	NA	ND (0.20)	ND (0.20)	ND (0.10)	NA	NA
CADMIUM	ND (2.3)	NA	NA	NA	NA	NA	NA
CALCIUM	27,300	NA	NA	NA	NA	NA	NA
CHROMIUM	ND (3.0)	NA	ND (2.5)	ND (4.0)	ND (3.7)	NA	NA
CHROMIUM VI	ND (10.0)	NA	ND (346)	ND (142)	ND (32.6)	NA	NA
COBALT	12.0	NA	NA	NA	NA	NA	NA
COPPER	ND (1.6)	NA	NA	NA	NA	NA	NA
IRON	4,130	NA	NA	NA	NA	NA	NA
LEAD	ND (2.0)	NA	NA	NA	NA	NA	NA
MAGNESIUM	115,000	NA	NA	NA	NA	NA	NA
MANGANESE	1,940 *	NA	NA	NA	NA	NA	NA
MERCURY	ND (0.20)	NA	NA	NA	NA	NA	NA
MOLYBDENUM	ND (4.3)	NA	NA	NA	NA	NA	NA
NICKEL	51.2 B	NA	NA	NA	NA	NA	NA
POTASSIUM	3,550	NA	NA	NA	NA	NA	NA
SELENIUM	ND (2.5)	NA	NA	NA	NA	NA	NA
SODIUM	209,000	NA	NA	NA	NA	NA	NA
THALLIUM	ND (2.0)	NA	NA	NA	NA	NA	NA
VANADIUM	ND (3.9)	NA	NA	NA	NA	NA	NA
ZINC	7.5	NA	NA	NA	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	ND (0.5)	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	ND (0.5)	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	ND (0.5)	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	ND (10)	NA
BENZENE	NA	NA	NA	NA	NA	ND (0.5)	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	ND (0.5)	NA
CHLOROETHANE	NA	NA	NA	NA	NA	ND (0.5)	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A
Sample Number	9202X374	9344X040	9344X049	9407X195	9420X307	9434H622	9435E161
Sample Date	01/07/92	11/04/93	11/05/93	02/15/94	05/17/94	08/25/94	09/01/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	NA	NA	NA	NA	0.3 *	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	ND (0.5)	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	ND (0.5)	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	ND (2)	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	ND (0.5)	NA
TOLUENE	NA	NA	NA	NA	NA	ND (0.5)	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	ND (0.5)	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	ND (0.5)	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	ND (0.5)	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	ND (0.5)	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	ND (0.5)	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	ND (1)	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	NA	ND (15)	ND (10)	ND (5)	NA	NA
1,4-DICHLOROBENZENE	ND (10)	NA	ND (15)	ND (10)	ND (5)	NA	NA
2,4-DIMETHYLPHENOL	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
2-METHYLNAPHTHALENE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
2-METHYLPHENOL	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
4-METHYLPHENOL	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
ACENAPHTHENE	3	NA	ND (15)	ND (10)	0.6	NA	NA
ACENAPHTHYLENE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
ANTHRACENE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
BENZOIC ACID	ND (50)	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	NA	ND (15)	ND (3)	ND (8)	NA	NA
BUTYLBENZYLPHTHALATE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
CARBAZOLE	NA	NA	ND (15)	ND (10)	ND (10)	NA	NA
DIBENZOFURAN	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
DIETHYLPHTHALATE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
FLUORANTHENE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
FLUORENE	2	NA	ND (15)	ND (10)	ND (10)	NA	NA
NAPHTHALENE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA
PENTACHLOROPHENOL	ND (50)	NA	ND (37)	ND (25)	ND (25)	NA	NA
PHENANTHRENE	4	NA	4	ND (10)	1	NA	NA
PYRENE	ND (10)	NA	ND (15)	ND (10)	ND (10)	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A	IR06MW27A
Sample Number	9202X374	9344X040	9344X049	9407X195	9420X307	9434H622	9435E161
Sample Date	01/07/92	11/04/93	11/05/93	02/15/94	05/17/94	08/25/94	09/01/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	1,100	NA	700	1,100	NA	690
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	1,600	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	490	1,700	NA	150
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	69,700	NA	NA	NA	NA	NA	NA
NITRATE	76.0	NA	NA	NA	NA	NA	NA
NITRITE	470	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	ND (200)	NA	NA	NA	NA	NA	NA
SULFATE	3,200	NA	NA	NA	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	1,000,000	NA	NA	NA	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sample Number	9435K061	9024J016	9024J017	9101X034	9101X035	9129X111	9129X112
Sample Date	08/30/94	06/12/90	06/12/90	01/04/91	01/04/91	07/15/91	07/15/91
Metal (ug/L)							
ALUMINUM	NA	ND (21.3)	ND (37.5)	ND (14.6)	ND (14.6)	ND (25.7)	ND (25.7)
ANTIMONY	NA	ND (20.1)	ND (20.1)	ND (23.8)	ND (23.8)	ND (14.3)	ND (14.3)
ARSENIC	8.1 *	3.2 *	2.8 *	ND (2.9)	ND (2.9)	ND (2.5)	2.6 *
BARIUM	NA	38.2	39.3	121	125	137	138
BERYLLIUM	ND (0.10)	ND (0.33)	ND (0.33)	ND (1.6)	ND (1.6)	ND (0.24)	ND (0.24)
CADMIUM	NA	ND (3.7)	ND (3.7)	ND (4.1)	ND (4.1)	ND (3.4)	ND (3.4)
CALCIUM	NA	23,300	24,200	22,700	23,800	21,800	21,600
CHROMIUM	ND (2.8)	ND (1.7)	ND (1.7)	ND (2.8)	ND (2.8)	ND (2.1)	ND (2.1)
CHROMIUM VI	ND (10.0)	ND (10.0)	ND (10.0)	NA	NA	NA	NA
COBALT	NA	ND (7.0)	ND (7.0)	ND (8.4)	ND (8.4)	7.6	ND (4.9)
COPPER	NA	ND (1.7)	ND (1.7)	ND (2.3)	ND (2.3)	ND (1.3)	ND (1.5)
IRON	NA	ND (21.2)	ND (21.2)	92.7	78.5	109	105
LEAD	NA	ND (1.6)	ND (1.6)	ND (2.1)	ND (2.1)	ND (1.2)	ND (1.2)
MAGNESIUM	NA	117,000	120,000	140,000	146,000	141,000	141,000
MANGANESE	NA	1,160 *	1,190 *	1,820 *	1,890 *	1,860 *	1,850 *
MERCURY	NA	ND (0.20)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	ND (0.20)
MOLYBDENUM	NA	NA	NA	NA	NA	ND (3.3)	ND (3.3)
NICKEL	NA	21.6 B	ND (20.2)	ND (37.0)	ND (41.7)	43.5 B	17.3 B
POTASSIUM	NA	6,470	7,210	3,780	4,020	3,140	2,980
SELENIUM	NA	ND (2.2)	ND (2.2)	ND (2.3)	ND (2.3)	ND (2.9)	ND (2.9)
SODIUM	NA	125,000	128,000	111,000	114,000	105,000	106,000
THALLIUM	NA	ND (1.7)	ND (1.7)	ND (2.5)	ND (2.5)	ND (7.5)	ND (7.5)
VANADIUM	NA	4.8	6.0	ND (11.0)	ND (12.6)	2.7	ND (1.6)
ZINC	NA	9.2	11.0	ND (4.0)	ND (5.4)	ND (9.3)	ND (7.4)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	5	4	27	29	57 *	39
2-BUTANONE	NA	ND (10)	ND (10)	ND (10)	ND (10)	7	ND (10)
BENZENE	NA	3 *6	3 *6	6 *6	6 *6	6 *6	5 *6
CARBON TETRACHLORIDE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
CHLOROETHANE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sample Number	9435K061	9024J016	9024J017	9101X034	9101X035	9129X111	9129X112
Sample Date	08/30/94	06/12/90	06/12/90	01/04/91	01/04/91	07/15/91	07/15/91
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
METHYLENE CHLORIDE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (14)	ND (5)
STYRENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
TETRACHLOROETHENE	NA	ND (5)	ND (5)	1	2 *	1 *	ND (5)
TOLUENE	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4)
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	ND (5)	ND (5)	3 *	3 *	3 *	2 *
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	ND (10)	ND (10)	24 *&	28 *&	30 *&	18 *&
XYLENE (TOTAL)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (5)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,4-DICHLOROBENZENE	ND (5)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
ACENAPHTHENE	ND (10)	17	16	6	7	3	4
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	2	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	ND (50)	5	ND (50)	ND (50)	ND (50)	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	ND (8)	ND (6)	ND (6)	ND (10)	ND (10)	ND (16)	ND (10)
BUTYLBENZYLPHTHALATE	ND (10)	5	7	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	ND (10)	12	9	4	4	2	3
DIETHYLPHTHALATE	ND (10)	ND (10)	6	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	6	6	3	3	ND (10)	ND (10)
FLUORENE	ND (10)	16	14	4	5	3	3
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	20	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (50)	ND (50)	NA	NA	NA	NA
PHENANTHRENE	ND (10)	13 &	8 &	ND (10)	ND (10)	2	ND (10)
PYRENE	ND (10)	3	4	2	2	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW27A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sample Number	9435K061	9024J016	9024J017	9101X034	9101X035	9129X111	9129X112
Sample Date	08/30/94	06/12/90	06/12/90	01/04/91	01/04/91	07/15/91	07/15/91
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	ND (500)	ND (500)	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	NA	ND (500)	ND (500)	ND (500)	ND (500)	530	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	ND (5,000)	ND (5,000)	740	ND (200)	ND (200)	ND (200)
Anion (ug/L)							
CHLORIDE	NA	127,000	128,000	120,000	121,000	114,000	118,000
NITRATE	NA	ND (50.0)	ND (50.0)	ND (50.0)	ND (50.0)	ND (50.0)	ND (50.0)
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)
SULFATE	NA	5,600	5,600	3,200	3,100	3,800	3,700
Ammonia (ug/L)							
AMMONIA	NA	570	590	570	590	840	890
pH (pH units)							
PH	NA	7.7	7.7	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	840,000	880,000	820,000	840,000	810,000	970,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sample Number	9202X386	9202X387	9344X036	9407X197	9407X198	9420X317	9434K033
Sample Date	01/09/92	01/09/92	11/03/93	02/15/94	02/15/94	05/18/94	08/23/94
Metal (ug/L)							
ALUMINUM	ND (15.3)	ND (15.3)	NA	NA	NA	NA	NA
ANTIMONY	ND (27.6)	ND (27.6)	NA	NA	NA	NA	NA
ARSENIC	2.9 *	2.5 *	6.2 *	ND (5.0)	ND (4.5)	ND (1.3)	2.9 *
BARIUM	132	137	NA	NA	NA	NA	NA
BERYLLIUM	ND (0.35)	ND (0.35)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.10)
CADMIUM	ND (2.3)	ND (2.3)	NA	NA	NA	NA	NA
CALCIUM	20,300	20,500	NA	NA	NA	NA	NA
CHROMIUM	ND (3.0)	ND (3.0)	ND (2.5)	ND (2.3)	ND (2.3)	ND (0.90)	ND (0.70)
CHROMIUM VI	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)	ND (15.6)	ND (10.0)
COBALT	ND (10.4)	ND (10.4)	NA	NA	NA	NA	NA
COPPER	ND (1.6)	ND (1.6)	NA	NA	NA	NA	NA
IRON	ND (10.8)	ND (40.0)	NA	NA	NA	NA	NA
LEAD	ND (4.0)	ND (2.0)	NA	NA	NA	NA	NA
MAGNESIUM	125,000	129,000	NA	NA	NA	NA	NA
MANGANESE	1,720 *	1,750 *	NA	NA	NA	NA	NA
MERCURY	ND (0.20)	ND (0.20)	NA	NA	NA	NA	NA
MOLYBDENUM	ND (3.1)	ND (3.1)	NA	NA	NA	NA	NA
NICKEL	ND (17.8)	ND (17.8)	NA	NA	NA	NA	NA
POTASSIUM	3,530	3,460	NA	NA	NA	NA	NA
SELENIUM	ND (2.5)	ND (2.5)	NA	NA	NA	NA	NA
SODIUM	109,000	106,000	NA	NA	NA	NA	NA
THALLIUM	ND (2.0)	ND (2.0)	NA	NA	NA	NA	NA
VANADIUM	ND (3.9)	ND (3.9)	NA	NA	NA	NA	NA
ZINC	ND (6.1)	ND (6.1)	NA	NA	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	140 *	120 *	NA	NA	NA	NA	NA
2-BUTANONE	ND (10)	ND (10)	ND (50)	ND (50)	ND (50)	ND (50)	ND (100)
BENZENE	16 *δ	15 *δ	17 *δ	32 *δ	25 *δ	24 *δ	19 *δ
CARBON TETRACHLORIDE	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)
CHLOROETHANE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (5)	81

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sample Number	9202X386	9202X387	9344X036	9407X197	9407X198	9420X317	9434K033
Sample Date	01/09/92	01/09/92	11/03/93	02/15/94	02/15/94	05/18/94	08/23/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (5)	ND (5)	24 *	8 *	ND (10)	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	NA	NA	240 *&	380 *&	300 *&	230 *&	180 *&
ETHYLBENZENE	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)
METHYLENE CHLORIDE	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (3)	ND (27)
STYRENE	ND (5)	ND (5)	NA	NA	NA	NA	NA
TETRACHLOROETHENE	3 *	2 *	ND (10)	5 *	ND (10)	ND (5)	ND (5)
TOLUENE	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)
TRANS-1,2-DICHLOROETHENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)
TRICHLOROETHENE	5 *	5 *	10 *&	23 *&	17 *&	14 *&	10 *&
TRICHLOROFLUOROMETHANE	NA	NA	ND (10)	42	25	ND (5)	ND (5)
TRICHLOROTRIFLUOROETHANE	NA	NA	20	60	36	50	33
VINYL CHLORIDE	38 *&	31 *&	32 *&	73 *&	51 *&	51 *&	40 *&
XYLENE (TOTAL)	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (15)	ND (15)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)
1,4-DICHLOROBENZENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (5)	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	3	2	ND (10)	ND (10)	ND (10)	2	4
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	5	4	ND (10)	5	5	3	5
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	0.2	0.7
BENZOIC ACID	ND (50)	ND (50)	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	ND (10)	ND (10)	ND (3)	ND (10)	ND (0.4)	ND (4)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	3	3	ND (10)	ND (10)	ND (10)	2	3
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	2	ND (10)	ND (10)	ND (10)	ND (10)	1	2
FLUORENE	4	4	ND (10)	ND (10)	ND (10)	2	3
NAPHTHALENE	43	39	24	ND (10)	2	17	29
PENTACHLOROPHENOL	ND (50)	ND (50)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	2	3	ND (10)	ND (10)	ND (10)	2	5 &
PYRENE	2	ND (10)	ND (10)	ND (10)	ND (10)	0.8	1

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A	IR06MW30A
Sample Number	9202X386	9202X387	9344X036	9407X197	9407X198	9420X317	9434K033
Sample Date	01/09/92	01/09/92	11/03/93	02/15/94	02/15/94	05/18/94	08/23/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	ND (500)	860	460	410	530	570
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	200	210	160	180
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	ND (5,000)	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	99,300	99,200	NA	NA	NA	NA	NA
NITRATE	ND (50.0)	ND (50.0)	NA	NA	NA	NA	NA
NITRITE	ND (50.0)	ND (50.0)	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	ND (200)	ND (200)	NA	NA	NA	NA	NA
SULFATE	2,400	2,400	NA	NA	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	800,000	800,000	NA	NA	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A
Sample Number	9024J018	9102X042	9129X123	9202X391	9344X041	9407X196	9420X315
Sample Date	06/12/90	01/07/91	07/17/91	01/10/92	11/04/93	02/15/94	05/18/94
Metal (ug/L)							
ALUMINUM	ND (21.3)	ND (14.6)	ND (25.7)	ND (15.3)	NA	NA	NA
ANTIMONY	ND (20.1)	ND (23.8)	ND (14.3)	ND (27.6)	NA	NA	NA
ARSENIC	ND (2.0)	5.4 *	3.7 *	4.2 *	7.7 *	ND (4.9)	3.1 *
BARIUM	391	586	638	475	NA	NA	NA
BERYLLIUM	ND (0.33)	ND (1.6)	ND (0.24)	ND (0.35)	ND (0.20)	ND (0.20)	ND (0.10)
CADMIUM	4.0	ND (4.1)	ND (3.4)	ND (2.3)	NA	NA	NA
CALCIUM	118,000	101,000	96,700	71,800	NA	NA	NA
CHROMIUM	ND (2.9)	ND (2.8)	ND (2.1)	ND (3.0)	ND (2.5)	ND (2.3)	ND (0.90)
CHROMIUM VI	ND (10.0)	NA	NA	ND (10.0)	ND (84.1)	ND (82.4)	ND (33.5)
COBALT	8.2	ND (8.4)	ND (4.9)	ND (10.4)	NA	NA	NA
COPPER	ND (1.7)	ND (2.3)	ND (1.3)	1.6	NA	NA	NA
IRON	ND (21.2)	996	2,440	3,630	NA	NA	NA
LEAD	ND (1.6)	ND (2.1)	ND (1.2)	ND (2.0)	NA	NA	NA
MAGNESIUM	330,000	281,000	282,000	205,000	NA	NA	NA
MANGANESE	6,190 *	5,350 *	5,440 *	3,790 *	NA	NA	NA
MERCURY	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA	NA
MOLYBDENUM	NA	NA	ND (3.3)	ND (3.1)	NA	NA	NA
NICKEL	29.7 B	25.0 B	41.7 B	ND (17.8)	NA	NA	NA
POTASSIUM	10,200	8,010	7,390	8,120	NA	NA	NA
SELENIUM	ND (2.2)	ND (2.3)	ND (2.9)	ND (2.5)	NA	NA	NA
SODIUM	302,000	260,000	260,000	213,000	NA	NA	NA
THALLIUM	ND (1.7)	ND (2.5)	ND (7.5)	ND (2.0)	NA	NA	NA
VANADIUM	18.1	ND (24.9)	ND (10.4)	ND (3.9)	NA	NA	NA
ZINC	11.9	48.6	ND (4.8)	ND (6.1)	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	ND (5)	ND (1)	ND (1)
1,2-DICHLOROETHANE	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)
1,2-DICHLOROETHENE (TOTAL)	ND (5)	ND (5)	ND (5)	ND (5)	NA	NA	NA
2-BUTANONE	ND (10)	ND (10)	ND (10)	ND (10)	ND (25)	ND (5)	ND (10)
BENZENE	3 *6	6 *6	ND (5)	11 *6	7 *6	5 *6	7 *6
CARBON TETRACHLORIDE	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)
CHLOROETHANE	ND (10)	ND (10)	ND (10)	ND (10)	ND (5)	ND (1)	ND (1)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A
Sample Number	9024J018	9102X042	9129X123	9202X391	9344X041	9407X196	9420X315
Sample Date	06/12/90	01/07/91	07/17/91	01/10/92	11/04/93	02/15/94	05/18/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	ND (5)	ND (1)	ND (1)
ETHYLBENZENE	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)
METHYLENE CHLORIDE	ND (5)	ND (5)	ND (12)	ND (5)	17 *B	ND (1)	ND (1)
STYRENE	ND (5)	ND (5)	ND (5)	ND (5)	NA	NA	NA
TETRACHLOROETHENE	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)
TOLUENE	ND (5)	ND (5)	ND (32)	ND (5)	ND (5)	ND (1)	ND (1)
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	ND (5)	ND (1)	ND (1)
TRICHLOROETHENE	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	ND (5)	ND (1)	ND (1)
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	ND (5)	ND (1)	ND (1)
VINYL CHLORIDE	ND (10)	ND (10)	ND (10)	ND (10)	ND (5)	ND (1)	ND (1)
XYLENE (TOTAL)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (3)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	NA
1,4-DICHLOROBENZENE	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	5	ND (10)	ND (10)
2-METHYLPHENOL	NA	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	NA	ND (10)	NA	ND (10)	ND (10)	4	1
ACENAPHTHENE	9	6	6	8	11	11	9
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	0.9
BENZOIC ACID	ND (50)	ND (50)	ND (50)	ND (50)	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (12)	ND (4)	ND (5)	ND (10)	ND (11)	ND (4)	ND (2)
BUTYLBENZYLPHTHALATE	ND (8)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	NA	NA	NA	NA	ND (10)	ND (10)	0.1
DIBENZOFURAN	5	4	3	3	ND (10)	3	2
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	3	ND (10)	ND (10)	ND (10)	2	1	0.8
FLUORENE	11	7	6	8	ND (10)	8	6
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	NA	ND (50)	NA	ND (50)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	6 B	5	3	3	9 B	10 B	7 B
PYRENE	3	ND (10)	ND (10)	ND (10)	3	4	2

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A	IR06MW32A
Sample Number	9024J018	9102X042	9129X123	9202X391	9344X041	9407X196	9420X315
Sample Date	06/12/90	01/07/91	07/17/91	01/10/92	11/04/93	02/15/94	05/18/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	ND (500)	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	650	4,200	4,900	ND (5,000)	2,900	5,400	ND (100)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	1,600	ND (100)
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	3,400	390	ND (5,000)	NA	NA	NA
Anion (ug/L)							
CHLORIDE	1,180,000	920,000	705,000	319,000	NA	NA	NA
NITRATE	ND (500)	ND (500)	ND (50.0)	ND (50.0)	NA	NA	NA
NITRITE	NA	NA	NA	ND (500)	NA	NA	NA
ORTHOPHOSPHATE	ND (200)	ND (2,000)	ND (200)	ND (200)	NA	NA	NA
SULFATE	6,500	ND (10,000)	ND (1,000)	ND (1,000)	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	180	120	340	NA	NA	NA	NA
pH (pH units)							
PH	7.3	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	2,500,000	1,800,000	2,100,000	1,500,000	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A
Sample Number	9420X316	9434K038	9024J026	9101J134	9129X113	9202X388	9313J412
Sample Date	05/18/94	08/24/94	06/13/90	01/04/91	07/15/91	01/09/92	03/31/93
Metal (ug/L)							
ALUMINUM	NA	NA	ND (21.3)	ND (14.6)	ND (25.7)	ND (15.3)	22.5
ANTIMONY	NA	NA	ND (20.1)	ND (23.8)	15.8 *&	35.6 *&	ND (13.8)
ARSENIC	2.1 *	5.2 *	ND (2.0)	3.6 *	3.7 *	4.5 *	2.6 *
BARIUM	NA	NA	595	758	862	650	320
BERYLLIUM	ND (0.10)	ND (0.10)	0.56 *	ND (1.6)	ND (0.24)	ND (0.35)	ND (0.30)
CADMIUM	NA	NA	ND (3.7)	ND (4.1)	ND (3.4)	ND (2.3)	ND (1.0)
CALCIUM	NA	NA	138,000	154,000	144,000	108,000	60,800
CHROMIUM	ND (0.90)	ND (0.70)	ND (5.4)	ND (2.8)	ND (2.1)	ND (3.0)	ND (1.5)
CHROMIUM VI	ND (32.3)	ND (21.2)	ND (10.0)	NA	NA	ND (10.0)	ND (10.0)
COBALT	NA	NA	7.2	ND (8.4)	ND (4.9)	12.1	ND (2.9)
COPPER	NA	NA	ND (1.9)	ND (2.3)	ND (1.3)	ND (3.3)	ND (4.1)
IRON	NA	NA	6,960	8,970	11,900	11,000	3,660
LEAD	NA	NA	ND (1.6)	ND (2.1)	ND (1.2)	ND (2.0)	9.9 *&
MAGNESIUM	NA	NA	400,000	432,000	422,000	305,000	135,000
MANGANESE	NA	NA	2,540 *	4,460 *	4,080 *	2,750 *	1,160 *
MERCURY	NA	NA	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	0.14 &
MOLYBDENUM	NA	NA	NA	NA	ND (3.3)	ND (3.1)	ND (2.8)
NICKEL	NA	NA	22.8 &	ND (35.8)	21.2 &	ND (17.8)	ND (7.4)
POTASSIUM	NA	NA	39,200	35,300	35,000	26,000	15,700
SELENIUM	NA	NA	ND (2.2)	ND (2.3)	ND (2.9)	ND (2.5)	ND (22.0)
SODIUM	NA	NA	1,220,000	1,310,000	1,240,000	859,000	606,000
THALLIUM	NA	NA	ND (1.7)	ND (2.5)	ND (7.5)	ND (2.0)	NA
VANADIUM	NA	NA	21.8	29.9	2.5	ND (3.9)	2.5
ZINC	NA	NA	16.4	ND (4.1)	ND (5.2)	6.7	ND (1.6)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	0.76
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (2)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
1,2-DICHLOROBENZENE	ND (2)	ND (1)	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	ND (2)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
2-BUTANONE	ND (25)	ND (20)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZENE	7 *&	7 *&	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
CARBON TETRACHLORIDE	ND (2)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
CHLOROETHANE	ND (2)	ND (1)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A
Sample Number	9420X316	9434K038	9024J026	9101J134	9129X113	9202X388	9313J412
Sample Date	05/18/94	08/24/94	06/13/90	01/04/91	07/15/91	01/09/92	03/31/93
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (2)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
CIS-1,2-DICHLOROETHENE	ND (2)	ND (1)	NA	NA	NA	NA	NA
ETHYLBENZENE	ND (2)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
METHYLENE CHLORIDE	ND (1)	ND (3)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
STYRENE	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
TETRACHLOROETHENE	ND (2)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
TOLUENE	ND (2)	ND (1)	ND (5)	ND (5)	ND (3)	ND (5)	ND (10)
TRANS-1,2-DICHLOROETHENE	ND (2)	ND (1)	NA	NA	NA	NA	NA
TRICHLOROETHENE	ND (2)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
TRICHLOROFLUOROMETHANE	ND (2)	ND (1)	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	ND (2)	ND (1)	NA	NA	NA	NA	NA
VINYL CHLORIDE	ND (2)	ND (1)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
XYLENE (TOTAL)	ND (7)	ND (3)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,4-DICHLOROBENZENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	6	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
4-METHYLPHENOL	2	ND (10)	NA	NA	NA	ND (10)	ND (10)
ACENAPHTHENE	8	11	56	48	37	40	48
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	0.6	1	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	ND (50)	ND (50)	ND (50)	ND (50)	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (0.9)	ND (4)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (4)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
DIBENZOFURAN	ND (10)	3	12	11	5	4	4
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	0.9	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	5	7	4	4	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	NA	NA	NA	ND (50)	ND (25)
PHENANTHRENE	7 a	10 a	10 a	11 a	6 a	8 a	ND (10)
PYRENE	2	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW32A	IR06MW32A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A
Sample Number	9420X316	9434K038	9024J026	9101J134	9129X113	9202X388	9313J412
Sample Date	05/18/94	08/24/94	06/13/90	01/04/91	07/15/91	01/09/92	03/31/93
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	ND (0.05)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	ND (500)	NA	NA	NA	ND (500)
TPH-Extractable (ug/L)							
TPH-DIESEL	5,700	5,800	ND (500)	ND (500)	ND (500)	ND (500)	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	1,600	1,300	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	ND (1,000)
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	ND (5,000)	ND (200)	ND (200)	ND (5,000)	NA
Anion (ug/L)							
CHLORIDE	NA	NA	2,740,000	3,130,000	2,950,000	1,780,000	NA
NITRATE	NA	NA	ND (500)	ND (500)	ND (500)	ND (500)	NA
NITRITE	NA	NA	NA	NA	NA	ND (500)	NA
ORTHOPHOSPHATE	NA	NA	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,000)	NA
SULFATE	NA	NA	33,000	14,800	ND (10,000)	17,200	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	1,400	1,600	1,800	NA	NA
pH (pH units)							
PH	NA	NA	6.6	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	4,700,000	5,000,000	4,900,000	3,700,000	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW35A	IR06MW35A	IR06MW35A
Sample Number	9344X042	9407X210	9420X314	9433N586	9024J007	9101J131	9129X122
Sample Date	11/04/93	02/17/94	05/18/94	08/19/94	06/11/90	01/04/91	07/17/91
Metal (ug/L)							
ALUMINUM	NA	NA	NA	NA	ND (21.3)	ND (14.6)	ND (25.7)
ANTIMONY	NA	NA	NA	NA	ND (20.1)	ND (23.8)	ND (14.3)
ARSENIC	4.5 *	ND (4.5)	ND (1.3)	4.5 *	4.0 *	6.4 *	4.1 *
BARIUM	NA	NA	NA	NA	73.8	66.6	52.6
BERYLLIUM	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.33)	ND (1.6)	ND (0.24)
CADMIUM	NA	NA	NA	NA	ND (3.7)	ND (4.1)	ND (3.4)
CALCIUM	NA	NA	NA	NA	19,600	10,100	7,360
CHROMIUM	ND (2.5)	ND (2.3)	ND (0.90)	ND (0.70)	ND (2.4)	ND (2.8)	ND (2.1)
CHROMIUM VI	ND (58.5)	ND (15.8)	ND (10.0)	ND (10.0)	ND (10.0)	NA	NA
COBALT	NA	NA	NA	NA	ND (7.0)	ND (8.4)	ND (4.9)
COPPER	NA	NA	NA	NA	ND (6.0)	ND (2.3)	3.1 B
IRON	NA	NA	NA	NA	ND (21.2)	ND (27.1)	ND (42.5)
LEAD	NA	NA	NA	NA	ND (1.6)	ND (2.2)	ND (1.2)
MAGNESIUM	NA	NA	NA	NA	71,300	39,200	28,100
MANGANESE	NA	NA	NA	NA	123	282 *	159
MERCURY	NA	NA	NA	NA	ND (0.40)	ND (0.20)	ND (0.20)
MOLYBDENUM	NA	NA	NA	NA	NA	NA	10.2
NICKEL	NA	NA	NA	NA	ND (20.2)	ND (23.6)	ND (15.2)
POTASSIUM	NA	NA	NA	NA	12,900	13,600	15,200
SELENIUM	NA	NA	NA	NA	ND (2.2)	ND (2.3)	ND (2.9)
SODIUM	NA	NA	NA	NA	469,000	639,000	613,000
THALLIUM	NA	NA	NA	NA	ND (1.7)	ND (2.5)	ND (7.5)
VANADIUM	NA	NA	NA	NA	7.0	ND (18.2)	ND (11.8)
ZINC	NA	NA	NA	NA	16.8	ND (1.9)	11.9
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROBENZENE	NA	6	10	ND (0.5)	NA	NA	NA
1,2-DICHLOROETHANE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	22	15	8
2-BUTANONE	ND (5)	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)	ND (10)
BENZENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
CARBON TETRACHLORIDE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
CHLOROETHANE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW35A	IR06MW35A	IR06MW35A
Sample Number	9344X042	9407X210	9420X314	9433N586	9024J007	9101J131	9129X122
Sample Date	11/04/93	02/17/94	05/18/94	08/19/94	06/11/90	01/04/91	07/17/91
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA	NA	NA
ETHYLBENZENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
METHYLENE CHLORIDE	ND (1)	ND (1)	ND (0.5)	ND (0.6)	ND (5)	ND (5)	ND (16)
STYRENE	NA	NA	NA	NA	ND (5)	ND (5)	ND (5)
TETRACHLOROETHENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
TOLUENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)
TRANS-1,2-DICHLOROETHENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA	NA	NA
TRICHLOROETHENE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	5 *	2	ND (5)
TRICHLOROFLUOROMETHANE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA	NA	NA
VINYL CHLORIDE	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)
XYLENE (TOTAL)	0.7	ND (1)	ND (1)	ND (1)	ND (5)	ND (5)	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	NA	NA	NA	18	3	ND (10)
1,4-DICHLOROBENZENE	ND (10)	NA	NA	NA	5 *	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	1	4	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	55	72	40	55	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	2	1	0.9	2	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	NA	NA	ND (50)	ND (50)	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	5 *&	ND (13)	ND (1)	ND (4)	ND (10)	ND (10)	ND (5)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	NA
DIBENZOFURAN	5	5	3	4	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	2	1	2	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	1	0.7	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	2	15	12	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	ND (25)	ND (25)	ND (50)	ND (50)	ND (50)
PHENANTHRENE	5 B	ND (10)	0.5	3	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	0.7	1	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW34A	IR06MW35A	IR06MW35A	IR06MW35A
Sample Number	9344X042	9407X210	9420X314	9433N586	9024J007	9101J131	9129X122
Sample Date	11/04/93	02/17/94	05/18/94	08/19/94	06/11/90	01/04/91	07/17/91
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	ND (500)	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	590	380	440	130	ND (500)	ND (500)	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	660	230	380	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	ND (5,000)	ND (200)	ND (200)
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	300,000	284,000	210,000
NITRATE	NA	NA	NA	NA	ND (50.0)	ND (500)	170
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	NA	NA	330	730	1,300
SULFATE	NA	NA	NA	NA	103,000	61,200	77,200
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	150	ND (100)	240
pH (pH units)							
PH	NA	NA	NA	NA	8.0	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	1,600,000	1,700,000	1,700,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW40A	IR06MW40A
Sample Number	9202X384	9344X043	9407X201	9419X292	9433K020	9024J020	9101X036
Sample Date	01/08/92	11/04/93	02/15/94	05/13/94	08/19/94	06/13/90	01/04/91
Metal (ug/L)							
ALUMINUM	23.1	NA	NA	NA	NA	ND (21.3)	ND (14.6)
ANTIMONY	ND (27.6)	NA	NA	NA	NA	ND (20.1)	ND (23.8)
ARSENIC	5.2 *	ND (3.3)	ND (6.0)	4.8 *	4.9 *	3.2 *	5.1 *
BARIUM	61.6	NA	NA	NA	NA	117	78.8
BERYLLIUM	ND (0.35)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.10)	0.37 *	ND (1.6)
CADMIUM	ND (2.3)	NA	NA	NA	NA	ND (3.7)	ND (4.1)
CALCIUM	6,770	NA	NA	NA	NA	83,500	167,000
CHROMIUM	ND (3.0)	ND (2.5)	ND (2.3)	ND (0.90)	0.90	ND (3.9)	ND (2.8)
CHROMIUM VI	ND (10.0)	ND (148)	ND (23.0)	ND (10.0)	ND (11.7)	ND (10.0)	NA
COBALT	ND (10.4)	NA	NA	NA	NA	ND (7.0)	ND (8.4)
COPPER	ND (1.7)	NA	NA	NA	NA	58.2 B	ND (2.3)
IRON	ND (40.3)	NA	NA	NA	NA	ND (21.2)	156
LEAD	ND (2.0)	NA	NA	NA	NA	ND (1.6)	ND (2.1)
MAGNESIUM	26,000	NA	NA	NA	NA	319,000	825,000
MANGANESE	160	NA	NA	NA	NA	551 *	4,110 *
MERCURY	ND (0.20)	NA	NA	NA	NA	ND (0.40)	ND (0.20)
MOLYBDENUM	ND (9.6)	NA	NA	NA	NA	NA	NA
NICKEL	ND (17.8)	NA	NA	NA	NA	ND (20.2)	ND (35.4)
POTASSIUM	13,800	NA	NA	NA	NA	36,800	33,300
SELENIUM	ND (2.5)	NA	NA	NA	NA	ND (2.2)	ND (2.3)
SODIUM	563,000	NA	NA	NA	NA	945,000	931,000
THALLIUM	ND (2.0)	NA	NA	NA	NA	ND (1.7)	ND (2.5)
VANADIUM	11.6	NA	NA	NA	NA	23.8	56.7
ZINC	ND (6.1)	NA	NA	NA	NA	14.3	ND (4.2)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
1,2-DICHLOROBENZENE	NA	NA	ND (1)	1	1	NA	NA
1,2-DICHLOROETHANE	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	7	NA	NA	NA	NA	ND (5)	ND (5)
2-BUTANONE	ND (10)	ND (5)	ND (5)	ND (5)	ND (10)	ND (10)	ND (10)
BENZENE	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
CARBON TETRACHLORIDE	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
CHLOROETHANE	ND (10)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW40A	IR06MW40A
Sample Number	9202X384	9344X043	9407X201	9419X292	9433K020	9024J020	9101X036
Sample Date	01/08/92	11/04/93	02/15/94	05/13/94	08/19/94	06/13/90	01/04/91
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	NA	7 δ	9 δ	8 δ	9 δ	NA	NA
ETHYLBENZENE	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
METHYLENE CHLORIDE	ND (5)	ND (1)	ND (1)	ND (0.7)	ND (0.5)	ND (5)	ND (5)
STYRENE	ND (5)	NA	NA	NA	NA	ND (5)	ND (5)
TETRACHLOROETHENE	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
TOLUENE	ND (5)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)	ND (5)
TRANS-1,2-DICHLOROETHENE	NA	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA	NA
TRICHLOROETHENE	ND (5)	ND (1)	ND (1)	0.4	0.7	ND (5)	ND (5)
TRICHLOROFLUOROMETHANE	NA	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA	NA
VINYL CHLORIDE	ND (10)	2 *δ	6 *δ	2 *δ	1 *δ	ND (10)	ND (10)
XYLENE (TOTAL)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
1,4-DICHLOROBENZENE	ND (10)	NA	NA	NA	NA	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
ACENAPHTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	ND (50)	NA	NA	NA	NA	ND (50)	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	20 *δ	ND (10)	ND (4)	ND (4)	ND (10)	ND (10)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	NA	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (50)	ND (25)	ND (25)	ND (25)	ND (25)	ND (50)	NA
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW35A	IR06MW40A	IR06MW40A
Sample Number	9202X384	9344X043	9407X201	9419X292	9433K020	9024J020	9101X036
Sample Date	01/08/92	11/04/93	02/15/94	05/13/94	08/19/94	06/13/90	01/04/91
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	ND (500)	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	560	100	ND (100)	ND (100)	ND (500)	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	350	510	600	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	NA	NA	NA	NA	ND (5,000)	ND (200)
Anion (ug/L)							
CHLORIDE	223,000	NA	NA	NA	NA	1,880,000	2,290,000
NITRATE	61.0	NA	NA	NA	NA	1,100	ND (500)
NITRITE	ND (50.0)	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	1,500	NA	NA	NA	NA	ND (2,000)	ND (2,000)
SULFATE	67,300	NA	NA	NA	NA	1,170,000	1,670,000
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	1,600	2,000
pH (pH units)							
PH	NA	NA	NA	NA	NA	7.2	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	1,600,000	NA	NA	NA	NA	5,100,000	5,900,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A
Sample Number	9129X120	9129X121	9141X219	9202X389	92042023	9345X057	9407X204
Sample Date	07/17/91	07/17/91	10/10/91	01/09/92	01/24/92	11/08/93	02/16/94
Metal (ug/L)							
ALUMINUM	ND (25.7)	ND (25.7)	NA	15.7	NA	NA	NA
ANTIMONY	14.4 B	ND (14.3)	NA	ND (27.6)	NA	NA	NA
ARSENIC	2.8 *	ND (2.5)	NA	2.0 *	NA	7.1 *	ND (4.8)
BARIUM	55.0	49.2	NA	49.2	NA	NA	NA
BERYLLIUM	ND (0.56)	ND (0.56)	NA	ND (0.35)	NA	ND (0.20)	ND (0.20)
CADMIUM	ND (3.4)	ND (3.4)	NA	ND (2.3)	NA	NA	NA
CALCIUM	141,000	125,000	NA	91,800	NA	NA	NA
CHROMIUM	ND (2.1)	ND (2.1)	NA	ND (3.0)	NA	ND (2.3)	ND (2.3)
CHROMIUM VI	NA	NA	NA	ND (10.0)	NA	ND (10.0)	ND (13.4)
COBALT	8.3	11.3	NA	ND (10.4)	NA	NA	NA
COPPER	3.5 B	ND (1.3)	NA	ND (1.6)	NA	NA	NA
IRON	ND (11.9)	ND (11.9)	NA	ND (7.5)	NA	NA	NA
LEAD	ND (1.2)	ND (1.2)	NA	ND (2.0)	NA	NA	NA
MAGNESIUM	796,000	702,000	NA	520,000	NA	NA	NA
MANGANESE	2,760 *	2,430 *	NA	1,370 *	NA	NA	NA
MERCURY	ND (0.20)	ND (0.20)	NA	ND (0.20)	NA	NA	NA
MOLYBDENUM	25.9	24.6	NA	ND (17.4)	NA	NA	NA
NICKEL	39.8 B	32.8 B	NA	ND (17.8)	NA	NA	NA
POTASSIUM	21,800	20,700	NA	22,700	NA	NA	NA
SELENIUM	ND (2.9)	ND (2.9)	NA	ND (2.5)	NA	NA	NA
SODIUM	668,000	657,000	NA	673,000	NA	NA	NA
THALLIUM	ND (7.5)	ND (7.5)	NA	ND (20.0)	NA	NA	NA
VANADIUM	ND (6.2)	ND (9.4)	NA	ND (3.9)	NA	NA	NA
ZINC	ND (6.4)	ND (9.8)	NA	ND (6.1)	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	ND (1)
1,2-DICHLOROETHANE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
1,2-DICHLOROETHENE (TOTAL)	ND (5)	ND (5)	NA	ND (5)	NA	NA	NA
2-BUTANONE	ND (10)	ND (10)	NA	ND (10)	NA	ND (5)	ND (5)
BENZENE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
CARBON TETRACHLORIDE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
CHLOROETHANE	ND (10)	ND (10)	NA	ND (10)	NA	ND (1)	ND (1)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A
Sample Number	9129X120	9129X121	9141X219	9202X389	9204Z023	9345X057	9407X204
Sample Date	07/17/91	07/17/91	10/10/91	01/09/92	01/24/92	11/08/93	02/16/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	ND (1)	ND (1)
ETHYLBENZENE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
METHYLENE CHLORIDE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
STYRENE	ND (5)	ND (5)	NA	ND (5)	NA	NA	NA
TETRACHLOROETHENE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
TOLUENE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	ND (1)	ND (1)
TRICHLOROETHENE	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	ND (1)	ND (1)
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	ND (1)	ND (1)
VINYL CHLORIDE	ND (10)	ND (10)	NA	ND (10)	NA	ND (1)	12 *a
XYLENE (TOTAL)	ND (5)	ND (5)	NA	ND (5)	NA	ND (1)	ND (1)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	NA
1,4-DICHLOROBENZENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	ND (10)	NA	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
2-METHYLPHENOL	NA	NA	NA	ND (10)	NA	ND (10)	ND (10)
4-METHYLPHENOL	NA	NA	NA	ND (10)	NA	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
BENZOIC ACID	ND (50)	ND (50)	NA	ND (50)	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (4)	ND (10)	NA	ND (10)	NA	ND (7)	ND (10)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
CARBAZOLE	NA	NA	NA	NA	NA	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
PENTACHLOROPHENOL	NA	NA	NA	ND (50)	NA	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A	IR06MW40A
Sample Number	9129X120	9129X121	9141X219	9202X389	92042023	9345X057	9407X204
Sample Date	07/17/91	07/17/91	10/10/91	01/09/92	01/24/92	11/08/93	02/16/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	ND (500)	NA	ND (500)	NA	510	200
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	NA	ND (100)
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (200)	ND (200)	NA	ND (5,000)	NA	NA	NA
Anion (ug/L)							
CHLORIDE	1,780,000	1,770,000	NA	1,160,000	NA	NA	NA
NITRATE	ND (500)	ND (500)	NA	ND (500)	NA	NA	NA
NITRITE	NA	NA	NA	ND (500)	NA	NA	NA
ORTHOPHOSPHATE	ND (2,000)	ND (2,000)	NA	ND (2,000)	NA	NA	NA
SULFATE	1,420,000	1,400,000	NA	796,000	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	2,500	1,100	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	5.1	NA	1.5	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	5,700,000	5,600,000	6,500,000	3,800,000	2,000,000	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A
Sample Number	9419X290	9433N581	9024J008	9024J009	9101X029	9129X119	9202X380
Sample Date	05/13/94	08/19/94	06/11/90	06/11/90	01/03/91	07/16/91	01/08/92
Metal (ug/L)							
ALUMINUM	NA	NA	ND (21.3)	ND (21.3)	ND (14.6)	ND (25.7)	ND (15.3)
ANTIMONY	NA	NA	ND (20.1)	ND (20.1)	ND (23.8)	ND (14.3)	ND (27.6)
ARSENIC	2.9 *	2.1 *	2.2 *	2.0 *	10.5 *	9.7 *	12.5 *
BARIUM	NA	NA	377	381	587	901	929
BERYLLIUM	ND (0.10)	ND (0.10)	ND (0.33)	ND (0.33)	ND (1.6)	ND (0.24)	ND (0.35)
CADMIUM	NA	NA	ND (3.7)	ND (3.7)	ND (4.1)	ND (3.4)	ND (2.3)
CALCIUM	NA	NA	62,400	63,200	80,000	110,000	94,600
CHROMIUM	ND (0.90)	ND (0.70)	ND (2.2)	ND (3.9)	ND (2.8)	ND (2.1)	ND (3.0)
CHROMIUM VI	ND (10.0)	ND (15.2)	ND (10.0)	ND (10.0)	NA	NA	ND (10.0)
COBALT	NA	NA	ND (7.0)	ND (7.0)	ND (8.4)	8.8	15.2
COPPER	NA	NA	ND (1.7)	ND (1.7)	ND (2.3)	ND (1.3)	ND (1.6)
IRON	NA	NA	1,490	1,060	1,090	8,250	4,380
LEAD	NA	NA	ND (1.6)	ND (1.6)	ND (1.4)	ND (1.2)	ND (2.0)
MAGNESIUM	NA	NA	228,000	232,000	367,000	659,000	546,000
MANGANESE	NA	NA	735 *	749 *	3,420 *	8,860 *	7,150 *
MERCURY	NA	NA	ND (0.20)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)
MOLYBDENUM	NA	NA	NA	NA	NA	ND (3.3)	ND (3.1)
NICKEL	NA	NA	ND (20.2)	ND (20.2)	ND (35.7)	18.9 B	ND (17.8)
POTASSIUM	NA	NA	28,100	28,600	24,700	11,700	14,500
SELENIUM	NA	NA	ND (2.2)	ND (2.2)	ND (2.1)	ND (2.9)	ND (2.5)
SODIUM	NA	NA	577,000	586,000	612,000	448,000	514,000
THALLIUM	NA	NA	ND (1.7)	ND (1.7)	ND (2.2)	ND (7.5)	ND (2.0)
VANADIUM	NA	NA	11.6	11.2	26.6	ND (1.6)	ND (3.9)
ZINC	NA	NA	11.7	9.9	ND (5.7)	10.8	16.6
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROBENZENE	ND (0.5)	ND (0.5)	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2-BUTANONE	ND (5)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZENE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
CARBON TETRACHLORIDE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
CHLOROETHANE	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A
Sample Number	9419X290	9433N581	9024J008	9024J009	9101X029	9129X119	9202X380
Sample Date	05/13/94	08/19/94	06/11/90	06/11/90	01/03/91	07/16/91	01/08/92
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	ND (0.5)	ND (0.5)	NA	NA	NA	NA	NA
ETHYLBENZENE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
METHYLENE CHLORIDE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (2)	ND (5)	ND (5)
STYRENE	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
TETRACHLOROETHENE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
TOLUENE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	2	ND (5)
TRANS-1,2-DICHLOROETHENE	ND (0.5)	ND (0.5)	NA	NA	NA	NA	NA
TRICHLOROETHENE	ND (0.5)	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
TRICHLOROFLUOROMETHANE	ND (0.5)	ND (0.5)	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	ND (0.5)	ND (0.5)	NA	NA	NA	NA	NA
VINYL CHLORIDE	14 *d	1 *d	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
XYLENE (TOTAL)	ND (1)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,4-DICHLOROBENZENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	15	16	5	ND (10)	3
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	ND (2)	ND (4)	ND (3)	ND (4)	ND (5)	ND (10)	ND (10)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	NA	NA	NA	NA	NA
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	ND (50)	ND (50)	NA	NA	ND (50)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW40A	IR06MW40A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A
Sample Number	9419X290	9433N581	9024J008	9024J009	9101X029	9129X119	9202X380
Sample Date	05/13/94	08/19/94	06/11/90	06/11/90	01/03/91	07/16/91	01/08/92
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	ND (500)	ND (500)	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	86	120	ND (500)	ND (500)	3,500	730	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	2,500
TPH-MOTOR OIL	120	190	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	ND (10,000)	ND (5,000)	870	ND (200)	6,800
Anion (ug/L)							
CHLORIDE	NA	NA	1,290,000	1,290,000	1,510,000	2,350,000	1,840,000
NITRATE	NA	NA	ND (500)	ND (500)	ND (500)	3,200	ND (500)
NITRITE	NA	NA	NA	NA	NA	NA	ND (500)
ORTHOPHOSPHATE	NA	NA	ND (200)	ND (200)	ND (2,000)	ND (2,000)	ND (2,000)
SULFATE	NA	NA	3,400	3,500	ND (10,000)	ND (10,000)	ND (10,000)
Ammonia (ug/L)							
AMMONIA	NA	NA	1,800	1,700	1,600	1,400	NA
pH (pH units)							
PH	NA	NA	7.5	7.6	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	2,600,000	2,800,000	3,100,000	3,800,000	3,600,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW42A
Sample Number	9202X381	9345X059	9407X206	9407X207	9419X291	9433K019	9024J025
Sample Date	01/08/92	11/08/93	02/16/94	02/16/94	05/13/94	08/19/94	06/13/90
Metal (ug/L)							
ALUMINUM	ND (15.3)	NA	NA	NA	NA	NA	ND (21.3)
ANTIMONY	31.8 *&	NA	NA	NA	NA	NA	ND (20.1)
ARSENIC	12.3 *	14.1 *	ND (12.1)	ND (12.2)	8.4 *	4.3 *	ND (2.0)
BARIUM	919	NA	NA	NA	NA	NA	359
BERYLLIUM	ND (0.35)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.33)
CADMIUM	ND (2.3)	NA	NA	NA	NA	NA	ND (3.7)
CALCIUM	88,900	NA	NA	NA	NA	NA	113,000
CHROMIUM	ND (3.0)	ND (2.3)	ND (2.3)	ND (2.3)	ND (0.90)	ND (0.70)	ND (3.8)
CHROMIUM VI	ND (10.0)	ND (13.2)	ND (13.4)	ND (15.8)	ND (10.0)	ND (10.0)	ND (10.0)
COBALT	ND (10.4)	NA	NA	NA	NA	NA	11.0
COPPER	ND (1.6)	NA	NA	NA	NA	NA	ND (8.5)
IRON	4,040	NA	NA	NA	NA	NA	1,270
LEAD	ND (2.0)	NA	NA	NA	NA	NA	ND (1.6)
MAGNESIUM	505,000	NA	NA	NA	NA	NA	236,000
MANGANESE	6,340 *	NA	NA	NA	NA	NA	3,040 *
MERCURY	ND (0.20)	NA	NA	NA	NA	NA	ND (0.20)
MOLYBDENUM	ND (3.1)	NA	NA	NA	NA	NA	NA
NICKEL	18.3 &	NA	NA	NA	14.6 &	NA	21.1 &
POTASSIUM	15,700	NA	NA	NA	NA	NA	30,000
SELENIUM	ND (2.5)	NA	NA	NA	NA	NA	2.3
SODIUM	531,000	NA	NA	NA	NA	NA	780,000
THALLIUM	ND (2.0)	NA	NA	NA	NA	NA	ND (1.7)
VANADIUM	ND (3.9)	NA	NA	NA	NA	NA	11.8
ZINC	9.3	NA	NA	NA	NA	NA	21.0
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
1,2-DICHLOROBENZENE	NA	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA
1,2-DICHLOROETHANE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	ND (5)	NA	NA	NA	NA	NA	ND (5)
2-BUTANONE	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)	ND (10)
BENZENE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
CARBON TETRACHLORIDE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
CHLOROETHANE	ND (10)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW42A
Sample Number	9202X381	9345X059	9407X206	9407X207	9419X291	9433K019	9024J025
Sample Date	01/08/92	11/08/93	02/16/94	02/16/94	05/13/94	08/19/94	06/13/90
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (5)	2 *	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
CIS-1,2-DICHLOROETHENE	NA	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA
ETHYLBENZENE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	12
METHYLENE CHLORIDE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
STYRENE	ND (5)	NA	NA	NA	NA	NA	1
TETRACHLOROETHENE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
TOLUENE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	4
TRANS-1,2-DICHLOROETHENE	NA	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA
TRICHLOROETHENE	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (5)
TRICHLOROFLUOROMETHANE	NA	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA
TRICHLOROTRIFLUOROETHANE	NA	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	NA
VINYL CHLORIDE	ND (10)	ND (1)	ND (1)	ND (1)	ND (0.5)	ND (0.5)	ND (10)
XYLENE (TOTAL)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	21
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	NA	NA	NA	NA	NA	ND (40)
1,4-DICHLOROBENZENE	ND (10)	NA	NA	NA	NA	NA	ND (40)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (40)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	72
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (40)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (40)
ACENAPHTHENE	3	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	150
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (40)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	11
BENZOIC ACID	ND (50)	NA	NA	NA	NA	NA	ND (200)
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	ND (10)	ND (4)	ND (10)	ND (4)	ND (3)	ND (40)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (40)
CARBAZOLE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	97
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (40)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	21
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	95
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	690 *
PENTACHLOROPHENOL	ND (50)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (200)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	62 B
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	14

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW41A	IR06MW42A
Sample Number	9202X381	9345X059	9407X206	9407X207	9419X291	9433K019	9024J025
Sample Date	01/08/92	11/08/93	02/16/94	02/16/94	05/13/94	08/19/94	06/13/90
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	ND (500)
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (750)	850	520	460	520	520	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	3,200	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	170	140	190	ND (100)	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	NA	NA	NA	NA	NA	ND (5,000)
Anion (ug/L)							
CHLORIDE	1,850,000	NA	NA	NA	NA	NA	1,850,000
NITRATE	ND (500)	NA	NA	NA	NA	NA	ND (500)
NITRITE	ND (500)	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	ND (2,000)	NA	NA	NA	NA	NA	ND (2,000)
SULFATE	ND (10,000)	NA	NA	NA	NA	NA	ND (10,000)
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	1,600
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	6.6
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	3,500,000	NA	NA	NA	NA	NA	3,300,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A
Sample Number	9102G584	9102X043	9102X046	9129X114	9141M210	9202X392	9202X393
Sample Date	01/10/91	01/07/91	01/08/91	07/16/91	10/11/91	01/10/92	01/10/92
Metal (ug/L)							
ALUMINUM	ND (14.6)	NA	NA	ND (25.7)	NA	ND (15.3)	ND (15.3)
ANTIMONY	ND (23.8)	NA	NA	ND (14.3)	NA	ND (27.6)	ND (27.6)
ARSENIC	8.3 *	NA	NA	9.5 *	NA	6.6 *	6.5 *
BARIUM	565	NA	NA	397	NA	362	363
BERYLLIUM	ND (1.6)	NA	NA	ND (0.24)	NA	ND (0.35)	ND (0.35)
CADMIUM	ND (4.1)	NA	NA	ND (3.4)	NA	ND (2.3)	ND (2.3)
CALCIUM	125,000	NA	NA	68,800	NA	60,500	61,000
CHROMIUM	ND (2.8)	NA	NA	ND (2.1)	NA	ND (3.0)	ND (3.0)
CHROMIUM VI	NA	NA	NA	NA	NA	ND (10.0)	ND (10.0)
COBALT	ND (8.4)	NA	NA	ND (4.9)	NA	ND (10.4)	ND (10.4)
COPPER	ND (7.2)	NA	NA	ND (1.3)	NA	ND (1.6)	ND (1.6)
IRON	1,870	NA	NA	4,220	NA	7,060	7,400
LEAD	ND (2.1)	NA	NA	ND (1.2)	NA	ND (2.0)	ND (2.0)
MAGNESIUM	299,000	NA	NA	152,000	NA	135,000	136,000
MANGANESE	5,880 *	NA	NA	1,940 *	NA	1,430 *	1,410 *
MERCURY	ND (0.20)	NA	NA	ND (0.20)	NA	ND (0.20)	ND (0.20)
MOLYBDENUM	NA	NA	NA	ND (3.3)	NA	ND (3.1)	ND (3.1)
NICKEL	ND (22.9)	NA	NA	22.3 B	NA	ND (17.8)	ND (17.8)
POTASSIUM	35,100	NA	NA	26,100	NA	23,800	24,000
SELENIUM	ND (2.3)	NA	NA	ND (2.9)	NA	ND (2.5)	ND (2.5)
SODIUM	938,000	NA	NA	640,000	NA	599,000	605,000
THALLIUM	ND (2.5)	NA	NA	ND (7.5)	NA	ND (2.0)	ND (2.0)
VANADIUM	ND (17.3)	NA	NA	1.7	NA	ND (3.9)	ND (3.9)
ZINC	36.6	NA	NA	ND (5.3)	NA	22.5	20.8
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
2-BUTANONE	NA	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
BENZENE	NA	ND (5)	NA	2 *6	NA	ND (5)	ND (5)
CARBON TETRACHLORIDE	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
CHLOROETHANE	NA	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A
Sample Number	9102G584	9102X043	9102X046	9129X114	9141M210	9202X392	9202X393
Sample Date	01/10/91	01/07/91	01/08/91	07/16/91	10/11/91	01/10/92	01/10/92
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	8	NA	12	NA	9	7
METHYLENE CHLORIDE	NA	ND (5)	NA	ND (12)	NA	ND (5)	ND (5)
STYRENE	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
TETRACHLOROETHENE	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
TOLUENE	NA	ND (5)	NA	ND (4)	NA	4	2
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	ND (5)	NA	ND (5)	NA	ND (5)	ND (5)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	ND (10)	NA	ND (10)	NA	ND (10)	ND (10)
XYLENE (TOTAL)	NA	19	NA	17	NA	16	14
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
1,4-DICHLOROBENZENE	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
2,4-DIMETHYLPHENOL	NA	NA	ND (40)	9	NA	8	7
2-METHYLNAPHTHALENE	NA	NA	ND (40)	140	NA	240	230
2-METHYLPHENOL	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
4-METHYLPHENOL	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
ACENAPHTHENE	NA	NA	170	160	NA	220	230
ACENAPHTHYLENE	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
ANTHRACENE	NA	NA	21	10	NA	12	11
BENZOIC ACID	NA	NA	ND (200)	ND (100)	NA	ND (100)	ND (100)
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
BUTYLBENZYLPHTHALATE	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	140	140	NA	140	140
DIETHYLPHTHALATE	NA	NA	ND (40)	ND (20)	NA	ND (20)	ND (20)
FLUORANTHENE	NA	NA	36	13	NA	15	17
FLUORENE	NA	NA	130	120	NA	160	160
NAPHTHALENE	NA	NA	810 *	1,200 *	NA	1,800 *	1,600 *
PENTACHLOROPHENOL	NA	NA	ND (200)	ND (100)	NA	ND (100)	ND (100)
PHENANTHRENE	NA	NA	160 B	130 B	NA	130 B	120 B
PYRENE	NA	NA	16	6	NA	7	8

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A
Sample Number	9102G584	9102X043	9102X046	9129X114	9141M210	9202X392	9202X393
Sample Date	01/10/91	01/07/91	01/08/91	07/16/91	10/11/91	01/10/92	01/10/92
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	NA	NA	ND (500)	1,900	NA	ND (1,500)	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	ND (200)	ND (200)	NA	ND (5,000)	ND (5,000)
Anion (ug/L)							
CHLORIDE	NA	1,960,000	NA	1,140,000	NA	920,000	886,000
NITRATE	NA	ND (500)	NA	ND (500)	NA	ND (50.0)	ND (50.0)
NITRITE	NA	NA	NA	NA	NA	ND (500)	ND (500)
ORTHOPHOSPHATE	NA	ND (2,000)	NA	ND (2,000)	NA	ND (200)	ND (200)
SULFATE	NA	10,200	NA	ND (10,000)	NA	ND (1,000)	ND (1,000)
Ammonia (ug/L)							
AMMONIA	NA	NA	890	1,600	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	2.4	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	3,800,000	2,400,000	2,500,000	2,200,000	2,200,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW44A
Sample Number	92042030	9345X060	9407X192	9420X301	9434K044	9434K049	9144X236
Sample Date	01/24/92	11/08/93	02/14/94	05/16/94	08/25/94	08/26/94	10/31/91
Metal (ug/L)							
ALUMINUM	NA	NA	NA	NA	NA	NA	ND (53.0)
ANTIMONY	NA	NA	NA	NA	NA	NA	ND (27.6)
ARSENIC	NA	10.5 *	ND (3.6)	3.1 *	NA	5.0 *	ND (1.4)
BARIUM	NA	NA	NA	NA	NA	NA	23.2
BERYLLIUM	NA	ND (0.24)	ND (0.20)	ND (0.10)	NA	ND (0.10)	ND (0.35)
CADMIUM	NA	NA	NA	NA	NA	NA	ND (2.3)
CALCIUM	NA	NA	NA	NA	NA	NA	217,000
CHROMIUM	NA	ND (2.3)	ND (2.6)	ND (0.90)	NA	ND (0.70)	ND (3.0)
CHROMIUM VI	NA	ND (26.5)	ND (10.0)	ND (10.0)	NA	ND (12.5)	ND (10.0)
COBALT	NA	NA	NA	NA	NA	NA	16.7
COPPER	NA	NA	NA	NA	NA	NA	1.9
IRON	NA	NA	NA	NA	NA	NA	794
LEAD	NA	NA	NA	NA	NA	NA	ND (2.0)
MAGNESIUM	NA	NA	NA	NA	NA	NA	915,000
MANGANESE	NA	NA	NA	NA	NA	NA	4,930 *
MERCURY	NA	NA	NA	NA	NA	NA	ND (0.20)
MOLYBDENUM	NA	NA	NA	NA	NA	NA	ND (3.1)
NICKEL	NA	NA	NA	NA	NA	NA	117 B#
POTASSIUM	NA	NA	NA	NA	NA	NA	16,800
SELENIUM	NA	NA	NA	NA	NA	NA	ND (2.5)
SODIUM	NA	NA	NA	NA	NA	NA	793,000
THALLIUM	NA	NA	NA	NA	NA	NA	ND (10.0)
VANADIUM	NA	NA	NA	NA	NA	NA	ND (3.9)
ZINC	NA	NA	NA	NA	NA	NA	ND (6.1)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	ND (5)
1,2-DICHLOROBENZENE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	NA
1,2-DICHLOROETHANE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	ND (5)
2-BUTANONE	NA	ND (5)	ND (5)	ND (5)	ND (50)	NA	ND (10)
BENZENE	NA	1 *	ND (1)	0.7 *	ND (2)	NA	ND (5)
CARBON TETRACHLORIDE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	ND (5)
CHLOROETHANE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW44A
Sample Number	92042030	9345X060	9407X192	9420X301	9434K044	9434K049	9144X236
Sample Date	01/24/92	11/08/93	02/14/94	05/16/94	08/25/94	08/26/94	10/31/91
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	ND (5)
CIS-1,2-DICHLOROETHENE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	NA
ETHYLBENZENE	NA	5	2	3	1	NA	ND (5)
METHYLENE CHLORIDE	NA	ND (1)	ND (1)	ND (0.5)	ND (10)	NA	ND (5)
STYRENE	NA	NA	NA	NA	NA	NA	ND (5)
TETRACHLOROETHENE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	ND (5)
TOLUENE	NA	2	0.6	1	ND (2)	NA	ND (5)
TRANS-1,2-DICHLOROETHENE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	NA
TRICHLOROETHENE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	ND (5)
TRICHLOROFLUOROMETHANE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	ND (1)	ND (1)	ND (0.5)	ND (2)	NA	NA
VINYL CHLORIDE	NA	ND (1)	0.7 J	ND (0.5)	ND (2)	NA	ND (10)
XYLENE (TOTAL)	NA	11	4	5	7	NA	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	ND (5)	ND (10)
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	ND (5)	ND (10)
2,4-DIMETHYLPHENOL	NA	ND (50)	ND (100)	35	NA	ND (10)	ND (10)
2-METHYLNAPHTHALENE	NA	42	43	38	NA	ND (10)	ND (10)
2-METHYLPHENOL	NA	ND (50)	ND (100)	ND (10)	NA	ND (10)	ND (10)
4-METHYLPHENOL	NA	ND (50)	ND (100)	1	NA	ND (10)	ND (10)
ACENAPHTHENE	NA	170	120	130	NA	110	ND (10)
ACENAPHTHYLENE	NA	ND (50)	ND (100)	ND (10)	NA	3	ND (10)
ANTHRACENE	NA	ND (50)	ND (100)	8	NA	5	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	NA	ND (43)	ND (100)	ND (0.7)	NA	ND (4)	ND (2)
BUTYLBENZYLPHTHALATE	NA	ND (50)	ND (100)	ND (10)	NA	ND (10)	ND (10)
CARBAZOLE	NA	47 *	ND (100)	53 *	NA	33 *	NA
DIBENZOFURAN	NA	100	58	83	NA	49	ND (10)
DIETHYLPHTHALATE	NA	ND (50)	ND (100)	ND (10)	NA	ND (10)	ND (10)
FLUORANTHENE	NA	17	17	10	NA	11	ND (10)
FLUORENE	NA	110	61	85	NA	54	ND (10)
NAPHTHALENE	NA	380 *	280 *	360 *	NA	30	ND (10)
PENTACHLOROPHENOL	NA	ND (130)	ND (250)	ND (25)	NA	ND (25)	ND (50)
PHENANTHRENE	NA	110 a	74 a	74 a	NA	5 a	ND (10)
PYRENE	NA	8	9	6	NA	6	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW42A	IR06MW44A
Sample Number	9204Z030	9345X060	9407X192	9420X301	9434K044	9434K049	9144X236
Sample Date	01/24/92	11/08/93	02/14/94	05/16/94	08/25/94	08/26/94	10/31/91
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	NA	3,200	2,100	3,900	NA	1,100	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	ND (500)
TPH-MOTOR OIL	NA	NA	450	540	NA	450	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	ND (5,000)
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	NA	NA	2,500,000
NITRATE	NA	NA	NA	NA	NA	NA	ND (500)
NITRITE	NA	NA	NA	NA	NA	NA	ND (5,000)
ORTHOPHOSPHATE	NA	NA	NA	NA	NA	NA	ND (2,000)
SULFATE	NA	NA	NA	NA	NA	NA	4,340,000
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	1.6	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	1,900,000	NA	NA	NA	NA	NA	9,300,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW44A	IR06MW44A	IR06MW45A	IR06MW45A	IR06MW45A	IR06MW46A	IR06MW46A
Sample Number	9202X375	9434H623	9144X237	9203X395	9434H620	9144X244	9144X245
Sample Date	01/07/92	08/25/94	10/31/91	01/13/92	08/25/94	10/31/91	11/01/91
Metal (ug/L)							
ALUMINUM	ND (15.3)	NA	ND (26.9)	ND (15.3)	NA	ND (36.9)	ND (39.4)
ANTIMONY	40.1 *&	NA	ND (27.6)	33.5 *&	NA	ND (27.6)	ND (27.6)
ARSENIC	ND (1.4)	3.0 *	2.5 *	ND (1.4)	ND (1.5)	3.7 *	3.6 *
BARIUM	13.9	NA	68.0	56.1	NA	35.4	35.4
BERYLLIUM	ND (0.35)	ND (0.10)	ND (0.35)	ND (0.35)	ND (0.10)	ND (0.35)	ND (0.35)
CADMIUM	6.4 &	NA	ND (2.3)	ND (2.3)	NA	ND (2.3)	ND (2.3)
CALCIUM	175,000	NA	111,000	100,000	NA	160,000	161,000
CHROMIUM	ND (3.0)	ND (0.70)	ND (3.0)	ND (3.0)	ND (0.70)	ND (3.0)	ND (3.0)
CHROMIUM VI	ND (10.0)	ND (18.4)	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)
COBALT	14.4	NA	ND (10.4)	ND (10.4)	NA	ND (10.4)	ND (10.4)
COPPER	ND (1.6)	NA	10.9 &	ND (4.7)	NA	1.8	ND (1.6)
IRON	504	NA	ND (6.3)	ND (6.3)	NA	ND (9.9)	ND (12.1)
LEAD	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	ND (2.0)	ND (2.0)
MAGNESIUM	748,000	NA	156,000	220,000	NA	392,000	394,000
MANGANESE	5,050 *	NA	370 *	26.8	NA	148	132
MERCURY	ND (0.20)	NA	ND (0.20)	ND (0.20)	NA	ND (0.20)	ND (0.20)
MOLYBDENUM	ND (3.1)	NA	5.1	ND (7.0)	NA	24.4	26.3
NICKEL	89.4 &	NA	35.2 &	ND (17.8)	NA	38.7 &	49.7 &
POTASSIUM	11,800	NA	27,800	63,800	NA	7,180	7,130
SELENIUM	ND (2.5)	NA	3.1	ND (2.5)	NA	ND (2.5)	ND (2.5)
SODIUM	714,000	NA	1,020,000	2,120,000	NA	216,000	215,000
THALLIUM	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	ND (2.0)	ND (2.0)
VANADIUM	ND (3.9)	NA	ND (3.9)	ND (3.9)	NA	ND (3.9)	ND (3.9)
ZINC	49.8	NA	ND (6.1)	ND (6.1)	NA	ND (6.1)	ND (6.1)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	ND (0.5)	NA	NA
1,2-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (5)	ND (5)	NA	ND (5)	ND (5)
2-BUTANONE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZENE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
CARBON TETRACHLORIDE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
CHLOROETHANE	NA	NA	ND (10)	ND (10)	ND (0.5)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW44A	IR06MW44A	IR06MW45A	IR06MW45A	IR06MW45A	IR06MW46A	IR06MW46A
Sample Number	9202X375	9434H623	9144X237	9203X395	9434H620	9144X244	9144X245
Sample Date	01/07/92	08/25/94	10/31/91	01/13/92	08/25/94	10/31/91	11/01/91
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	ND (0.5)	NA	NA
ETHYLBENZENE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
METHYLENE CHLORIDE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
STYRENE	NA	NA	ND (5)	ND (5)	NA	ND (5)	ND (5)
TETRACHLOROETHENE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
TOLUENE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	ND (0.5)	NA	NA
TRICHLOROETHENE	NA	NA	ND (5)	ND (5)	ND (0.5)	ND (5)	ND (5)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	ND (0.5)	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	ND (0.5)	NA	NA
VINYL CHLORIDE	NA	NA	ND (10)	ND (10)	ND (0.5)	ND (10)	ND (10)
XYLENE (TOTAL)	NA	NA	ND (5)	ND (5)	ND (1)	ND (5)	ND (5)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (5)	ND (10)	ND (10)	NA	ND (10)	ND (10)
1,4-DICHLOROBENZENE	ND (10)	ND (5)	ND (10)	ND (10)	NA	ND (10)	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	ND (50)	NA	ND (50)	ND (50)	NA	ND (50)	ND (50)
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	ND (4)	ND (10)	ND (10)	ND (4)	ND (10)	ND (10)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	NA	ND (10)	NA	NA	ND (10)	NA	NA
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (50)	ND (25)	ND (50)	ND (50)	ND (25)	ND (50)	ND (50)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW44A	IR06MW44A	IR06MW45A	IR06MW45A	IR06MW45A	IR06MW46A	IR06MW46A
Sample Number	9202X375	9434H623	9144X237	9203X395	9434H620	9144X244	9144X245
Sample Date	01/07/92	08/25/94	10/31/91	01/13/92	08/25/94	10/31/91	11/01/91
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	ND (200)	ND (500)	ND (500)	ND (100)	ND (500)	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	ND (500)	NA	NA	ND (500)	ND (500)
TPH-MOTOR OIL	NA	3,100	NA	NA	1,400	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	NA	ND (5,000)	ND (5,000)	NA	ND (5,000)	ND (5,000)
Anion (ug/L)							
CHLORIDE	1,510,000	NA	1,860,000	3,490,000	NA	1,470,000	806,000
NITRATE	2,400	NA	1,800	1,500	NA	ND (500)	ND (500)
NITRITE	ND (5,000)	NA	ND (5,000)	ND (500)	NA	ND (5,000)	ND (5,000)
ORTHOPHOSPHATE	ND (2,000)	NA	ND (2,000)	ND (2,000)	NA	ND (2,000)	ND (2,000)
SULFATE	2,620,000	NA	272,000	488,000	NA	192,000	146,000
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	6,300,000	NA	4,200,000	6,800,000	NA	2,700,000	2,700,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW46A	IR06MW46A	IR06MW47F	IR06MW47F	IR06MW47F	IR06MW47F	IR06MW47F
Sample Number	9202X378	9434H621	9145H913	9202X385	9345X058	9407X203	9420X313
Sample Date	01/08/92	08/25/94	11/04/91	01/09/92	11/08/93	02/16/94	05/18/94
Metal (ug/L)							
ALUMINUM	ND (15.3)	NA	ND (15.3)	ND (15.3)	NA	NA	NA
ANTIMONY	28.4 *§	NA	ND (27.6)	ND (27.6)	NA	NA	NA
ARSENIC	2.5 *	2.6 *	2.0 *	2.8 *	ND (3.1)	ND (5.5)	ND (1.3)
BARIUM	59.1	NA	115	85.4	NA	NA	NA
BERYLLIUM	ND (0.35)	ND (0.10)	ND (0.35)	ND (0.35)	ND (0.24)	ND (0.20)	ND (0.10)
CADMIUM	ND (2.3)	NA	ND (2.3)	ND (2.3)	NA	NA	NA
CALCIUM	230,000	NA	44,100	40,100	NA	NA	NA
CHROMIUM	ND (3.0)	1.3	ND (3.0)	3.5	ND (2.3)	ND (3.1)	ND (2.7)
CHROMIUM VI	ND (10.0)	ND (13.8)	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)
COBALT	ND (10.4)	NA	ND (10.4)	ND (10.4)	NA	NA	NA
COPPER	ND (1.7)	NA	ND (1.6)	ND (1.6)	NA	NA	NA
IRON	ND (6.3)	NA	ND (6.3)	ND (6.3)	NA	NA	NA
LEAD	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	NA	NA
MAGNESIUM	600,000	NA	191,000	133,000	NA	NA	NA
MANGANESE	187 *	NA	90.4	85.8	NA	NA	NA
MERCURY	ND (0.20)	NA	ND (0.20)	ND (0.20)	NA	NA	NA
MOLYBDENUM	21.8	NA	13.1	ND (14.8)	NA	NA	NA
NICKEL	42.4 §	NA	95.4 §	ND (17.8)	NA	NA	NA
POTASSIUM	9,520	NA	25,000	20,800	NA	NA	NA
SELENIUM	ND (2.5)	NA	ND (2.5)	ND (2.5)	NA	NA	NA
SODIUM	267,000	NA	1,240,000	843,000	NA	NA	NA
THALLIUM	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	NA	NA
VANADIUM	ND (3.9)	NA	7.7	9.4	NA	NA	NA
ZINC	ND (6.1)	NA	ND (6.1)	ND (6.1)	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROETHANE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROETHENE (TOTAL)	NA	NA	ND (5)	ND (5)	NA	NA	NA
2-BUTANONE	NA	NA	ND (10)	ND (10)	ND (5)	ND (5)	ND (5)
BENZENE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
CARBON TETRACHLORIDE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
CHLOROETHANE	NA	NA	ND (10)	ND (10)	ND (1)	ND (1)	ND (0.5)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW46A	IR06MW46A	IR06MW47F	IR06MW47F	IR06MW47F	IR06MW47F	IR06MW47F
Sample Number	9202X378	9434H621	9145H913	9202X385	9345X058	9407X203	9420X313
Sample Date	01/08/92	08/25/94	11/04/91	01/09/92	11/08/93	02/16/94	05/18/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	NA	[illegible]	ND (5)	ND (1)	ND (1)	ND (0.5)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
ETHYLBENZENE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
METHYLENE CHLORIDE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
STYRENE	NA	NA	ND (5)	ND (5)	NA	NA	NA
TETRACHLOROETHENE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
TOLUENE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
TRICHLOROETHENE	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
VINYL CHLORIDE	NA	NA	ND (10)	ND (10)	ND (1)	ND (1)	ND (0.5)
XYLENE (TOTAL)	NA	NA	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (5)	ND (10)	ND (10)	NA	NA	NA
1,4-DICHLOROBENZENE	ND (10)	ND (5)	ND (10)	ND (10)	NA	NA	NA
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	ND (50)	NA	ND (50)	ND (50)	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	ND (8)	ND (4)	ND (10)	ND (7)	ND (3)	ND (7)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	NA	ND (10)	NA	NA	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (50)	ND (25)	ND (50)	ND (50)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW46A	IR06MW46A	IR06MW47F	IR06MW47F	IR06MW47F	IR06MW47F	IR06MW47F
Sample Number	9202X378	9434H621	9145H913	9202X385	9345X058	9407X203	9420X313
Sample Date	01/08/92	08/25/94	11/04/91	01/09/92	11/08/93	02/16/94	05/18/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	ND (100)	ND (500)	ND (500)	1,000	ND (100)	ND (100)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	ND (500)	NA	NA	NA	NA
TPH-MOTOR OIL	NA	470	NA	NA	NA	390	300
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	ND (5,000)	NA	ND (5,500)	ND (5,000)	NA	NA	NA
Anion (ug/L)							
CHLORIDE	2,150,000	NA	2,230,000	1,470,000	NA	NA	NA
NITRATE	730	NA	690	ND (500)	NA	NA	NA
NITRITE	ND (500)	NA	ND (500)	ND (500)	NA	NA	NA
ORTHOPHOSPHATE	ND (2,000)	NA	ND (2,000)	ND (2,000)	NA	NA	NA
SULFATE	205,000	NA	316,000	269,000	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	3,400,000	NA	4,500,000	3,300,000	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW47F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F
Sample Number	9435K054	9145H910	9202X379	9345X062	9407X188	9407X189	9420X304
Sample Date	08/29/94	11/04/91	01/08/92	11/08/93	02/14/94	02/14/94	05/16/94
Metal (ug/L)							
ALUMINUM	NA	ND (15.3)	ND (15.3)	NA	NA	NA	NA
ANTIMONY	NA	ND (27.6)	ND (27.6)	NA	NA	NA	NA
ARSENIC	ND (1.5)	7.9 *	4.0 *	4.7 *	ND (4.6)	ND (4.5)	ND (1.3)
BARIUM	NA	29.3	57.1	NA	NA	NA	NA
BERYLLIUM	ND (0.10)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.20)	ND (0.20)	ND (0.10)
CADMIUM	NA	ND (2.3)	ND (2.3)	NA	NA	NA	NA
CALCIUM	NA	17,500	18,000	NA	NA	NA	NA
CHROMIUM	4.0	ND (3.0)	ND (3.0)	ND (2.3)	ND (2.3)	ND (2.3)	ND (0.90)
CHROMIUM VI	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.8)	ND (10.0)	ND (10.0)	ND (10.0)
COBALT	NA	ND (10.4)	ND (10.4)	NA	NA	NA	NA
COPPER	NA	ND (2.7)	ND (2.6)	NA	NA	NA	NA
IRON	NA	ND (6.3)	ND (12.1)	NA	NA	NA	NA
LEAD	NA	ND (2.0)	ND (2.0)	NA	NA	NA	NA
MAGNESIUM	NA	43,800	55,800	NA	NA	NA	NA
MANGANESE	NA	188 *	728 *	NA	NA	NA	NA
MERCURY	NA	ND (0.20)	ND (0.20)	NA	NA	NA	NA
MOLYBDENUM	NA	35.6	ND (8.7)	NA	NA	NA	NA
NICKEL	NA	ND (17.8)	ND (17.8)	NA	NA	NA	NA
POTASSIUM	NA	14,700	11,800	NA	NA	NA	NA
SELENIUM	NA	ND (2.5)	ND (2.5)	NA	NA	NA	NA
SODIUM	NA	344,000	185,000	NA	NA	NA	NA
THALLIUM	NA	ND (2.0)	ND (2.0)	NA	NA	NA	NA
VANADIUM	NA	ND (3.9)	ND (3.9)	NA	NA	NA	NA
ZINC	NA	ND (6.1)	ND (6.1)	NA	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (0.5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROBENZENE	ND (0.5)	NA	NA	ND (1)	NA	ND (1)	ND (0.5)
1,2-DICHLOROETHANE	ND (0.5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROETHENE (TOTAL)	NA	ND (5)	2	NA	NA	NA	NA
2-BUTANONE	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)	ND (5)	ND (5)
BENZENE	ND (0.5)	ND (5)	1 *	2 *	1 *	1 *	1 *
CARBON TETRACHLORIDE	ND (0.5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)
CHLOROETHANE	ND (0.5)	ND (10)	ND (10)	ND (1)	ND (1)	ND (1)	ND (0.5)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW47F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F
Sample Number	9435K054	9145H910	9202X379	9345X062	9407X188	9407X189	9420X304
Sample Date	08/29/94	11/04/91	01/08/92	11/08/93	02/14/94	02/14/94	05/16/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (0.5)	ND (5)	1 *	2 *	2 *	2 *	ND (0.5)
CIS-1,2-DICHLOROETHENE	ND (0.5)	NA	NA	3	ND (1)	ND (1)	2
ETHYLBENZENE	ND (0.5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)
METHYLENE CHLORIDE	ND (0.5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)
STYRENE	NA	ND (5)	ND (5)	NA	NA	NA	NA
TETRACHLOROETHENE	ND (0.5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)
TOLUENE	ND (0.5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (0.5)
TRANS-1,2-DICHLOROETHENE	ND (0.5)	NA	NA	ND (1)	ND (1)	ND (1)	0.3
TRICHLOROETHENE	ND (0.5)	4 *	ND (5)	ND (1)	ND (1)	ND (1)	0.3
TRICHLOROFLUOROMETHANE	ND (0.5)	NA	NA	ND (1)	ND (1)	ND (1)	ND (0.5)
TRICHLOROTRIFLUOROETHANE	ND (0.5)	NA	NA	ND (1)	ND (1)	ND (1)	ND (0.5)
VINYL CHLORIDE	ND (0.5)	ND (10)	6 *&	7 *&	11 *&	13 *&	11 *&
XYLENE (TOTAL)	ND (1)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)	ND (1)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	ND (10)	ND (10)	NA	ND (10)	NA	NA
1,4-DICHLOROBENZENE	NA	ND (10)	ND (10)	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	ND (50)	ND (50)	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (4)	ND (4)	ND (10)	ND (6)	ND (10)	ND (10)	ND (11)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (50)	ND (50)	ND (25)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW47F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F	IR06MW48F
Sample Number	9435K054	9145H910	9202X379	9345X062	9407X188	9407X189	9420X304
Sample Date	08/29/94	11/04/91	01/08/92	11/08/93	02/14/94	02/14/94	05/16/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (100)	ND (500)	ND (500)	760	ND (100)	ND (100)	140
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	ND (500)	NA	NA	NA	NA	NA
TPH-MOTOR OIL	70	NA	NA	NA	750	650	1,100
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	ND (5,000)	ND (5,000)	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	142,000	88,200	NA	NA	NA	NA
NITRATE	NA	1,100	ND (50.0)	NA	NA	NA	NA
NITRITE	NA	ND (50.0)	ND (50.0)	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	ND (200)	470	NA	NA	NA	NA
SULFATE	NA	140,000	29,200	NA	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	1,200,000	720,000	NA	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW48F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F
Sample Number	9433K021	9144X243	9202X366	9202X367	9345X061	9407X208	9420X302
Sample Date	08/19/94	10/31/91	01/06/92	01/06/92	11/08/93	02/16/94	05/16/94
Metal (ug/L)							
ALUMINUM	NA	ND (15.3)	ND (15.3)	ND (15.3)	NA	NA	NA
ANTIMONY	NA	ND (27.6)	ND (27.6)	ND (27.6)	NA	NA	NA
ARSENIC	1.7 *	ND (1.4)	ND (1.4)	ND (1.4)	3.6 *	ND (3.6)	ND (1.3)
BARIUM	NA	12.2	11.9	11.9	NA	NA	NA
BERYLLIUM	ND (0.10)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.31)	ND (0.25)	ND (0.10)
CADMIUM	NA	ND (2.3)	ND (2.3)	ND (2.3)	NA	NA	NA
CALCIUM	NA	12,700	13,300	12,900	NA	NA	NA
CHROMIUM	ND (0.70)	90.6 δ	101 δ	96.0 δ	81.1 δ	87.8 δ	78.8 δ
CHROMIUM VI	ND (10.0)	100 *δ	120 *δ	110 *δ	87.8 *δ	82.9 *δ	91.1 *δ
COBALT	NA	10.7	ND (10.4)	ND (10.4)	NA	NA	NA
COPPER	NA	ND (1.6)	ND (1.6)	ND (1.6)	NA	NA	NA
IRON	NA	ND (6.3)	ND (6.3)	ND (6.3)	NA	NA	NA
LEAD	NA	ND (2.0)	ND (2.0)	ND (2.0)	NA	NA	NA
MAGNESIUM	NA	71,400	81,200	79,300	NA	NA	NA
MANGANESE	NA	0.69	ND (2.2)	ND (2.3)	NA	NA	NA
MERCURY	NA	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA	NA
MOLYBDENUM	NA	ND (3.1)	ND (3.1)	ND (3.1)	NA	NA	NA
NICKEL	NA	ND (17.8)	ND (17.8)	ND (17.8)	NA	NA	NA
POTASSIUM	NA	1,820	1,720	1,670	NA	NA	NA
SELENIUM	NA	ND (2.5)	ND (2.5)	ND (2.5)	NA	NA	NA
SODIUM	NA	78,600	80,700	78,300	NA	NA	NA
THALLIUM	NA	ND (2.0)	ND (2.0)	ND (2.0)	NA	NA	NA
VANADIUM	NA	ND (3.9)	ND (3.9)	ND (3.9)	NA	NA	NA
ZINC	NA	ND (6.1)	ND (6.1)	ND (6.1)	NA	NA	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROBENZENE	ND (0.5)	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROETHANE	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
1,2-DICHLOROETHENE (TOTAL)	NA	ND (5)	ND (5)	ND (5)	NA	NA	NA
2-BUTANONE	ND (10)	ND (10)	ND (10)	ND (10)	ND (5)	ND (5)	ND (5)
BENZENE	1 *	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
CARBON TETRACHLORIDE	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
CHLOROETHANE	ND (0.5)	ND (10)	ND (10)	ND (10)	ND (1)	ND (1)	ND (0.5)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW48F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F
Sample Number	9433K021	9144X243	9202X366	9202X367	9345X061	9407X208	9420X302
Sample Date	08/19/94	10/31/91	01/06/92	01/06/92	11/08/93	02/16/94	05/16/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
CIS-1,2-DICHLOROETHENE	3	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
ETHYLBENZENE	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
METHYLENE CHLORIDE	ND (0.6)	ND (5)	ND (5)	ND (5)	ND (1)	ND (0.5)	ND (0.3)
STYRENE	NA	ND (5)	ND (5)	ND (5)	NA	NA	NA
TETRACHLOROETHENE	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
TOLUENE	ND (0.5)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (0.5)
TRANS-1,2-DICHLOROETHENE	0.3	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
TRICHLOROETHENE	0.3	4 *	4 *	4 *	4 *	2 *	3 *
TRICHLOROFLUOROMETHANE	ND (0.5)	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
TRICHLOROTRIFLUOROETHANE	ND (0.5)	NA	NA	NA	ND (1)	ND (1)	ND (0.5)
VINYL CHLORIDE	6 *4	ND (10)	ND (10)	ND (10)	ND (1)	ND (1)	ND (0.5)
XYLENE (TOTAL)	ND (1)	ND (5)	ND (5)	ND (5)	ND (1)	ND (1)	ND (1)
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	ND (10)	ND (10)	ND (10)	NA	NA	NA
1,4-DICHLOROBENZENE	NA	ND (10)	ND (10)	ND (10)	NA	NA	NA
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	4
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	ND (50)	ND (50)	ND (50)	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (4)	ND (2)	ND (3)	ND (10)	ND (26)	ND (4)	ND (2)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (0.8)
CARBAZOLE	ND (10)	NA	NA	NA	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	0.6
PENTACHLOROPHENOL	ND (25)	ND (50)	ND (50)	ND (50)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	3
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW48F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW49F
Sample Number	9433K021	9144X243	9202X366	9202X367	9345X061	9407X208	9420X302
Sample Date	08/19/94	10/31/91	01/06/92	01/06/92	11/08/93	02/16/94	05/16/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	87	ND (500)	ND (500)	ND (500)	410	1,300	2,400
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	ND (500)	NA	NA	NA	NA	NA
TPH-MOTOR OIL	550	NA	NA	NA	NA	410	700
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	NA	NA	NA	NA
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	ND (5,000)	ND (5,000)	ND (5,000)	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	150,000	155,000	155,000	NA	NA	NA
NITRATE	NA	9,400	9,900	9,900	NA	NA	NA
NITRITE	NA	ND (500)	ND (50.0)	ND (50.0)	NA	NA	NA
ORTHOPHOSPHATE	NA	ND (200)	ND (200)	ND (200)	NA	NA	NA
SULFATE	NA	11,400	11,800	11,800	NA	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	NA	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	530,000	570,000	540,000	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW50F	IR06MW50F	IR06MW50F	IR06MW50F
Sample Number	9420X303	9433N583	9433N584	9350X097	9350X098	9433K010	9521X620
Sample Date	05/16/94	08/19/94	08/19/94	12/14/93	12/14/93	08/16/94	05/25/95
Metal (ug/L)							
ALUMINUM	NA	NA	NA	ND (11.0)	ND (11.0)	ND (35.3)	ND (39.6)
ANTIMONY	NA	NA	NA	ND (22.0)	ND (28.1)	10.8 J	4.2
ARSENIC	ND (1.3)	ND (1.5)	ND (1.5)	3.5 *	5.3 *	ND (1.5)	ND (1.4)
BARIUM	NA	NA	NA	47.1	46.8	47.6	53.7
BERYLLIUM	ND (0.12)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.15)
CADMIUM	NA	NA	NA	ND (1.2)	ND (1.2)	ND (0.63)	ND (0.10)
CALCIUM	NA	NA	NA	28,300	28,000	23,900	23,800
CHROMIUM	80.7 J	83.9 J	78.4 J	118 J	115 J	108 J	113 J
CHROMIUM VI	91.1 *B	83.2 *B	78.5 *B	NA	NA	NA	NA
COBALT	NA	NA	NA	ND (2.5)	ND (2.5)	ND (0.70)	ND (0.60)
COPPER	NA	NA	NA	2.3	ND (1.6)	25.7 B	4.3 B
IRON	NA	NA	NA	ND (6.3)	ND (6.3)	ND (18.8)	ND (10.1)
LEAD	NA	NA	NA	ND (1.1)	ND (1.1)	ND (1.5)	ND (1.3)
MAGNESIUM	NA	NA	NA	115,000	113,000	124,000	148,000
MANGANESE	NA	NA	NA	ND (0.60)	ND (0.60)	ND (3.3)	1.6
MERCURY	NA	NA	NA	0.17 B	0.22 B	0.30 B	0.12 B
MOLYBDENUM	NA	NA	NA	ND (4.6)	ND (4.6)	ND (0.77)	ND (0.80)
NICKEL	NA	NA	NA	ND (6.8)	ND (6.8)	ND (3.3)	ND (1.3)
POTASSIUM	NA	NA	NA	13,200	12,800	25,000	12,800
SELENIUM	NA	NA	NA	ND (2.7)	ND (2.7)	ND (2.3)	ND (3.5)
SODIUM	NA	NA	NA	367,000	359,000	175,000	395,000
THALLIUM	NA	NA	NA	NA	NA	ND (2.0)	ND (2.0)
VANADIUM	NA	NA	NA	ND (4.1)	ND (4.1)	ND (1.1)	1.4
ZINC	NA	NA	NA	ND (2.7)	ND (2.0)	6.8	19.6
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
1,2-DICHLOROBENZENE	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	NA	NA
1,2-DICHLOROETHANE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	ND (10)	ND (10)	ND (10)	NA
2-BUTANONE	ND (5)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
BENZENE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
CARBON TETRACHLORIDE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
CHLOROETHANE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW50F	IR06MW50F	IR06MW50F	IR06MW50F
Sample Number	9420X303	9433N583	9433N584	9350X097	9350X098	9433K010	9521X620
Sample Date	05/16/94	08/19/94	08/19/94	12/14/93	12/14/93	08/16/94	05/25/95
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
CIS-1,2-DICHLOROETHENE	0.5	ND (0.5)	ND (0.5)	NA	NA	NA	NA
ETHYLBENZENE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
METHYLENE CHLORIDE	ND (0.8)	ND (0.5)	ND (0.6)	ND (10)	ND (10)	ND (10)	NA
STYRENE	NA	NA	NA	ND (10)	ND (10)	ND (10)	NA
TETRACHLOROETHENE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
TOLUENE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
TRANS-1,2-DICHLOROETHENE	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	NA	NA
TRICHLOROETHENE	0.3	4 *	4 *	ND (10)	ND (10)	ND (10)	NA
TRICHLOROFLUOROMETHANE	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	4	ND (0.5)	ND (0.5)	NA	NA	NA	NA
VINYL CHLORIDE	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (10)	ND (10)	NA
XYLENE (TOTAL)	ND (1)	ND (1)	ND (1)	ND (10)	ND (10)	ND (10)	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	NA	ND (10)	ND (10)	ND (5)	ND (5)
1,4-DICHLOROBENZENE	NA	NA	NA	ND (10)	ND (10)	ND (5)	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	3	2	6	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (1)	ND (9)	ND (8)	ND (47)	ND (43)	ND (12)	ND (4)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	0.5	2	2	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	2	3	2	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW49F	IR06MW49F	IR06MW49F	IR06MW50F	IR06MW50F	IR06MW50F	IR06MW50F
Sample Number	9420X303	9433N583	9433N584	9350X097	9350X098	9433K010	9521X620
Sample Date	05/16/94	08/19/94	08/19/94	12/14/93	12/14/93	08/16/94	05/25/95
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	NA	ND (0.05)	ND (0.05)	ND (0.01)	ND (0.01)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	ND (500)	ND (500)	ND (50)	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	2,100	1,600	2,800	ND (500)	ND (500)	ND (100)	ND (100)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	660	150	4,200	NA	NA	ND (88)	630
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	NA	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	NA	NA	925,000
NITRATE	NA	NA	NA	NA	NA	NA	5,700
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	NA	NA	NA	NA	ND (50.0)
SULFATE	NA	NA	NA	NA	NA	NA	96,500
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	8.1	8.1	8.0	8.0
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	2,100,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F
Sample Number	9351X107	9351X108	9433E118	9433E121	9433E122	9530X883	9531X911
Sample Date	12/22/93	12/22/93	08/15/94	08/16/94	08/16/94	07/27/95	08/01/95
Metal (ug/L)							
ALUMINUM	ND (11.0)	ND (16.2)	NA	ND (177)	ND (35.3)	ND (16.3)	NA
ANTIMONY	ND (22.0)	ND (22.0)	NA	ND (6.0)	4.4	ND (2.1)	NA
ARSENIC	ND (10.9)	ND (9.6)	NA	ND (7.5)	ND (6.7)	7.9 *	NA
BARIUM	38.6	39.0	NA	45.4	31.5	36.4	NA
BERYLLIUM	ND (0.20)	ND (0.20)	NA	ND (0.50)	ND (0.14)	ND (0.10)	NA
CADMIUM	ND (1.2)	ND (1.2)	NA	ND (1.1)	ND (0.20)	ND (0.71)	NA
CALCIUM	90,800	95,200	NA	83,100	73,600	98,800	NA
CHROMIUM	ND (2.5)	ND (2.5)	NA	ND (3.5)	ND (0.70)	ND (1.8)	NA
CHROMIUM VI	NA	NA	NA	NA	NA	NA	NA
COBALT	ND (2.5)	ND (2.5)	NA	ND (3.5)	ND (0.70)	ND (1.9)	NA
COPPER	ND (1.6)	ND (2.6)	NA	ND (8.5)	ND (1.7)	ND (4.4)	NA
IRON	ND (6.3)	ND (6.3)	NA	ND (94.0)	ND (18.8)	ND (29.1)	NA
LEAD	ND (1.1)	ND (1.1)	NA	ND (5.0)	ND (1.0)	ND (1.5)	NA
MAGNESIUM	250,000	261,000	NA	241,000	211,000	316,000	NA
MANGANESE	219 *	236 *	NA	196 *	174	266 *	NA
MERCURY	ND (0.10)	ND (0.10)	NA	ND (0.10)	ND (0.10)	ND (0.10)	NA
MOLYBDENUM	ND (4.6)	ND (4.6)	NA	ND (6.1)	ND (6.5)	ND (3.9)	NA
NICKEL	ND (6.8)	ND (6.8)	NA	ND (12.5)	ND (2.5)	ND (3.3)	NA
POTASSIUM	13,200	14,100	NA	23,300	34,900	10,800	NA
SELENIUM	ND (2.7)	ND (2.7)	NA	ND (11.5)	ND (2.3)	ND (3.4)	NA
SODIUM	1,350,000	1,340,000	NA	1,450,000	1,450,000	1,630,000	NA
THALLIUM			NA	ND (10.0)	ND (2.0)	ND (2.0)	NA
VANADIUM	ND (4.1)	ND (4.1)	NA	ND (5.5)	3.5	6.1	NA
ZINC	ND (22.6)	ND (20.9)	NA	ND (15.5)	ND (3.1)	28.4	NA
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
2-BUTANONE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
BENZENE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
CARBON TETRACHLORIDE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
CHLOROETHANE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F
Sample Number	9351X107	9351X108	9433E118	9433E121	9433E122	9530X883	9531X911
Sample Date	12/22/93	12/22/93	08/15/94	08/16/94	08/16/94	07/27/95	08/01/95
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
METHYLENE CHLORIDE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
STYRENE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
TETRACHLOROETHENE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
TOLUENE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
XYLENE (TOTAL)	ND (10)	ND (10)	ND (10)	NA	NA	NA	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (10)	NA	ND (5)	ND (5)	NA	ND (5)
1,4-DICHLOROBENZENE	ND (10)	ND (10)	NA	ND (5)	ND (5)	NA	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
ANTHRACENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (4)	ND (10)	NA	ND (2)	ND (4)	NA	ND (6)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
CARBAZOLE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
FLUORANTHENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
FLUORENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
NAPHTHALENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	NA	ND (25)	ND (25)	NA	ND (25)
PHENANTHRENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)
PYRENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	NA	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F	IR06MW51F
Sample Number	9351X107	9351X108	9433E118	9433E121	9433E122	9530X883	9531X911
Sample Date	12/22/93	12/22/93	08/15/94	08/16/94	08/16/94	07/27/95	08/01/95
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	ND (0.05)	ND (0.05)	NA	ND (0.01)	ND (0.01)	NA	ND (0.01)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	ND (500)	ND (500)	36	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	ND (500)	NA	ND (100)	ND (100)	NA	84
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	ND (100)	ND (100)	NA	220
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	ND (1,000)	ND (1,000)	NA	ND (1,000)	ND (1,000)	NA	500
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	NA	NA	2,030,000
NITRATE	NA	NA	NA	NA	NA	NA	ND (20.0)
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	NA	NA	NA	NA	ND (50.0)
SULFATE	NA	NA	NA	NA	NA	NA	670,000
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	7.5	7.5	NA	7.6
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	5,400,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW53F	IR06MW53F
Sample Number	9352X114	9352X115	9432E109	9432E113	9521X621	9411M506	9432E114
Sample Date	12/27/93	12/27/93	08/10/94	08/11/94	05/25/95	03/15/94	08/11/94
Metal (ug/L)							
ALUMINUM	ND (18.2)	ND (24.6)	NA	46.5	ND (51.6)	ND (19.3)	36.6
ANTIMONY	ND (25.5)	ND (25.5)	NA	ND (12.5)	5.4	5.0	ND (8.7)
ARSENIC	7.4 *	8.2 *	NA	5.1 *	ND (5.8)	8.2 *	6.5 *
BARIUM	8.8	9.0	NA	14.0	13.1	3.8	ND (4.1)
BERYLLIUM	ND (0.34)	ND (0.20)	NA	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
CADMIUM	ND (1.2)	ND (1.2)	NA	1.1	ND (0.10)	ND (0.30)	9.2 B
CALCIUM	4,860	4,630	NA	4,070	3,180	7,960	6,040
CHROMIUM	3.1	ND (2.3)	NA	ND (0.70)	ND (1.0)	ND (2.3)	ND (0.70)
CHROMIUM VI	NA	NA	NA	NA	NA	NA	NA
COBALT	ND (2.7)	ND (2.7)	NA	ND (0.70)	ND (0.40)	ND (2.7)	ND (0.70)
COPPER	5.9 B	ND (1.2)	NA	11.8 B	4.5 B	7.3 B	31.2 B
IRON	ND (36.1)	41.7	NA	45.0	ND (24.5)	ND (29.6)	ND (18.8)
LEAD	ND (1.2)	ND (1.9)	NA	ND (1.0)	ND (1.3)	ND (0.60)	ND (1.4)
MAGNESIUM	3,980	3,890	NA	3,270	3,160	9,670	9,560
MANGANESE	15.9	15.9	NA	9.8	1.8	17.8	24.5
MERCURY	ND (0.10)	ND (0.10)	NA	ND (0.10)	ND (0.10)	ND (0.12)	ND (0.10)
MOLYBDENUM	ND (34.5)	ND (31.9)	NA	31.3	28.7	258 *	258 *
NICKEL	ND (7.2)	ND (7.2)	NA	4.0	ND (1.3)	3.5	5.3
POTASSIUM	6,930	6,540	NA	19,900	9,430	20,300	45,000
SELENIUM	ND (3.2)	ND (3.2)	NA	ND (2.3)	ND (3.5)	ND (2.2)	ND (2.3)
SODIUM	359,000	350,000	NA	424,000	333,000	669,000	775,000
THALLIUM	ND (4.2)	ND (4.2)	NA	ND (2.0)	ND (1.5)	ND (1.4)	ND (2.0)
VANADIUM	11.0	9.1	NA	12.7	10.9	8.4	9.7
ZINC	ND (30.5)	ND (25.3)	NA	ND (7.5)	18.7	ND (3.0)	ND (11.6)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
1,2-DICHLOROETHENE (TOTAL)	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
2-BUTANONE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
BENZENE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
CARBON TETRACHLORIDE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
CHLOROETHANE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW53F	IR06MW53F
Sample Number	9352X114	9352X115	9432E109	9432E113	9521X621	9411M506	9432E114
Sample Date	12/27/93	12/27/93	08/10/94	08/11/94	05/25/95	03/15/94	08/11/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
METHYLENE CHLORIDE	ND (10)	ND (3)	ND (10)	NA	NA	ND (10)	NA
STYRENE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
TETRACHLOROETHENE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
TOLUENE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
XYLENE (TOTAL)	ND (10)	ND (10)	ND (10)	NA	NA	ND (10)	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (10)	ND (10)	NA	ND (5)	ND (5)	ND (10)	ND (5)
1,4-DICHLOROBENZENE	ND (10)	ND (10)	NA	ND (5)	ND (5)	ND (10)	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	ND (10)	NA	ND (4)	ND (4)	ND (7)	ND (4)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	NA	ND (25)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	NA	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW52F	IR06MW53F	IR06MW53F
Sample Number	9352X114	9352X115	9432E109	9432E113	9521X621	9411M506	9432E114
Sample Date	12/27/93	12/27/93	08/10/94	08/11/94	05/25/95	03/15/94	08/11/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	ND (0.05)	ND (0.05)	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	ND (500)	ND (500)	27	NA	NA	ND (50)	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (500)	ND (500)	NA	ND (100)	ND (100)	ND (100)	ND (100)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	ND (220)	700	1,000	ND (150)
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	ND (1,000)	ND (1,000)	NA	ND (1,000)	ND (1,000)	800	ND (1,000)
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	125,000	NA	NA
NITRATE	NA	NA	NA	NA	ND (20.0)	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	NA	NA	160	NA	NA
SULFATE	NA	NA	NA	NA	142,000	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	8.2	8.1	8.7	8.0
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	1,000,000	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW53F	IR06MW54F	IR06MW54F	IR06MW54F	IR06MW54F	IR06MW55F	IR06MW55F
Sample Number	9521X622	9350X100	9350X101	9433K012	9521X626	9352X116	9352X118
Sample Date	05/25/95	12/15/93	12/15/93	08/16/94	05/25/95	12/27/93	12/28/93
Metal (ug/L)							
ALUMINUM	ND (39.3)	ND (13.2)	ND (11.0)	ND (35.3)	ND (20.4)	NA	ND (10.9)
ANTIMONY	ND (1.9)	ND (23.6)	ND (22.0)	3.6	ND (1.9)	NA	ND (25.5)
ARSENIC	7.3 *	ND (3.3)	ND (3.3)	ND (1.5)	ND (1.4)	NA	3.5 *
BARIUM	11.4	45.6	47.6	37.8	50.2	NA	ND (5.6)
BERYLLIUM	ND (0.10)	ND (0.40)	ND (0.20)	ND (0.10)	ND (0.10)	NA	ND (0.26)
CADMIUM	ND (0.10)	ND (1.2)	ND (1.2)	ND (0.20)	ND (0.10)	NA	ND (1.2)
CALCIUM	5,410	23,700	24,600	15,900	14,100	NA	8,650
CHROMIUM	ND (1.0)	51.6 &	51.9 &	55.0 &	62.1 &	NA	10.6
CHROMIUM VI	NA	NA	NA	NA	NA	NA	NA
COBALT	ND (0.40)	ND (2.5)	ND (2.5)	ND (0.70)	ND (1.1)	NA	ND (2.7)
COPPER	9.0 B	2.2	1.6	2.4 B	5.4 B	NA	3.3 B
IRON	ND (10.1)	ND (6.3)	ND (6.3)	ND (18.8)	ND (14.2)	NA	ND (17.9)
LEAD	ND (1.3)	ND (1.1)	ND (1.1)	ND (1.4)	ND (1.3)	NA	ND (1.3)
MAGNESIUM	9,330	66,100	68,000	68,300	68,300	NA	50,900
MANGANESE	2.7	ND (4.2)	ND (3.7)	ND (2.2)	5.1	NA	ND (0.90)
MERCURY	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	NA	ND (0.10)
MOLYBDENUM	256 *	ND (4.6)	ND (4.6)	ND (0.40)	ND (0.80)	NA	ND (5.0)
NICKEL	ND (2.5)	ND (6.8)	ND (6.8)	ND (2.5)	ND (1.3)	NA	ND (7.2)
POTASSIUM	21,400	954	1,040	798	ND (543)	NA	1,710
SELENIUM	ND (3.5)	10.0	ND (27.0)	ND (2.3)	ND (3.5)	NA	ND (3.2)
SODIUM	632,000	53,500	53,500	57,800	50,500	NA	35,800
THALLIUM	ND (1.5)	NA	NA	ND (2.0)	ND (1.5)	NA	ND (4.2)
VANADIUM	9.4	ND (4.1)	ND (4.1)	1.4	1.5	NA	ND (2.7)
ZINC	25.0	ND (2.9)	ND (2.0)	ND (3.1)	48.1	NA	ND (23.2)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
1,2-DICHLOROETHENE (TOTAL)	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
2-BUTANONE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
BENZENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
CARBON TETRACHLORIDE	NA	ND (10)	ND (10)	ND (10)	ND (10)	28 *&	NA
CHLOROETHANE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW53F	IR06MW54F	IR06MW54F	IR06MW54F	IR06MW54F	IR06MW55F	IR06MW55F
Sample Number	9521X622	9350X100	9350X101	9433K012	9521X626	9352X116	9352X118
Sample Date	05/25/95	12/15/93	12/15/93	08/16/94	05/25/95	12/27/93	12/28/93
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	ND (10)	ND (10)	ND (10)	ND (10)	11 *	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
METHYLENE CHLORIDE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
STYRENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
TETRACHLOROETHENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
TOLUENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	ND (10)	ND (10)	ND (10)	ND (10)	14 *#	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
XYLENE (TOTAL)	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (5)	ND (10)	ND (10)	ND (5)	ND (5)	NA	ND (10)
1,4-DICHLOROBENZENE	ND (5)	ND (10)	ND (10)	ND (5)	ND (5)	NA	ND (10)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (4)	ND (10)	ND (5)	ND (7)	ND (18)	NA	ND (10)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
CARBAZOLE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	NA	ND (25)
PHENANTHRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	NA	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW53F	IR06MW54F	IR06MW54F	IR06MW54F	IR06MW54F	IR06MW55F	IR06MW55F
Sample Number	9521X622	9350X100	9350X101	9433K012	9521X626	9352X116	9352X118
Sample Date	05/25/95	12/15/93	12/15/93	08/16/94	05/25/95	12/27/93	12/28/93
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	ND (0.01)	ND (0.05)	ND (0.05)	ND (0.01)	0.03 *6	NA	ND (0.05)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	ND (500)	ND (500)	ND (50)	ND (50)	ND (500)	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (100)	ND (500)	ND (500)	ND (100)	ND (100)	NA	ND (500)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	270	NA	NA	ND (430)	290	NA	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	NA	ND (1,000)
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	218,000	NA	NA	NA	71,300	NA	NA
NITRATE	200	NA	NA	NA	6,100	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	130	NA	NA	NA	ND (50.0)	NA	NA
SULFATE	402,000	NA	NA	NA	19,600	NA	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	8.0	8.1	8.2	8.0	8.0	NA	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	1,900,000	NA	NA	NA	500,000	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW56F
Sample Number	9433E123	9433E124	9433N574	9433N575	9521X624	9521X625	9401X150
Sample Date	08/16/94	08/16/94	08/17/94	08/17/94	05/25/95	05/25/95	01/07/94
Metal (ug/L)							
ALUMINUM	NA	NA	ND (35.3)	ND (35.3)	ND (25.6)	ND (20.5)	ND (10.9)
ANTIMONY	NA	NA	ND (1.9)	ND (1.6)	ND (1.9)	ND (1.9)	ND (25.5)
ARSENIC	NA	NA	ND (1.5)	ND (1.5)	ND (1.7)	ND (1.4)	3.9 *
BARIUM	NA	NA	ND (7.7)	ND (6.6)	4.3	4.4	9.3
BERYLLIUM	NA	NA	ND (0.10)	ND (0.10)	ND (0.13)	ND (0.10)	ND (0.20)
CADMIUM	NA	NA	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.10)	ND (1.2)
CALCIUM	NA	NA	ND (4,530)	ND (4,490)	3,100	3,280	15,500
CHROMIUM	NA	NA	7.5	7.4	6.4	5.9	ND (4.1)
CHROMIUM VI	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	ND (0.70)	ND (0.70)	ND (0.40)	ND (1.1)	ND (2.7)
COPPER	NA	NA	ND (2.5)	ND (2.0)	ND (1.3)	ND (1.1)	ND (1.2)
IRON	NA	NA	ND (18.8)	ND (18.8)	218	ND (41.6)	ND (10.0)
LEAD	NA	NA	ND (1.1)	ND (1.5)	ND (1.3)	ND (1.3)	ND (2.5)
MAGNESIUM	NA	NA	40,900	40,800	41,600	42,200	74,900
MANGANESE	NA	NA	ND (1.0)	ND (1.3)	2.0	2.5	ND (0.90)
MERCURY	NA	NA	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
MOLYBDENUM	NA	NA	ND (5.4)	ND (5.2)	ND (2.3)	ND (2.1)	ND (5.0)
NICKEL	NA	NA	ND (2.5)	ND (2.5)	ND (1.3)	ND (1.3)	ND (7.2)
POTASSIUM	NA	NA	4,940	4,940	ND (2,170)	ND (2,160)	3,140
SELENIUM	NA	NA	ND (2.3)	ND (3.1)	ND (3.5)	ND (3.5)	ND (3.2)
SODIUM	NA	NA	87,100	88,300	57,900	60,000	55,200
THALLIUM	NA	NA	ND (2.0)	ND (2.0)	ND (1.5)	ND (2.0)	ND (4.2)
VANADIUM	NA	NA	3.3	3.0	2.6	2.7	ND (4.3)
ZINC	NA	NA	ND (3.4)	ND (4.1)	ND (22.0)	ND (19.7)	ND (4.0)
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	ND (10)	ND (10)	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	ND (10)	ND (10)	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	ND (10)	ND (10)	NA	NA	NA	NA	NA
2-BUTANONE	ND (10)	ND (10)	NA	NA	NA	NA	NA
BENZENE	ND (10)	ND (10)	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	ND (10)	ND (10)	NA	NA	NA	NA	NA
CHLOROETHANE	ND (10)	ND (10)	NA	NA	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW56F
Sample Number	9433E123	9433E124	9433N574	9433N575	9521X624	9521X625	9401X150
Sample Date	08/16/94	08/16/94	08/17/94	08/17/94	05/25/95	05/25/95	01/07/94
Volatile Organic Compound (ug/L)							
CHLOROFORM	4 *	3 *	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	ND (10)	ND (10)	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	ND (10)	ND (10)	NA	NA	NA	NA	NA
STYRENE	ND (10)	ND (10)	NA	NA	NA	NA	NA
TETRACHLOROETHENE	ND (10)	ND (10)	NA	NA	NA	NA	NA
TOLUENE	ND (10)	ND (10)	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	ND (10)	ND (10)	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	ND (10)	ND (10)	NA	NA	NA	NA	NA
XYLENE (TOTAL)	ND (10)	ND (10)	NA	NA	NA	NA	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
1,4-DICHLOROBENZENE	NA	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (10)
2,4-DIMETHYLPHENOL	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
ANTHRACENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	ND (10)	ND (6)	ND (2)	ND (7)	ND (10)
BUTYLBENZYLPHTHALATE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
CARBAZOLE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORANTHENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
FLUORENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
NAPHTHALENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	NA	NA	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)
PHENANTHRENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
PYRENE	NA	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW55F	IR06MW56F
Sample Number	9433E123	9433E124	9433N574	9433N575	9521X624	9521X625	9401X150
Sample Date	08/16/94	08/16/94	08/17/94	08/17/94	05/25/95	05/25/95	01/07/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.05)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	32	ND (50)	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	NA	NA	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	630	150	520	650	NA
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	NA	NA	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,000)
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	NA	NA	NA	61,700	61,700	NA
NITRATE	NA	NA	NA	NA	1,900	1,800	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	NA	NA	NA	210	130	NA
SULFATE	NA	NA	NA	NA	6,000	5,900	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	8.9	8.9	9.1	9.1	NA
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	360,000	360,000	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW56F	IR06MW56F	IR06MW57F	IR06MW57F	IR06MW57F	IR06MW57F	IR06MW57F
Sample Number	9433N573	9521X623	9437K147	9437K172	9438X486	9521X611	9538W020
Sample Date	08/17/94	05/25/95	09/13/94	09/16/94	09/20/94	05/24/95	09/21/95
Metal (ug/L)							
ALUMINUM	ND (35.3)	ND (24.2)	NA	NA	ND (35.3)	ND (33.9)	ND (48.8)
ANTIMONY	ND (1.7)	ND (1.9)	NA	NA	ND (8.2)	4.5	ND (3.0)
ARSENIC	ND (1.5)	ND (3.0)	NA	NA	ND (2.1)	ND (1.4)	4.2 *
BARIUM	ND (10.4)	6.2	NA	NA	7.1	5.2	4.5
BERYLLIUM	ND (0.10)	ND (0.10)	NA	NA	ND (0.14)	ND (0.13)	ND (0.19)
CADMIUM	ND (0.20)	ND (0.10)	NA	NA	ND (0.20)	ND (0.10)	3.4
CALCIUM	ND (6,080)	3,090	NA	NA	7,170	3,170	3,280
CHROMIUM	ND (0.70)	3.2	NA	NA	ND (0.70)	ND (1.0)	ND (1.5)
CHROMIUM VI	NA	NA	NA	NA	NA	NA	ND (10.0)
COBALT	ND (0.70)	ND (0.40)	NA	NA	ND (0.70)	ND (0.55)	0.71
COPPER	ND (3.4)	3.6 B	NA	NA	ND (1.9)	ND (1.8)	ND (3.0)
IRON	ND (18.8)	ND (10.1)	NA	NA	ND (23.9)	ND (16.6)	ND (13.8)
LEAD	ND (1.0)	ND (1.3)	NA	NA	ND (1.0)	ND (1.3)	ND (1.2)
MAGNESIUM	77,300	81,200	NA	NA	36,600	47,600	45,600
MANGANESE	ND (3.5)	0.62	NA	NA	ND (0.58)	0.70	10.4
MERCURY	ND (0.10)	ND (0.10)	NA	NA	ND (0.10)	ND (0.10)	ND (0.10)
MOLYBDENUM	ND (0.71)	ND (0.80)	NA	NA	ND (0.96)	ND (0.80)	ND (1.2)
NICKEL	ND (2.5)	ND (1.3)	NA	NA	ND (2.5)	ND (1.3)	ND (1.9)
POTASSIUM	3,760	ND (2,080)	NA	NA	6,640	ND (4,980)	8,170
SELENIUM	ND (2.3)	ND (3.5)	NA	NA	ND (2.3)	ND (3.5)	ND (3.9)
SODIUM	74,500	55,000	NA	NA	89,700	64,400	65,400
THALLIUM	ND (2.0)	ND (1.6)	NA	NA	ND (2.0)	ND (2.0)	2.5 J
VANADIUM	8.8	4.7	NA	NA	3.4	3.1	3.1
ZINC	ND (3.5)	14.7	NA	NA	ND (7.7)	18.8	24.7
Cyanide (ug/L)							
CYANIDE	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compound (ug/L)							
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW56F	IR06MW56F	IR06MW57F	IR06MW57F	IR06MW57F	IR06MW57F	IR06MW57F
Sample Number	9433N573	9521X623	9437K147	9437K172	9438X486	9521X611	9538W020
Sample Date	08/17/94	05/25/95	09/13/94	09/16/94	09/20/94	05/24/95	09/21/95
Volatile Organic Compound (ug/L)							
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compound (ug/L)							
1,2-DICHLOROBENZENE	ND (5)	ND (5)	NA	NA	NA	ND (5)	ND (5)
1,4-DICHLOROBENZENE	ND (5)	ND (5)	NA	NA	NA	ND (5)	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
BENZOIC ACID	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (10)	ND (12)	NA	NA	NA	ND (4)	ND (4)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	NA	NA	NA	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	NA	NA	NA	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW56F	IR06MW56F	IR06MW57F	IR06MW57F	IR06MW57F	IR06MW57F	IR06MW57F
Sample Number	9433N573	9521X623	9437K147	9437K172	9438X486	9521X611	9538W020
Sample Date	08/17/94	05/25/95	09/13/94	09/16/94	09/20/94	05/24/95	09/21/95
Pesticide/Polychlorinated Biphenyl (ug/L)							
HEPTACHLOR EPOXIDE	ND (0.01)	ND (0.01)	NA	NA	NA	ND (0.01)	ND (0.01)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	ND (100)	ND (100)	ND (100)	NA	NA	ND (100)	ND (100)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	360	560	460	NA	NA	680	91
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	ND (1,000)	ND (1,000)	NA	NA	ND (1,000)	ND (1,000)	ND (1,000)
Oil and Grease (ug/L)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Anion (ug/L)							
CHLORIDE	NA	116,000	NA	NA	NA	89,600	NA
NITRATE	NA	350	NA	NA	NA	74.0	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE	NA	170	NA	NA	NA	130	NA
SULFATE	NA	6,900	NA	NA	NA	12,300	NA
Ammonia (ug/L)							
AMMONIA	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	9.0	9.2	NA	9.2	NA	9.1	9.2
Salinity (ug/L)							
SALINITY	NA	NA	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	470,000	NA	NA	NA	380,000	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW58F	IR06MW58F	IR06MW58F
Sample Number	9425E023	9433E130	9521X612
Sample Date	06/21/94	08/17/94	05/24/95
Metal (ug/L)			
ALUMINUM	ND (21.7)	ND (35.3)	ND (28.5)
ANTIMONY	ND (6.1)	ND (3.6)	4.6
ARSENIC	ND (2.0)	ND (1.5)	ND (1.4)
BARIUM	9.2	ND (11.4)	9.0
BERYLLIUM	ND (0.10)	ND (0.10)	ND (0.13)
CADMIUM	ND (0.20)	ND (0.20)	ND (0.10)
CALCIUM	7,350	ND (5,380)	3,480
CHROMIUM	23.4	17.7	7.0
CHROMIUM VI	NA	NA	NA
COBALT	ND (0.50)	ND (0.70)	ND (0.40)
COPPER	ND (2.9)	ND (2.4)	3.2 B
IRON	ND (12.6)	ND (18.8)	ND (12.1)
LEAD	ND (0.89)	ND (1.0)	ND (1.3)
MAGNESIUM	86,900	82,000	64,800
MANGANESE	ND (1.4)	ND (1.1)	1.3
MERCURY	ND (0.04)	ND (0.10)	ND (0.10)
MOLYBDENUM	ND (1.7)	ND (1.6)	ND (0.80)
NICKEL	7.9	ND (3.2)	ND (1.7)
POTASSIUM	ND (4,430)	5,350	7,380
SELENIUM	ND (2.7)	ND (2.3)	ND (3.5)
SODIUM	61,500	89,000	73,100
THALLIUM	ND (1.0)	ND (2.0)	ND (1.5)
VANADIUM	1.3	1.8	2.0
ZINC	3.8	ND (12.9)	16.8
Cyanide (ug/L)			
CYANIDE	NA	NA	NA
Volatile Organic Compound (ug/L)			
1,1-DICHLOROETHANE	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA	NA
2-BUTANONE	NA	NA	NA
BENZENE	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA
CHLOROETHANE	NA	NA	NA

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW58F	IR06MW58F	IR06MW58F
Sample Number	9425E023	9433E130	9521X612
Sample Date	06/21/94	08/17/94	05/24/95
Volatile Organic Compound (ug/L)			
CHLOROFORM	NA	NA	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA
ETHYLBENZENE	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA
STYRENE	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA
TOLUENE	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA
TRICHLOROTRIFLUOROETHANE	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA
XYLENE (TOTAL)	NA	NA	NA
Semivolatile Organic Compound (ug/L)			
1,2-DICHLOROBENZENE	ND (5)	ND (5)	ND (5)
1,4-DICHLOROBENZENE	ND (5)	ND (5)	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	ND (10)
ANTHRACENE	ND (10)	ND (10)	ND (10)
BENZOIC ACID	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	ND (6)	ND (3)	ND (4)
BUTYLBENZYLPHTHALATE	ND (10)	ND (10)	ND (10)
CARBAZOLE	ND (10)	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	ND (10)
DIETHYLPHTHALATE	ND (10)	ND (10)	ND (10)
FLUORANTHENE	ND (10)	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)	ND (10)
PYRENE	ND (10)	ND (10)	ND (10)

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR06MW58F	IR06MW58F	IR06MW58F
Sample Number	9425E023	9433E130	9521X612
Sample Date	06/21/94	08/17/94	05/24/95
Pesticide/Polychlorinated Biphenyl (ug/L)			
HEPTACHLOR EPOXIDE	ND (0.01)	ND (0.01)	ND (0.01)
TPH-Purgeable (ug/L)			
TPH-GASOLINE	NA	NA	NA
TPH-Extractable (ug/L)			
TPH-DIESEL TPH-EXTRACTABLE UNKNOWN HYDROCARBON TPH-MOTOR OIL	ND (100) NA 120	ND (100) NA 560	ND (100) NA 410
Total Recoverable Petroleum Hydrocarbons (ug/L)			
TRPH	ND (380)	ND (1,000)	ND (1,000)
Oil and Grease (ug/L)			
TOTAL OIL & GREASE	NA	NA	NA
Anion (ug/L)			
CHLORIDE NITRATE NITRITE ORTHOPHOSPHATE	NA NA NA NA	NA NA NA NA	88,100 1,100 NA 75.0
SULFATE	NA	NA	18,700
Ammonia (ug/L)			
AMMONIA	NA	NA	NA
pH (pH units)			
PH	9.2	9.1	9.1
Salinity (ug/L)			
SALINITY	NA	NA	NA
Solids (ug/L)			
TOTAL DISSOLVED SOLIDS	NA	NA	470,000

TABLE 4.4-6 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

NA	Not analyzed
ND()	Not detected (detection limit in parentheses)
µg/L	Microgram per liter
*	Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for tap water
B	Detected concentration greater than National Ambient Water Quality Criteria (NAWQC) based on 4-day average study of saltwater aquatic life
δ	Detected concentration greater than maximum contaminant level (MCL) U.S. Environmental Protection Agency Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent
	Detected concentration greater than at least one screening criterion.

TABLE 4.4-7

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
ANTIMONY	IR06B001	5.75	13.7	30.7		9.05	√	MG/KG
	IR06B002	3.25	10.4				√	MG/KG
	IR06B003	0.25	14.4				√	MG/KG
	IR06B003	2.75	20.6				√	MG/KG
	IR06B004	1.25	28.9				√	MG/KG
	IR06B004	2.75	17.3				√	MG/KG
	IR06B005	0.75	10.2				√	MG/KG
	IR06B014	5.25	13.8				√	MG/KG
	IR06B018	5.25	21.2				√	MG/KG
	IR06B019	5.25	12.3				√	MG/KG
	IR06B021	2.75	9.9				√	MG/KG
	IR06B024	3.25	9.7				√	MG/KG
	IR06SS01	1.25	9.7				√	MG/KG
ARSENIC	IR06B001	0.75	56.6	0.32	√	11.10	√	MG/KG
	IR06B001	3.25	3.3		√			MG/KG
	IR06B001	5.75	1.2		√			MG/KG
	IR06B002	1.25	2.0		√			MG/KG
	IR06B002	3.25	2.7		√			MG/KG
	IR06B002	5.25	1.4		√			MG/KG
	IR06B003	0.25	0.75		√			MG/KG
	IR06B003	2.75	0.56		√			MG/KG
	IR06B004	0.25	1.6		√			MG/KG
	IR06B004	1.25	0.94		√			MG/KG
	IR06B004	2.75	1.1		√			MG/KG
	IR06B005	0.75	1.8		√			MG/KG
	IR06B005	2.75	2.6		√			MG/KG
	IR06B005	5.25	1.9		√			MG/KG
	IR06B006	0.75	1.9		√			MG/KG
	IR06B006	2.75	1.8		√			MG/KG
	IR06B006	5.25	2.3		√			MG/KG
	IR06B007	0.25	3.0		√			MG/KG
	IR06B007	2.75	2.4		√			MG/KG
	IR06B007	5.25	3.4		√			MG/KG
	IR06B008	1.25	1.8		√			MG/KG
	IR06B008	2.75	1.6		√			MG/KG
	IR06B009	1.25	1.2		√			MG/KG
	IR06B009	2.75	1.6		√			MG/KG
	IR06B009	5.25	1.8		√			MG/KG
	IR06B010	0.75	2.8		√			MG/KG
	IR06B010	3.25	1.2		√			MG/KG
	IR06B010	5.75	1.5		√			MG/KG
	IR06B011	2.75	2.8		√			MG/KG
	IR06B011	5.25	3.3		√			MG/KG
	IR06B012	0.75	1.3		√			MG/KG
	IR06B012	2.75	0.62		√			MG/KG
	IR06B012	5.25	1.3		√			MG/KG
	IR06B013	0.75	1.9		√			MG/KG
	IR06B013	2.75	1.1		√			MG/KG
	IR06B013	5.25	1.9		√			MG/KG
	IR06B014	1.25	2.0		√			MG/KG
	IR06B014	3.25	1.5		√			MG/KG
	IR06B014	5.25	2.5		√			MG/KG
	IR06B015	0.75	1.2		√			MG/KG
	IR06B015	2.75	1.9		√			MG/KG
	IR06B015	5.25	2.6		√			MG/KG
	IR06B016	0.75	1.6		√			MG/KG
	IR06B016	2.75	4.0		√			MG/KG
	IR06B016	5.25	2.8		√			MG/KG
	IR06B017	1.25	2.1		√			MG/KG
	IR06B017	2.25	2.4		√			MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
ARSENIC	IR06B017	5.25	4.2	0.32	√	11.10		MG/KG
	IR06B018	1.75	1.5		√			MG/KG
	IR06B018	3.25	0.99		√			MG/KG
	IR06B018	5.25	1.7		√			MG/KG
	IR06B019	1.25	5.0		√			MG/KG
	IR06B019	2.75	3.6		√			MG/KG
	IR06B019	5.25	2.3		√			MG/KG
	IR06B020	1.25	3.6		√			MG/KG
	IR06B020	2.75	2.9		√			MG/KG
	IR06B020	5.25	1.8		√			MG/KG
	IR06B021	0.75	1.2		√			MG/KG
	IR06B021	2.75	1.5		√			MG/KG
	IR06B024	1.25	2.8		√			MG/KG
	IR06B024	3.25	1.9		√			MG/KG
	IR06B024	5.75	2.3		√			MG/KG
	IR06B025	1.25	4.6		√			MG/KG
	IR06B025	5.25	2.4		√			MG/KG
	IR06B026	1.25	2.2		√			MG/KG
	IR06B026	2.75	5.2		√			MG/KG
	IR06B026	5.25	1.0		√			MG/KG
	IR06B028	1.25	3.5		√			MG/KG
	IR06B028	5.25	2.0		√			MG/KG
	IR06B028A	1.25	3.6		√			MG/KG
	IR06B029	1.25	2.1		√			MG/KG
	IR06B029	5.25	2.9		√			MG/KG
	IR06B031	0.75	3.5		√			MG/KG
	IR06B031	4.75	2.6		√			MG/KG
	IR06B033	1.25	4.0		√			MG/KG
	IR06B033	2.75	2.0		√			MG/KG
	IR06B033	5.25	1.5		√			MG/KG
	IR06B036	1.25	4.7		√			MG/KG
	IR06B036	3.75	3.4		√			MG/KG
	IR06B036	5.25	2.6		√			MG/KG
	IR06B037	0.75	2.1		√			MG/KG
	IR06B038	1.75	2.6		√			MG/KG
	IR06B038	3.25	3.0		√			MG/KG
	IR06B038	5.25	1.7		√			MG/KG
	IR06B039	0.75	1.9		√			MG/KG
	IR06B039	5.75	0.95		√			MG/KG
	IR06B043	1.25	5.0		√			MG/KG
	IR06MW22A	1.25	2.0		√			MG/KG
	IR06MW22A	5.25	1.8		√			MG/KG
	IR06MW23A	1.25	2.0		√			MG/KG
	IR06MW23A	5.25	2.0		√			MG/KG
	IR06MW27A	5.25	3.4		√			MG/KG
	IR06MW30A	1.25	2.3		√			MG/KG
	IR06MW30A	5.25	3.1		√			MG/KG
	IR06MW32A	0.75	4.7		√			MG/KG
	IR06MW34A	1.25	0.85		√			MG/KG
	IR06MW34A	5.25	1.2		√			MG/KG
	IR06MW35A	1.25	3.1		√			MG/KG
	IR06MW35A	5.25	3.3		√			MG/KG
	IR06MW40A	1.25	4.0		√			MG/KG
	IR06MW40A	5.75	5.2		√			MG/KG
	IR06MW41A	1.25	5.8		√			MG/KG
	IR06MW41A	5.25	1.8		√			MG/KG
	IR06MW42A	0.75	3.7		√			MG/KG
	IR06MW42A	5.75	2.1		√			MG/KG
	IR06SS01	1.25	5.8		√			MG/KG
	IR06SS02	1.12	3.2		√			MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
ARSENIC	IR06SS03	0.25	3.2	0.32	√	11.10		MG/KG
	IR06SS03	1.25	5.5		√			MG/KG
	IR06SS12	0.25	4.1		√			MG/KG
	IR06SS15	0.25	5.0		√			MG/KG
	IR06SS15	1.75	3.9		√			MG/KG
	IR06SS16	0.25	3.6		√			MG/KG
	IR06SS16	1.75	3.4		√			MG/KG
	IR06SS17	0.25	3.6		√			MG/KG
	IR06SS17	1.75	6.8		√			MG/KG
	IR06SS18	0.25	4.5		√			MG/KG
	IR06SS18	1.75	4.0		√			MG/KG
	IR06SS19	0.25	4.3		√			MG/KG
	IR06SS19	1.75	4.5		√			MG/KG
BARIUM	IR06B019	1.25	418	5,340		314.36	√	MG/KG
	IR06B029	1.25	323				√	MG/KG
	IR06B038	1.75	408				√	MG/KG
	IR06MW41A	1.25	834				√	MG/KG
	IR06MW42A	0.75	444				√	MG/KG
	IR06SS01	1.25	428				√	MG/KG
	IR06SS15	1.75	333				√	MG/KG
BERYLLIUM	IR06B001	0.75	0.48	0.14	√	0.71		MG/KG
	IR06B001	3.25	0.67		√			MG/KG
	IR06B001	5.75	0.70		√			MG/KG
	IR06B002	1.25	0.63		√			MG/KG
	IR06B002	3.25	0.56		√			MG/KG
	IR06B002	5.25	0.58		√			MG/KG
	IR06B003	0.25	0.29		√			MG/KG
	IR06B003	2.75	0.31		√			MG/KG
	IR06B004	0.25	0.46		√			MG/KG
	IR06B004	1.25	0.36		√			MG/KG
	IR06B004	2.75	0.36		√			MG/KG
	IR06B005	0.75	0.19		√			MG/KG
	IR06B005	2.75	0.37		√			MG/KG
	IR06B005	5.25	0.40		√			MG/KG
	IR06B006	0.75	0.36		√			MG/KG
	IR06B006	2.75	0.37		√			MG/KG
	IR06B006	5.25	0.37		√			MG/KG
	IR06B007	0.25	0.49		√			MG/KG
	IR06B007	2.75	0.42		√			MG/KG
	IR06B007	5.25	0.61		√			MG/KG
	IR06B008	1.25	0.39		√			MG/KG
	IR06B008	2.75	0.45		√			MG/KG
	IR06B009	1.25	0.61		√			MG/KG
	IR06B009	2.75	0.54		√			MG/KG
	IR06B009	5.25	0.68		√			MG/KG
	IR06B010	0.75	0.24		√			MG/KG
	IR06B010	3.25	0.23		√			MG/KG
	IR06B010	5.75	0.41		√			MG/KG
	IR06B011	0.75	0.46		√			MG/KG
	IR06B011	2.75	0.47		√			MG/KG
	IR06B011	5.25	0.47		√			MG/KG
	IR06B012	0.75	0.18		√			MG/KG
	IR06B012	2.75	0.25		√			MG/KG
	IR06B012	5.25	0.21		√			MG/KG
	IR06B013	0.75	0.54		√			MG/KG
	IR06B013	2.75	0.54		√			MG/KG
	IR06B013	5.25	0.48		√			MG/KG
	IR06B014	1.25	0.62		√			MG/KG
	IR06B014	3.25	0.30		√			MG/KG
	IR06B014	5.25	0.59		√			MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
BERYLLIUM	IR06B015	2.75	0.25	0.14	√	0.71		MG/KG
	IR06B015	5.25	0.27		√			MG/KG
	IR06B016	0.75	0.23		√			MG/KG
	IR06B016	2.75	0.31		√			MG/KG
	IR06B016	5.25	0.29		√			MG/KG
	IR06B017	1.25	0.50		√			MG/KG
	IR06B017	2.25	0.47		√			MG/KG
	IR06B017	5.25	0.55		√			MG/KG
	IR06B018	1.75	0.51		√			MG/KG
	IR06B018	3.25	0.56		√			MG/KG
	IR06B018	5.25	0.58		√			MG/KG
	IR06B019	1.25	0.78		√		√	MG/KG
	IR06B019	2.75	0.91		√		√	MG/KG
	IR06B019	5.25	0.71		√			MG/KG
	IR06B020	1.25	0.65		√			MG/KG
	IR06B020	2.75	0.68		√			MG/KG
	IR06B020	5.25	0.65		√			MG/KG
	IR06B021	0.75	0.55		√			MG/KG
	IR06B021	2.75	0.55		√			MG/KG
	IR06B024	1.25	0.75		√		√	MG/KG
	IR06B024	3.25	0.71		√			MG/KG
	IR06B024	5.75	0.74		√		√	MG/KG
	IR06B026	1.25	0.73		√		√	MG/KG
	IR06B026	2.75	0.69		√			MG/KG
	IR06B026	5.25	0.71		√			MG/KG
	IR06B033	1.25	0.37		√			MG/KG
	IR06B033	2.75	0.38		√			MG/KG
	IR06B033	5.25	0.29		√			MG/KG
	IR06B036	1.25	0.35		√			MG/KG
	IR06B036	3.75	0.27		√			MG/KG
	IR06B036	5.25	0.36		√			MG/KG
	IR06B037	0.75	0.48		√			MG/KG
	IR06B038	1.75	0.43		√			MG/KG
	IR06B038	3.25	0.46		√			MG/KG
	IR06B038	5.25	0.43		√			MG/KG
	IR06SS01	1.25	0.56		√			MG/KG
	IR06SS02	0.25	0.50		√			MG/KG
	IR06SS02	1.12	0.28		√			MG/KG
	IR06SS03	0.25	0.34		√			MG/KG
	IR06SS03	1.25	0.42		√			MG/KG
	IR06SS07	1.75	0.47		√			MG/KG
	IR06SS08	0.25	0.51		√			MG/KG
	IR06SS08	1.75	0.28		√			MG/KG
	IR06SS10	0.25	0.29		√			MG/KG
	IR06SS11	1.50	0.46		√			MG/KG
	IR06SS12	0.25	0.29		√			MG/KG
	IR06SS12	1.75	0.26		√			MG/KG
	IR06SS13	0.25	0.42		√			MG/KG
	IR06SS13	1.75	0.31		√			MG/KG
	IR06SS14	2.25	0.31		√			MG/KG
	IR06SS15	0.25	0.59		√			MG/KG
	IR06SS15	1.75	0.68		√			MG/KG
	IR06SS16	0.25	0.41		√			MG/KG
	IR06SS17	0.25	0.29		√			MG/KG
	IR06SS17	1.75	0.27		√			MG/KG
	IR06SS18	0.25	0.44		√			MG/KG
	IR06SS19	0.25	0.52		√			MG/KG
	IR06SS19	1.75	0.64		√			MG/KG
CHROMIUM	IR06B001	0.75	491	211	√	1,174.48		MG/KG
	IR06B001	3.25	235		√	372.44		MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
CHROMIUM	IR06B001	5.75	894	211	√	1,022.12		MG/KG
	IR06B002	1.25	360		√	529.94		MG/KG
	IR06B002	3.25	438		√	650.06		MG/KG
	IR06B002	5.25	225		√	549.23		MG/KG
	IR06B003	0.25	912		√	1,434.03		MG/KG
	IR06B003	2.75	1,370		√	1,455.58		MG/KG
	IR06B004	0.25	226		√	217.90	√	MG/KG
	IR06B004	1.25	1,910		√	1,126.75	√	MG/KG
	IR06B004	2.75	1,170		√	1,273.15		MG/KG
	IR06B005	0.75	816		√	1,162.63		MG/KG
	IR06B005	2.75	451		√	1,015.82		MG/KG
	IR06B005	5.25	250		√	535.84		MG/KG
	IR06B006	0.75	303		√	524.85		MG/KG
	IR06B006	2.75	321		√	365.47		MG/KG
	IR06B006	5.25	379		√	583.70		MG/KG
	IR06B007	0.25	369		√	742.09		MG/KG
	IR06B007	2.75	343		√	688.89		MG/KG
	IR06B008	1.25	148			143.63	√	MG/KG
	IR06B009	1.25	630		√	951.79		MG/KG
	IR06B009	2.75	506		√	1,227.17		MG/KG
	IR06B009	5.25	581		√	354.40	√	MG/KG
	IR06B010	3.25	255		√	686.63		MG/KG
	IR06B011	5.25	195			140.88	√	MG/KG
	IR06B012	2.75	130			124.63	√	MG/KG
	IR06B014	1.25	414		√	858.73		MG/KG
	IR06B014	5.25	482		√	263.75	√	MG/KG
	IR06B017	1.25	275		√	207.69	√	MG/KG
	IR06B018	3.25	220		√	173.50	√	MG/KG
	IR06B018	5.25	1,570		√	1,301.52	√	MG/KG
	IR06B019	1.25	351		√	735.53		MG/KG
	IR06B019	2.75	437		√	645.42		MG/KG
	IR06B019	5.25	746		√	448.37	√	MG/KG
	IR06B020	1.25	318		√	621.22		MG/KG
	IR06B020	2.75	307		√	520.60		MG/KG
	IR06B020	5.25	193			158.81	√	MG/KG
	IR06B021	0.75	469		√	659.29		MG/KG
	IR06B021	2.75	765		√	1,368.50		MG/KG
	IR06B024	1.25	329		√	680.60		MG/KG
	IR06B024	3.25	645		√	261.43	√	MG/KG
	IR06B024	5.75	260		√	298.63		MG/KG
	IR06B025	5.25	233		√	359.45		MG/KG
	IR06B026	1.25	289		√	334.89		MG/KG
	IR06B026	5.25	211		√	529.94		MG/KG
	IR06B028	5.25	284		√	349.31		MG/KG
	IR06B028A	1.25	582		√	164.30	√	MG/KG
	IR06B029	1.25	559		√	1,022.12		MG/KG
	IR06B029	5.25	324		√	745.72		MG/KG
	IR06B031	0.75	264		√	618.86		MG/KG
	IR06B036	5.25	222		√	276.36		MG/KG
	IR06B038	3.25	220		√	432.75		MG/KG
	IR06B038	5.25	441		√	193.28	√	MG/KG
	IR06B039	5.75	1,190		√	1,783.22		MG/KG
	IR06MW22A	1.25	661		√	1,078.08		MG/KG
	IR06MW22A	5.25	1,030		√	1,102.53		MG/KG
	IR06MW23A	1.25	240		√	822.30		MG/KG
	IR06MW23A	5.25	496		√	833.38		MG/KG
	IR06MW27A	1.25	377		√	714.23		MG/KG
	IR06MW27A	5.25	246		√	136.24	√	MG/KG
	IR06MW30A	1.25	335		√	602.20		MG/KG
	IR06MW30A	5.25	309		√	540.04		MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
CHROMIUM	IR06MW32A	5.75	243	211	✓	413.09		MG/KG
	IR06MW34A	1.25	438		✓	783.72		MG/KG
	IR06MW34A	5.25	1,780		✓	578.02	✓	MG/KG
	IR06MW35A	1.25	429		✓	1,065.76		MG/KG
	IR06MW35A	5.25	366		✓	341.10	✓	MG/KG
	IR06MW40A	1.25	229		✓	536.68		MG/KG
	IR06MW40A	5.75	349		✓	244.92	✓	MG/KG
	IR06MW41A	5.25	621		✓	958.28		MG/KG
	IR06SS01	1.25	326		✓	707.56		MG/KG
	IR06SS03	1.25	317		✓	691.14		MG/KG
	IR06SS05	0.25	247		✓	128.50	✓	MG/KG
	IR06SS06	0.25	356		✓	376.39		MG/KG
	IR06SS07	0.25	468		✓	236.47	✓	MG/KG
	IR06SS07	1.75	243		✓	217.90	✓	MG/KG
	IR06SS09	1.25	913		✓	1,395.97		MG/KG
	IR06SS10	0.25	962		✓	645.42	✓	MG/KG
	IR06SS11	0.25	382		✓	608.57		MG/KG
	IR06SS11	1.50	492		✓	756.56		MG/KG
	IR06SS12	0.25	292		✓	475.37		MG/KG
	IR06SS12	1.75	451		✓	842.32		MG/KG
	IR06SS13	1.75	379		✓	589.36		MG/KG
	IR06SS14	2.25	428		✓	889.79		MG/KG
	IR06SS15	1.75	311		✓	656.22		MG/KG
COBALT	IR06B004	1.25	120			118.10	✓	MG/KG
	IR06B009	5.25	60.7			49.51	✓	MG/KG
	IR06B013	5.25	24.5			22.94	✓	MG/KG
	IR06B016	2.75	22.7			21.20	✓	MG/KG
	IR06B016	5.25	38.0			25.07	✓	MG/KG
	IR06B017	5.25	32.5			26.70	✓	MG/KG
	IR06B018	3.25	48.5			28.94	✓	MG/KG
	IR06B018	5.25	157			131.62	✓	MG/KG
	IR06B019	5.25	208			59.08	✓	MG/KG
	IR06B024	3.25	47.7			39.39	✓	MG/KG
	IR06B028A	1.25	28.1			27.78	✓	MG/KG
	IR06B029	5.25	92.6			86.60	✓	MG/KG
	IR06B038	5.25	36.9			31.39	✓	MG/KG
	IR06MW27A	1.25	86.2			83.84	✓	MG/KG
	IR06MW30A	1.25	82.3			73.75	✓	MG/KG
	IR06MW34A	5.25	130			71.51	✓	MG/KG
	IR06MW40A	5.75	40.2			37.50	✓	MG/KG
	IR06SS15	1.75	100			78.67	✓	MG/KG
COPPER	IR06B031	0.75	126	2,850		124.31	✓	MG/KG
	IR06SS09	0.25	140				✓	MG/KG
	IR06SS11	0.25	131				✓	MG/KG
LEAD	IR06B001	0.75	9.6	130		8.99	✓	MG/KG
	IR06B001	3.25	55.6				✓	MG/KG
	IR06B002	1.25	102				✓	MG/KG
	IR06B003	0.25	12.3				✓	MG/KG
	IR06B004	2.75	16.9				✓	MG/KG
	IR06B005	5.25	18.3				✓	MG/KG
	IR06B007	0.25	12.5				✓	MG/KG
	IR06B007	2.75	9.2				✓	MG/KG
	IR06B007	5.25	18.2				✓	MG/KG
	IR06B008	1.25	15.6				✓	MG/KG
	IR06B010	0.75	1,450		✓		✓	MG/KG
	IR06B010	5.75	42.6				✓	MG/KG
	IR06B011	0.75	326		✓		✓	MG/KG
	IR06B012	0.75	12.1				✓	MG/KG
	IR06B014	1.25	10.5				✓	MG/KG
	IR06B014	3.25	19.9				✓	MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
LEAD	IR06B015	0.75	91.0	130		8.99	✓	MG/KG
	IR06B016	0.75	9.0				✓	MG/KG
	IR06B019	1.25	40.7				✓	MG/KG
	IR06B019	2.75	23.4				✓	MG/KG
	IR06B020	1.25	17.7				✓	MG/KG
	IR06B020	2.75	20.7				✓	MG/KG
	IR06B024	1.25	10.6				✓	MG/KG
	IR06B024	3.25	11.0				✓	MG/KG
	IR06B025	1.25	11.4				✓	MG/KG
	IR06B025	5.25	28.0				✓	MG/KG
	IR06B026	1.25	9.3				✓	MG/KG
	IR06B026	2.75	19.0				✓	MG/KG
	IR06B031	0.75	24.0				✓	MG/KG
	IR06B031	4.75	21.8				✓	MG/KG
	IR06B033	1.25	52.5				✓	MG/KG
	IR06B038	3.25	17.7				✓	MG/KG
	IR06B038	5.25	13.9				✓	MG/KG
	IR06MW23A	1.25	14.6				✓	MG/KG
	IR06MW23A	5.25	18.8				✓	MG/KG
	IR06MW32A	5.75	9.3				✓	MG/KG
	IR06MW34A	5.25	9.8				✓	MG/KG
	IR06MW40A	5.75	13.8				✓	MG/KG
	IR06MW41A	1.25	13.6				✓	MG/KG
	IR06MW42A	5.75	15.9				✓	MG/KG
	IR06SS01	0.25	465		✓		✓	MG/KG
	IR06SS01	1.25	43.0				✓	MG/KG
	IR06SS02	0.25	746		✓		✓	MG/KG
	IR06SS02	1.12	291		✓		✓	MG/KG
	IR06SS03	0.25	830		✓		✓	MG/KG
	IR06SS03	1.25	140		✓		✓	MG/KG
	IR06SS04	0.25	1,870		✓		✓	MG/KG
	IR06SS04	1.25	9.9				✓	MG/KG
	IR06SS05	0.25	2,300		✓		✓	MG/KG
	IR06SS06	0.25	973		✓		✓	MG/KG
	IR06SS07	0.25	2,580		✓		✓	MG/KG
	IR06SS08	0.25	357		✓		✓	MG/KG
	IR06SS09	0.25	1,900		✓		✓	MG/KG
	IR06SS09	1.25	12.0				✓	MG/KG
	IR06SS10	0.25	164		✓		✓	MG/KG
	IR06SS11	0.25	1,610		✓		✓	MG/KG
	IR06SS11	1.50	470		✓		✓	MG/KG
	IR06SS12	0.25	218		✓		✓	MG/KG
	IR06SS12	1.75	40.0				✓	MG/KG
	IR06SS13	0.25	561		✓		✓	MG/KG
	IR06SS13	1.75	126				✓	MG/KG
	IR06SS14	0.25	2,160		✓		✓	MG/KG
	IR06SS16	0.25	62.0				✓	MG/KG
	IR06SS16	1.75	55.0				✓	MG/KG
MANGANESE	IR06B001	0.75	658	382	✓	1,431.18		MG/KG
	IR06B001	3.25	1,460		✓		✓	MG/KG
	IR06B001	5.75	880		✓			MG/KG
	IR06B002	1.25	665		✓			MG/KG
	IR06B002	3.25	838		✓			MG/KG
	IR06B002	5.25	960		✓			MG/KG
	IR06B003	0.25	961		✓			MG/KG
	IR06B003	2.75	806		✓			MG/KG
	IR06B004	0.25	394		✓			MG/KG
	IR06B004	1.25	744		✓			MG/KG
	IR06B004	2.75	811		✓			MG/KG
	IR06B005	0.75	773		✓			MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
MANGANESE	IR06B005	2.75	723	382	✓	1,431.18		MG/KG
	IR06B005	5.25	1,080		✓			MG/KG
	IR06B006	0.75	696		✓			MG/KG
	IR06B006	5.25	527		✓			MG/KG
	IR06B007	0.25	875		✓			MG/KG
	IR06B007	2.75	413		✓			MG/KG
	IR06B007	5.25	698		✓			MG/KG
	IR06B009	1.25	673		✓			MG/KG
	IR06B009	2.75	781		✓			MG/KG
	IR06B009	5.25	716		✓			MG/KG
	IR06B010	3.25	1,080		✓			MG/KG
	IR06B011	5.25	441		✓			MG/KG
	IR06B013	5.25	591		✓			MG/KG
	IR06B014	1.25	796		✓			MG/KG
	IR06B014	5.25	582		✓			MG/KG
	IR06B015	0.75	382		✓			MG/KG
	IR06B016	2.75	625		✓			MG/KG
	IR06B016	5.25	690		✓			MG/KG
	IR06B017	1.25	440		✓			MG/KG
	IR06B017	5.25	491		✓			MG/KG
	IR06B018	3.25	968		✓			MG/KG
	IR06B018	5.25	814		✓			MG/KG
	IR06B019	1.25	2,730		✓		✓	MG/KG
	IR06B019	2.75	905		✓			MG/KG
	IR06B019	5.25	3,030		✓		✓	MG/KG
	IR06B020	1.25	1,920		✓		✓	MG/KG
	IR06B020	2.75	901		✓			MG/KG
	IR06B021	0.75	752		✓			MG/KG
	IR06B021	2.75	869		✓			MG/KG
	IR06B024	1.25	1,020		✓			MG/KG
	IR06B024	3.25	473		✓			MG/KG
	IR06B024	5.75	893		✓			MG/KG
	IR06B025	1.25	801		✓			MG/KG
	IR06B025	5.25	708		✓			MG/KG
	IR06B026	1.25	736		✓			MG/KG
	IR06B026	2.75	494		✓			MG/KG
	IR06B026	5.25	471		✓			MG/KG
	IR06B028	1.25	745		✓			MG/KG
	IR06B028	5.25	682		✓			MG/KG
	IR06B028A	1.25	396		✓			MG/KG
	IR06B029	1.25	1,430		✓			MG/KG
	IR06B029	5.25	1,760		✓		✓	MG/KG
	IR06B031	0.75	717		✓			MG/KG
	IR06B031	4.75	563		✓			MG/KG
	IR06B033	1.25	757		✓			MG/KG
	IR06B033	2.75	992		✓			MG/KG
	IR06B033	5.25	1,630		✓		✓	MG/KG
	IR06B036	3.75	525		✓			MG/KG
	IR06B037	0.75	810		✓			MG/KG
	IR06B038	1.75	951		✓			MG/KG
	IR06B038	3.25	948		✓			MG/KG
	IR06B039	0.75	471		✓			MG/KG
	IR06B039	5.75	1,250		✓			MG/KG
	IR06B043	1.25	785		✓			MG/KG
	IR06MW22A	1.25	1,040		✓			MG/KG
	IR06MW22A	5.25	830		✓			MG/KG
	IR06MW23A	1.25	782		✓			MG/KG
	IR06MW23A	5.25	786		✓			MG/KG
	IR06MW27A	1.25	1,230		✓			MG/KG
	IR06MW30A	1.25	988		✓			MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
MANGANESE	IR06MW30A	5.25	549	382	✓	1,431.18		MG/KG
	IR06MW32A	0.75	1,300		✓			MG/KG
	IR06MW32A	5.75	1,960		✓		✓	MG/KG
	IR06MW34A	1.25	1,060		✓			MG/KG
	IR06MW34A	5.25	1,140		✓			MG/KG
	IR06MW35A	1.25	847		✓			MG/KG
	IR06MW40A	1.25	825		✓			MG/KG
	IR06MW40A	5.75	1,250		✓			MG/KG
	IR06MW41A	1.25	3,200		✓		✓	MG/KG
	IR06MW41A	5.25	753		✓			MG/KG
	IR06MW42A	0.75	1,290		✓			MG/KG
	IR06SS01	0.25	697		✓			MG/KG
	IR06SS01	1.25	4,640		✓		✓	MG/KG
	IR06SS02	0.25	508		✓			MG/KG
	IR06SS02	1.12	656		✓			MG/KG
	IR06SS03	1.25	884		✓			MG/KG
	IR06SS04	1.25	742		✓			MG/KG
	IR06SS08	0.25	1,410		✓			MG/KG
	IR06SS09	1.25	1,190		✓			MG/KG
	IR06SS10	0.25	799		✓			MG/KG
	IR06SS11	0.25	534		✓			MG/KG
	IR06SS11	1.50	678		✓			MG/KG
	IR06SS12	0.25	640		✓			MG/KG
	IR06SS12	1.75	824		✓			MG/KG
	IR06SS13	0.25	636		✓			MG/KG
	IR06SS13	1.75	515		✓			MG/KG
	IR06SS14	2.25	638		✓			MG/KG
	IR06SS15	0.25	1,290		✓			MG/KG
	IR06SS15	1.75	2,500		✓		✓	MG/KG
	IR06SS16	0.25	588		✓			MG/KG
	IR06SS16	1.75	421		✓			MG/KG
	IR06SS17	0.25	507		✓			MG/KG
	IR06SS17	1.75	702		✓			MG/KG
	IR06SS18	0.25	446		✓			MG/KG
	IR06SS18	1.75	623		✓			MG/KG
	IR06SS19	0.25	806		✓			MG/KG
	IR06SS19	1.75	922		✓			MG/KG
NICKEL	IR06B001	0.75	1,220	150	✓	2,807.40		MG/KG
	IR06B001	3.25	318		✓	578.08		MG/KG
	IR06B001	5.75	1,750		✓	2,318.87		MG/KG
	IR06B002	1.25	699		✓	939.19		MG/KG
	IR06B002	3.25	725		✓	1,244.05		MG/KG
	IR06B002	5.25	417		✓	986.56		MG/KG
	IR06B003	0.25	2,360		✓	3,694.96		MG/KG
	IR06B003	2.75	1,890		✓	3,771.56		MG/KG
	IR06B004	0.25	286		✓	276.47	✓	MG/KG
	IR06B004	1.25	2,550		✓	2,651.61		MG/KG
	IR06B004	2.75	1,940		✓	3,136.95		MG/KG
	IR06B005	0.75	1,910		✓	2,768.49		MG/KG
	IR06B005	2.75	877		✓	2,299.22		MG/KG
	IR06B005	5.25	411		✓	953.62		MG/KG
	IR06B006	0.75	641		✓	926.81		MG/KG
	IR06B006	2.75	495		✓	563.25		MG/KG
	IR06B006	5.25	738		✓	1,072.75		MG/KG
	IR06B007	0.25	661		✓	1,492.65		MG/KG
	IR06B007	2.75	660		✓	1,347.43		MG/KG
	IR06B007	5.25	218		✓	383.43		MG/KG
	IR06B009	1.25	1,430		✓	2,102.22		MG/KG
	IR06B009	2.75	1,640		✓	2,982.11		MG/KG
	IR06B009	5.25	846		✓	539.91	✓	MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
NICKEL	IR06B010	0.75	158	150	√	247.74		MG/KG
	IR06B010	3.25	793		√	1,341.36		MG/KG
	IR06B010	5.75	206		√	298.46		MG/KG
	IR06B011	0.75	246		√	307.23		MG/KG
	IR06B011	2.75	187		√	155.13	√	MG/KG
	IR06B011	5.25	186		√	151.71	√	MG/KG
	IR06B012	0.75	176		√	108.78	√	MG/KG
	IR06B012	2.75	258		√	128.16	√	MG/KG
	IR06B012	5.25	188		√	127.70	√	MG/KG
	IR06B013	0.75	369		√	313.80	√	MG/KG
	IR06B013	2.75	167		√	111.56	√	MG/KG
	IR06B013	5.25	185		√	132.06	√	MG/KG
	IR06B014	1.25	800		√	1,824.71		MG/KG
	IR06B014	3.25	468		√	603.46		MG/KG
	IR06B014	5.25	673		√	359.58	√	MG/KG
	IR06B015	0.75	284		√	471.67		MG/KG
	IR06B015	2.75	139			106.00	√	MG/KG
	IR06B015	5.25	104			86.86	√	MG/KG
	IR06B016	0.75	136			106.23	√	MG/KG
	IR06B016	2.75	162		√	114.34	√	MG/KG
	IR06B016	5.25	238		√	155.35	√	MG/KG
	IR06B017	1.25	295		√	258.81	√	MG/KG
	IR06B017	2.25	185		√	141.45	√	MG/KG
	IR06B017	5.25	240		√	174.39	√	MG/KG
	IR06B018	1.75	237		√	201.16	√	MG/KG
	IR06B018	3.25	405		√	202.06	√	MG/KG
	IR06B018	5.25	2,600		√	3,233.51		MG/KG
	IR06B019	1.25	641		√	1,474.54		MG/KG
	IR06B019	2.75	699		√	1,231.86		MG/KG
	IR06B019	5.25	1,730		√	746.24	√	MG/KG
	IR06B020	1.25	925		√	1,168.77		MG/KG
	IR06B020	2.75	614		√	916.49		MG/KG
	IR06B020	5.25	287		√	178.90	√	MG/KG
	IR06B021	0.75	1,090		√	1,268.42		MG/KG
	IR06B021	2.75	1,770		√	3,464.65		MG/KG
	IR06B024	1.25	685		√	1,325.17		MG/KG
	IR06B024	3.25	830		√	355.23	√	MG/KG
	IR06B024	5.75	368		√	426.59		MG/KG
	IR06B025	1.25	234		√	417.98		MG/KG
	IR06B025	5.25	276		√	550.53		MG/KG
	IR06B026	1.25	373		√	499.45		MG/KG
	IR06B026	2.75	236		√	361.75		MG/KG
	IR06B026	5.25	370		√	939.19		MG/KG
	IR06B028	1.25	268		√	559.01		MG/KG
	IR06B028	5.25	273		√	529.28		MG/KG
	IR06B028A	1.25	488		√	187.46	√	MG/KG
	IR06B029	1.25	971		√	2,318.87		MG/KG
	IR06B029	5.25	806		√	1,502.71		MG/KG
	IR06B031	0.75	515		√	1,162.65		MG/KG
	IR06B031	4.75	335		√	548.40		MG/KG
	IR06B033	1.25	752		√	1,258.27		MG/KG
	IR06B033	2.75	740		√	1,599.06		MG/KG
	IR06B033	5.25	1,190		√	1,836.65		MG/KG
	IR06B036	5.25	427		√	383.43	√	MG/KG
	IR06B037	0.75	168		√	493.04		MG/KG
	IR06B038	3.25	531		√	710.69		MG/KG
	IR06B038	5.25	497		√	234.42	√	MG/KG
	IR06B039	5.75	3,390		√	4,986.88		MG/KG
	IR06B043	1.25	167		√	469.52		MG/KG
	IR06MW22A	1.25	1,650		√	2,495.32		MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
NICKEL	IR06MW22A	5.25	1,770	150	√	2,573.53		MG/KG
	IR06MW23A	1.25	1,610		√	1,719.07		MG/KG
	IR06MW23A	5.25	1,110		√	1,751.00		MG/KG
	IR06MW27A	1.25	1,310		√	1,416.10		MG/KG
	IR06MW30A	1.25	1,590		√	1,119.79	√	MG/KG
	IR06MW30A	5.25	568		√	963.92		MG/KG
	IR06MW32A	5.75	321		√	666.65		MG/KG
	IR06MW34A	1.25	1,200		√	1,609.08		MG/KG
	IR06MW34A	5.25	2,130		√	1,058.41	√	MG/KG
	IR06MW35A	1.25	848		√	2,456.17		MG/KG
	IR06MW35A	5.25	683		√	512.24	√	MG/KG
	IR06MW40A	1.25	404		√	955.68		MG/KG
	IR06MW40A	5.75	489		√	324.73	√	MG/KG
	IR06MW41A	5.25	1,260		√	2,121.96		MG/KG
	IR06SS01	0.25	325		√	394.24		MG/KG
	IR06SS01	1.25	702		√	1,397.94		MG/KG
	IR06SS02	1.12	357		√	563.25		MG/KG
	IR06SS03	1.25	916		√	1,353.49		MG/KG
	IR06SS04	1.25	250		√	182.06	√	MG/KG
	IR06SS05	0.25	179		√	133.67	√	MG/KG
	IR06SS06	0.25	415		√	586.55		MG/KG
	IR06SS07	0.25	251		√	309.42		MG/KG
	IR06SS07	1.75	346		√	276.47	√	MG/KG
	IR06SS08	0.25	419		√	819.14		MG/KG
	IR06SS08	1.75	369		√	346.53	√	MG/KG
	IR06SS09	0.25	281		√	291.87		MG/K
	IR06SS09	1.25	3,100		√	3,560.71		MG/K
	IR06SS10	0.25	1,580		√	1,231.86	√	MG/KG
	IR06SS11	0.25	633		√	1,136.13		MG/KG
	IR06SS11	1.50	712		√	1,532.85		MG/KG
	IR06SS12	0.25	523		√	808.75		MG/KG
	IR06SS12	1.75	1,580		√	1,776.92		MG/KG
	IR06SS13	1.75	576		√	1,087.08		MG/KG
	IR06SS14	0.25	156		√	218.83		MG/KG
	IR06SS14	2.25	1,130		√	1,916.13		MG/KG
	IR06SS15	0.25	158		√	407.20		MG/KG
	IR06SS15	1.75	919		√	1,260.30		MG/KG
	IR06SS16	0.25	227		√	478.08		MG/KG
	IR06SS19	1.75	458		√	812.90		MG/KG
SELENIUM	IR06SS05	0.25	3.3	383		1.95	√	MG/KG
SILVER	IR06B039	5.75	1.5	383		1.43	√	MG/KG
ZINC	IR06B010	0.75	159	23,000		109.86	√	MG/KG
	IR06B011	0.75	187				√	MG/KG
	IR06B031	0.75	280				√	MG/KG
	IR06SS01	0.25	214				√	MG/KG
	IR06SS01	1.25	115				√	MG/KG
	IR06SS02	0.25	287				√	MG/KG
	IR06SS02	1.12	180				√	MG/KG
	IR06SS03	0.25	185				√	MG/KG
	IR06SS03	1.25	112				√	MG/KG
	IR06SS04	0.25	177				√	MG/KG
	IR06SS05	0.25	128				√	MG/KG
	IR06SS06	0.25	355				√	MG/KG
	IR06SS07	0.25	227				√	MG/KG
	IR06SS08	0.25	476				√	MG/KG
	IR06SS09	0.25	597				√	MG/KG
	IR06SS11	0.25	339				√	MG/KG
	IR06SS11	1.50	207				√	MG/KG
	IR06SS12	0.25	145				√	MG/KG
	IR06SS13	0.25	472				√	MG/K

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
ZINC	IR06SS14	0.25	207	23,000		109.86	√	MG/KG
	IR06SS15	1.75	117				√	MG/KG
	IR06SS16	0.25	120				√	MG/KG
SVOC								
BENZO(A)ANTHRACENE	IR06SS13	0.25	830	0.6	√			UG/KG
BENZO(A)PYRENE	IR06B037	0.75	140	0.06	√			UG/KG
	IR06MW23A	5.25	120		√			UG/KG
	IR06SS02	1.12	130		√			UG/KG
	IR06SS03	0.25	310		√			UG/KG
	IR06SS03	1.25	200		√			UG/KG
	IR06SS14	0.25	1,300		√			UG/KG
	IR06SS16	1.75	91		√			UG/KG
BENZO(B)FLUORANTHENE	IR06SS01	0.25	1,200	0.6	√			UG/KG
	IR06SS02	0.25	950		√			UG/KG
	IR06SS14	0.25	2,500		√			UG/KG
BENZO(K)FLUORANTHENE	IR06SS01	0.25	1,200	0.6	√			UG/KG
	IR06SS02	0.25	950		√			UG/KG
	IR06SS14	0.25	2,500		√			UG/KG
DIBENZ(A,H)ANTHRACENE	IR06SS03	0.25	84	0.06	√			UG/KG
PEST								
ALDRIN	IR06SS09	0.25	130	0.03	√			UG/KG
AROCLOR-1260	IR06B031	0.75	150,000	0.07	√			UG/KG
	IR06B031	4.75	310		√			UG/KG
	IR06B033	1.25	310		√			UG/KG
	IR06B033	2.75	180		√			UG/KG
	IR06B039	0.75	77		√			UG/KG
	IR06B039	5.75	4,900		√			UG/KG
	IR06MW22A	5.25	520		√			UG/KG
	IR06SS14	0.25	570		√			UG/KG
TPHEXT								
TPH-DIESEL	IR06B001	3.25	13,000	1,000a	√			MG/KG
	IR06B001	5.75	8,100		√			MG/KG
	IR06B002	1.25	2,400		√			MG/KG
	IR06B002	3.25	9,500		√			MG/KG
	IR06B002	5.25	3,400		√			MG/KG
	IR06B002	7.75	2,900		√			MG/KG
	IR06B002	9.75	1,200		√			MG/KG
	IR06B003	0.25	4,600		√			MG/KG
	IR06B003	2.75	1,900		√			MG/KG
	IR06B004	0.25	3,800		√			MG/KG
	IR06B004	1.25	4,200		√			MG/KG
	IR06B004	2.75	1,300		√			MG/KG
	IR06B005	2.75	1,300		√			MG/KG
	IR06B005	5.25	1,900		√			MG/KG
	IR06B005	7.75	6,200		√			MG/KG
	IR06B007	5.25	4,000		√			MG/KG
	IR06B007	7.75	1,100		√			MG/KG
	IR06B009	1.25	2,400		√			MG/KG
	IR06B009	2.75	5,500		√			MG/KG
	IR06B009	5.25	1,300		√			MG/KG
	IR06B010	0.75	3,100		√			MG/KG
	IR06B010	5.75	7,200		√			MG/KG
	IR06B010	7.75	6,400		√			MG/KG
	IR06B010	14.75	6,800		√			MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
TPHEXT								
TPH-DIESEL	IR06B012	0.75	26,000	1,000a	√			MG/KG
	IR06B012	2.75	10,000		√			MG/KG
	IR06B012	5.25	1,300		√			MG/KG
	IR06B012	7.75	1,300		√			MG/KG
	IR06B013	0.75	2,800		√			MG/KG
	IR06B013	5.25	1,300		√			MG/KG
	IR06B015	0.75	3,700		√			MG/KG
	IR06B015	2.75	2,800		√			MG/KG
	IR06B015	5.25	1,300		√			MG/KG
	IR06B015	7.75	2,300		√			MG/KG
	IR06B017	1.25	8,400		√			MG/KG
	IR06B017	2.25	3,600		√			MG/KG
	IR06B017	5.25	1,300		√			MG/KG
	IR06B021	7.25	2,300		√			MG/KG
	IR06B024	5.75	1,100		√			MG/KG
	IR06B025	5.25	11,000		√			MG/KG
	IR06B026	10.25	13,000		√			MG/KG
	IR06B031	0.75	4,600		√			MG/KG
	IR06B033	5.25	6,500		√			MG/KG
	IR06B033	7.75	3,000		√			MG/KG
	IR06B033	10.25	15,000		√			MG/KG
	IR06B036	3.75	2,400		√			MG/KG
	IR06B036	5.25	3,100		√			MG/KG
	IR06B036	10.75	5,000		√			MG/KG
	IR06B039	0.75	1,400		√			MG/KG
	IR06B039	5.75	1,500		√			MG/KG
	IR06B039	14.25	2,000		√			MG/KG
	IR06MW22A	5.25	1,900		√			MG/KG
	IR06MW27A	10.25	3,500		√			MG/KG
	IR06MW32A	10.25	2,500		√			MG/KG
	IR06SS01	0.25	14,000		√			MG/KG
	IR06SS04	0.25	24,000		√			MG/KG
	IR06SS04	1.25	22,000		√			MG/KG
	IR06SS05	0.25	22,000		√			MG/KG
	IR06SS06	0.25	14,000		√			MG/KG
	IR06SS07	0.25	3,700		√			MG/KG
	IR06SS08	0.25	17,000		√			MG/KG
	IR06SS08	1.75	21,000		√			MG/KG
	IR06SS09	0.25	24,000		√			MG/KG
	IR06SS09	1.25	11,000		√			MG/KG
	IR06SS10	0.25	7,600		√			MG/KG
	IR06SS11	0.25	21,000		√			MG/KG
	IR06SS11	1.50	9,100		√			MG/KG
	IR06SS12	0.25	10,000		√			MG/KG
	IR06SS12	1.75	4,100		√			MG/KG
O&G								
TOTAL OIL & GREASE	IR06B001	0.75	3,700	1,000a	√			MG/KG
	IR06B001	3.25	9,400		√			MG/KG
	IR06B001	5.75	3,500		√			MG/KG
	IR06B002	1.25	9,100		√			MG/KG
	IR06B002	3.25	10,000		√			MG/KG
	IR06B002	5.25	6,600		√			MG/KG
	IR06B002	7.75	2,800		√			MG/KG
	IR06B002	9.75	3,000		√			MG/KG
	IR06B003	0.25	1,200		√			MG/KG
	IR06B003	2.75	2,500		√			MG/KG
	IR06B004	0.25	11,000		√			MG/KG
	IR06B004	1.25	4,300		√			MG/KG

TABLE 4.4-7 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
O&G								
TOTAL OIL & GREASE	IR06B004	2.75	4,700	1,000a	√			MG/KG
	IR06B005	2.75	3,300		√			MG/KG
	IR06B005	5.25	4,400		√			MG/KG
	IR06B005	7.75	5,300		√			MG/KG
	IR06B007	5.25	2,000		√			MG/KG
	IR06B009	1.25	1,600		√			MG/KG
	IR06B009	2.75	4,500		√			MG/KG
	IR06B010	0.75	32,000		√			MG/KG
	IR06B010	7.75	1,300		√			MG/KG
	IR06B010	14.75	110,000		√			MG/KG
	IR06B011	0.75	6,400		√			MG/KG
	IR06B012	0.75	20,000		√			MG/KG
	IR06B012	2.75	5,600		√			MG/KG
	IR06B013	0.75	3,100		√			MG/KG
	IR06B017	1.25	8,900		√			MG/KG
	IR06B017	2.25	1,700		√			MG/KG
	IR06B019	1.25	14,000		√			MG/KG
	IR06B020	1.25	31,000		√			MG/KG
	IR06B021	7.25	6,700		√			MG/KG
	IR06B025	5.25	4,300		√			MG/KG
	IR06B026	10.25	17,000		√			MG/KG
	IR06B031	0.75	3,300		√			MG/KG
	IR06B033	5.25	2,700		√			MG/KG
	IR06B033	7.75	2,500		√			MG/KG
	IR06B033	10.25	27,000		√			MG/KG
	IR06B036	3.75	2,600		√			MG/KG
	IR06B036	5.25	2,100		√			MG/KG
	IR06B038	3.25	2,200		√			MG/KG
	IR06B039	5.75	2,100		√			MG/KG
	IR06B039	14.25	1,800		√			MG/KG
	IR06MW22A	5.25	2,400		√			MG/KG
	IR06MW27A	10.25	1,500		√			MG/KG
	IR06MW32A	5.75	1,100		√			MG/KG

Notes:

bgs	Below ground surface
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
O&G	Total oil and grease
PEST	Pesticides/polychlorinated biphenyls
PRG	Preliminary remediation goal
Res.	Residential
SVOC	Semivolatile organic compounds
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/KG	Microgram per kilogram
VOC	Volatile organic compounds

a TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.4-8

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
ANTIMONY	IR06MW23A	06/13/90	16.8	15.0	√	6.0	√	500		UG/L
	IR06MW34A	07/15/91	15.8		√		√			UG/L
	IR06MW34A	01/09/92	35.6		√		√			UG/L
	IR06MW40A	07/17/91	10.8				√			UG/L
	IR06MW41A	01/08/92	22.8		√		√			UG/L
	IR06MW44A	01/07/92	40.1		√		√			UG/L
	IR06MW45A	01/13/92	33.5		√		√			UG/L
	IR06MW46A	01/08/92	28.4		√		√			UG/L
	IR06MW50F	08/16/94	10.8				√			UG/L
ARSENIC	IR06MW22A	06/12/90	4.9	0.04	√	50.0		36.0		UG/L
	IR06MW22A	07/15/91	12.1		√					UG/L
	IR06MW22A	01/06/92	5.0		√					UG/L
	IR06MW22A	11/05/93	11.9		√					UG/L
	IR06MW22A	05/17/94	7.7		√					UG/L
	IR06MW22A	08/30/94	14.3		√					UG/L
	IR06MW22A	07/20/95	7.7		√					UG/L
	IR06MW23A	06/13/90	2.4		√					UG/L
	IR06MW23A	01/07/91	3.7		√					UG/L
	IR06MW23A	07/16/91	1.9		√					UG/L
	IR06MW23A	11/03/93	4.1		√					UG/L
	IR06MW23A	08/19/94	1.5		√					UG/L
	IR06MW27A	06/12/90	3.2		√					UG/L
	IR06MW27A	01/04/91	5.9		√					UG/L
	IR06MW27A	07/16/91	11.1		√					UG/L
	IR06MW27A	01/07/92	11.4		√					UG/L
	IR06MW27A	11/05/93	7.7		√					UG/L
	IR06MW27A	05/17/94	11.2		√					UG/L
	IR06MW27A	08/30/94	8.1		√					UG/L
	IR06MW30A	06/12/90	3.0		√					UG/L
	IR06MW30A	07/15/91	1.9		√					UG/L
	IR06MW30A	01/09/92	2.7		√					UG/L
	IR06MW30A	11/03/93	6.2		√					UG/L
	IR06MW30A	08/23/94	2.9		√					UG/L
	IR06MW32A	01/07/91	5.4		√					UG/L
	IR06MW32A	07/17/91	3.7		√					UG/L
	IR06MW32A	01/10/92	4.2		√					UG/L
	IR06MW32A	11/04/93	7.7		√					UG/L
	IR06MW32A	05/18/94	2.6		√					UG/L
	IR06MW32A	08/24/94	5.2		√					UG/L
	IR06MW34A	01/04/91	3.6		√					UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
ARSENIC	IR06MW34A	07/15/91	3.7	0.04	√	50.0		36.0		UG/L
	IR06MW34A	01/09/92	4.5		√					UG/L
	IR06MW34A	03/31/93	2.6		√					UG/L
	IR06MW34A	11/04/93	4.5		√					UG/L
	IR06MW34A	08/19/94	4.5		√					UG/L
	IR06MW35A	06/11/90	4.0		√					UG/L
	IR06MW35A	01/04/91	6.4		√					UG/L
	IR06MW35A	07/17/91	4.1		√					UG/L
	IR06MW35A	01/08/92	5.2		√					UG/L
	IR06MW35A	05/13/94	4.0		√					UG/L
	IR06MW35A	08/19/94	4.9		√					UG/L
	IR06MW40A	06/13/90	3.2		√					UG/L
	IR06MW40A	01/04/91	5.1		√					UG/L
	IR06MW40A	07/17/91	2.0		√					UG/L
	IR06MW40A	01/09/92	2.0		√					UG/L
	IR06MW40A	11/08/93	7.1		√					UG/L
	IR06MW40A	05/13/94	2.9		√					UG/L
	IR06MW40A	08/19/94	2.1		√					UG/L
	IR06MW41A	06/11/90	2.1		√					UG/L
	IR06MW41A	01/03/91	10.5		√					UG/L
	IR06MW41A	07/16/91	9.7		√					UG/L
	IR06MW41A	01/08/92	12.4		√					UG/L
	IR06MW41A	11/08/93	14.1		√					UG/L
	IR06MW41A	05/13/94	8.4		√					UG/L
	IR06MW41A	08/19/94	4.3		√					UG/L
	IR06MW42A	01/10/91	8.3		√					UG/L
	IR06MW42A	07/16/91	9.5		√					UG/L
	IR06MW42A	01/10/92	6.6		√					UG/L
	IR06MW42A	11/08/93	10.5		√					UG/L
	IR06MW42A	05/16/94	3.1		√					UG/L
	IR06MW42A	08/26/94	5.0		√					UG/L
	IR06MW44A	08/25/94	3.0		√					UG/L
	IR06MW45A	10/31/91	2.5		√					UG/L
	IR06MW46A	10/31/91	3.7		√					UG/L
	IR06MW46A	01/08/92	2.5		√					UG/L
	IR06MW46A	08/25/94	2.6		√					UG/L
	IR06MW47F	11/04/91	2.0		√					UG/L
	IR06MW47F	01/09/92	2.0		√					UG/L
	IR06MW48F	11/04/91	7.9		√					UG/L
	IR06MW48F	01/08/92	4.0		√					UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
ARSENIC	IR06MW48F	11/08/93	4.7	0.04	√	50.0		36.0		UG/L
	IR06MW48F	08/19/94	1.7		√					UG/L
	IR06MW49F	11/08/93	3.8		√					UG/L
	IR06MW50F	12/14/93	4.4		√					UG/L
	IR06MW51F	07/27/95	7.9		√					UG/L
	IR06MW52F	12/27/93	7.8		√					UG/L
	IR06MW52F	08/11/94	5.1		√					UG/L
	IR06MW53F	03/15/94	8.2		√					UG/L
	IR06MW53F	08/11/94	6.5		√					UG/L
	IR06MW53F	05/25/95	7.3		√					UG/L
	IR06MW55F	12/28/93	3.5		√					UG/L
	IR06MW56F	01/07/94	3.9		√					UG/L
	IR06MW57F	09/21/95	4.2		√					UG/L
BERYLLIUM	IR06MW22A	06/12/90	0.37	0.02	√	4.0				UG/L
	IR06MW23A	06/13/90	0.27		√					UG/L
	IR06MW27A	06/12/90	0.37		√					UG/L
	IR06MW34A	06/13/90	0.56		√					UG/L
	IR06MW40A	06/13/90	0.37		√					UG/L
CADMIUM	IR06MW44A	01/07/92	6.4	18.0		5.0	√	9.3		UG/L
	IR06MW53F	08/11/94	9.2				√			UG/L
CHROMIUM	IR06MW49F	10/31/91	90.6			50.0	√			UG/L
	IR06MW49F	01/06/92	98.5				√			UG/L
	IR06MW49F	11/08/93	81.1				√			UG/L
	IR06MW49F	02/16/94	87.8				√			UG/L
	IR06MW49F	05/16/94	79.8				√			UG/L
	IR06MW49F	08/19/94	81.1				√			UG/L
	IR06MW50F	12/14/93	117				√			UG/L
	IR06MW50F	08/16/94	108				√			UG/L
	IR06MW50F	05/25/95	113				√			UG/L
	IR06MW54F	12/15/93	51.7				√			UG/L
	IR06MW54F	08/16/94	55.0				√			UG/L
	IR06MW54F	05/25/95	62.1				√			UG/L
CHROMIUM VI	IR06MW49F	10/31/91	100	0.16	√			50.0	√	UG/L
	IR06MW49F	01/06/92	115		√				√	UG/L
	IR06MW49F	11/08/93	87.8		√				√	UG/L
	IR06MW49F	02/16/94	82.9		√				√	UG/L
	IR06MW49F	05/16/94	91.1		√				√	UG/L
	IR06MW49F	08/19/94	80.9		√				√	UG/L
COPPER	IR06MW35A	07/17/91	3.1	1,400				2.4	√	UG/L
	IR06MW40A	06/13/90	58.2						√	UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
COPPER	IR06MW45A	10/31/91	10.9	1,400				2.4	✓	UG/L
	IR06MW50F	08/16/94	25.7						✓	UG/L
	IR06MW50F	05/25/95	4.3						✓	UG/L
	IR06MW52F	12/27/93	3.3						✓	UG/L
	IR06MW52F	08/11/94	11.8						✓	UG/L
	IR06MW52F	05/25/95	4.5						✓	UG/L
	IR06MW53F	03/15/94	7.3						✓	UG/L
	IR06MW53F	08/11/94	31.2						✓	UG/L
	IR06MW53F	05/25/95	9.0						✓	UG/L
	IR06MW54F	08/16/94	2.4						✓	UG/L
	IR06MW54F	05/25/95	5.4						✓	UG/L
	IR06MW55F	12/28/93	3.3						✓	UG/L
	IR06MW56F	05/25/95	3.6						✓	UG/L
	IR06MW58F	05/24/95	3.2						✓	UG/L
LEAD	IR06MW34A	03/31/93	9.9	4.0	✓	50.0		8.1	✓	UG/L
MANGANESE	IR06MW22A	06/12/90	644	180	✓					UG/L
	IR06MW22A	01/04/91	1,150		✓					UG/L
	IR06MW22A	07/15/91	1,730		✓					UG/L
	IR06MW22A	01/06/92	1,170		✓					UG/L
	IR06MW22A	07/20/95	1,240		✓					UG/L
	IR06MW23A	06/13/90	636		✓					UG/L
	IR06MW23A	01/07/91	628		✓					UG/L
	IR06MW23A	07/16/91	779		✓					UG/L
	IR06MW23A	01/07/92	704		✓					UG/L
	IR06MW27A	06/12/90	997		✓					UG/L
	IR06MW27A	01/04/91	2,380		✓					UG/L
	IR06MW27A	07/16/91	2,480		✓					UG/L
	IR06MW27A	01/07/92	1,940		✓					UG/L
	IR06MW30A	06/12/90	1,180		✓					UG/L
	IR06MW30A	01/04/91	1,860		✓					UG/L
	IR06MW30A	07/15/91	1,860		✓					UG/L
	IR06MW30A	01/09/92	1,740		✓					UG/L
	IR06MW32A	06/12/90	6,190		✓					UG/L
	IR06MW32A	01/07/91	5,350		✓					UG/L
	IR06MW32A	07/17/91	5,440		✓					UG/L
	IR06MW32A	01/10/92	3,790		✓					UG/L
	IR06MW34A	06/13/90	2,540		✓					UG/L
	IR06MW34A	01/04/91	4,460		✓					UG/L
	IR06MW34A	07/15/91	4,080		✓					UG/L
	IR06MW34A	01/09/92	2,730		✓					UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
MANGANESE	IR06MW34A	03/31/93	1,160	180	√					UG/L
	IR06MW35A	01/04/91	282		√					UG/L
	IR06MW40A	06/13/90	551		√					UG/L
	IR06MW40A	01/04/91	4,110		√					UG/L
	IR06MW40A	07/17/91	2,600		√					UG/L
	IR06MW40A	01/09/92	1,370		√					UG/L
	IR06MW41A	06/11/90	742		√					UG/L
	IR06MW41A	01/03/91	3,420		√					UG/L
	IR06MW41A	07/16/91	8,860		√					UG/L
	IR06MW41A	01/08/92	6,750		√					UG/L
	IR06MW42A	06/13/90	3,040		√					UG/L
	IR06MW42A	01/10/91	5,880		√					UG/L
	IR06MW42A	07/16/91	1,940		√					UG/L
	IR06MW42A	01/10/92	1,420		√					UG/L
	IR06MW44A	10/31/91	4,930		√					UG/L
	IR06MW44A	01/07/92	5,050		√					UG/L
	IR06MW45A	10/31/91	370		√					UG/L
	IR06MW46A	01/08/92	187		√					UG/L
	IR06MW48F	11/04/91	188		√					UG/L
	IR06MW48F	01/08/92	728		√					UG/L
	IR06MW51F	12/22/93	227		√					UG/L
	IR06MW51F	08/16/94	185		√					UG/L
	IR06MW51F	07/27/95	266		√					UG/L
MERCURY	IR06MW34A	03/31/93	0.14	11.0		2.0		0.03	√	UG/L
	IR06MW50F	12/14/93	0.20						√	UG/L
	IR06MW50F	08/16/94	0.30						√	UG/L
	IR06MW50F	05/25/95	0.12						√	UG/L
MOLYBDENUM	IR06MW53F	03/15/94	258	180	√					UG/L
	IR06MW53F	08/11/94	258		√					UG/L
	IR06MW53F	05/25/95	256		√					UG/L
NICKEL	IR06MW22A	07/15/91	17.8	730		100		8.2	√	UG/L
	IR06MW22A	01/06/92	45.9						√	UG/L
	IR06MW23A	07/16/91	24.6						√	UG/L
	IR06MW27A	06/12/90	37.2						√	UG/L
	IR06MW27A	07/16/91	71.6						√	UG/L
	IR06MW27A	01/07/92	51.2						√	UG/L
	IR06MW30A	06/12/90	15.9						√	UG/L
	IR06MW30A	07/15/91	30.4						√	UG/L
	IR06MW32A	06/12/90	29.7						√	UG/L
	IR06MW32A	01/07/91	25.0						√	UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
NICKEL	IR06MW32A	07/17/91	41.7	730		100		8.2	√	UG/L
	IR06MW34A	06/13/90	22.8						√	UG/L
	IR06MW34A	07/15/91	21.2						√	UG/L
	IR06MW40A	07/17/91	36.3						√	UG/L
	IR06MW41A	07/16/91	18.9						√	UG/L
	IR06MW41A	01/08/92	13.6						√	UG/L
	IR06MW41A	05/13/94	14.6						√	UG/L
	IR06MW42A	06/13/90	21.1						√	UG/L
	IR06MW42A	07/16/91	22.3						√	UG/L
	IR06MW44A	10/31/91	117				√		√	UG/L
	IR06MW44A	01/07/92	89.4						√	UG/L
	IR06MW45A	10/31/91	35.2						√	UG/L
	IR06MW46A	10/31/91	44.2						√	UG/L
	IR06MW46A	01/08/92	42.4						√	UG/L
	IR06MW47F	11/04/91	95.4						√	UG/L
THALLIUM	IR06MW22A	07/20/95	2.5			2.0	√			UG/L
	IR06MW57F	09/21/95	2.5				√			UG/L
VOC										
1,2-DICHLOROETHANE	IR06MW22A	07/15/91	1	0.1	√	0.5	√			UG/L
1,2-DICHLOROETHENE (TOTAL)	IR06MW30A	01/09/92	130	55	√					UG/L
BENZENE	IR06MW22A	06/12/90	55	0.4	√	1	√			UG/L
	IR06MW22A	01/03/91	42		√		√			UG/L
	IR06MW22A	07/15/91	72		√		√			UG/L
	IR06MW22A	01/06/92	4		√		√			UG/L
	IR06MW22A	11/03/93	32		√		√			UG/L
	IR06MW22A	02/14/94	41		√		√			UG/L
	IR06MW22A	05/16/94	39		√		√			UG/L
	IR06MW22A	08/25/94	31		√		√			UG/L
	IR06MW23A	06/13/90	10		√		√			UG/L
	IR06MW23A	01/07/92	7		√		√			UG/L
	IR06MW23A	11/03/93	5		√		√			UG/L
	IR06MW23A	02/15/94	12		√		√			UG/L
	IR06MW23A	05/17/94	15		√		√			UG/L
	IR06MW23A	08/19/94	7		√		√			UG/L
	IR06MW30A	06/12/90	3		√		√			UG/L
	IR06MW30A	01/04/91	6		√		√			UG/L
	IR06MW30A	07/15/91	5		√		√			UG/L
	IR06MW30A	01/09/92	16		√		√			UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
VOC										
BENZENE	IR06MW30A	11/03/93	17	0.4	√	1	√			UG/L
	IR06MW30A	02/15/94	29		√		√			UG/L
	IR06MW30A	05/18/94	24		√		√			UG/L
	IR06MW30A	08/23/94	19		√		√			UG/L
	IR06MW32A	06/12/90	3		√		√			UG/L
	IR06MW32A	01/07/91	6		√		√			UG/L
	IR06MW32A	01/10/92	11		√		√			UG/L
	IR06MW32A	11/04/93	7		√		√			UG/L
	IR06MW32A	02/15/94	5		√		√			UG/L
	IR06MW32A	05/18/94	7		√		√			UG/L
	IR06MW32A	08/24/94	7		√		√			UG/L
	IR06MW42A	07/16/91	2		√		√			UG/L
	IR06MW42A	11/08/93	1		√					UG/L
	IR06MW42A	05/16/94	0.7		√					UG/L
	IR06MW48F	01/08/92	1		√					UG/L
	IR06MW48F	11/08/93	2		√		√			UG/L
	IR06MW48F	02/14/94	1		√					UG/L
	IR06MW48F	05/16/94	1		√					UG/L
	IR06MW48F	08/19/94	1		√					UG/L
CARBON TETRACHLORIDE	IR06MW55F	12/27/93	28	0.2	√	0.5	√			UG/L
CHLOROFORM	IR06MW22A	08/25/94	2	0.2	√	100				UG/L
	IR06MW27A	08/25/94	0.3		√					UG/L
	IR06MW30A	11/03/93	24		√					UG/L
	IR06MW30A	02/15/94	7		√					UG/L
	IR06MW41A	11/08/93	2		√					UG/L
	IR06MW47F	11/04/91	1		√					UG/L
	IR06MW48F	01/08/92	1		√					UG/L
	IR06MW48F	11/08/93	2		√					UG/L
	IR06MW48F	02/14/94	2		√					UG/L
	IR06MW55F	12/27/93	11		√					UG/L
	IR06MW55F	08/16/94	4		√					UG/L
CIS-1,2-DICHLOROETHENE	IR06MW30A	11/03/93	240	61	√	6	√			UG/L
	IR06MW30A	02/15/94	340		√		√			UG/L
	IR06MW30A	05/18/94	230		√		√			UG/L
	IR06MW30A	08/23/94	180		√		√			UG/L
	IR06MW35A	11/04/93	7				√			UG/L
	IR06MW35A	02/15/94	9				√			UG/L
	IR06MW35A	05/13/94	8				√			UG/L
	IR06MW35A	08/19/94	9				√			UG/L
METHYLENE CHLORIDE	IR06MW22A	11/03/93	8	4	√	5	√			UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
VOC										
METHYLENE CHLORIDE	IR06MW32A	11/04/93	17	4	√	5	√			UG/L
TETRACHLOROETHENE	IR06MW30A	01/04/91	1	1	√	5				UG/L
	IR06MW30A	07/15/91	2		√					UG/L
	IR06MW30A	01/09/92	3		√					UG/L
	IR06MW30A	02/15/94	5		√					UG/L
TRICHLOROETHENE	IR06MW22A	01/03/91	3	2	√	5				UG/L
	IR06MW22A	07/15/91	3		√					UG/L
	IR06MW22A	08/25/94	2		√					UG/L
	IR06MW30A	01/04/91	3		√					UG/L
	IR06MW30A	07/15/91	3		√					UG/L
	IR06MW30A	01/09/92	5		√					UG/L
	IR06MW30A	11/03/93	10		√		√			UG/L
	IR06MW30A	02/15/94	20		√		√			UG/L
	IR06MW30A	05/18/94	14		√		√			UG/L
	IR06MW30A	08/23/94	10		√		√			UG/L
	IR06MW35A	06/11/90	5		√					UG/L
	IR06MW48F	11/04/91	4		√					UG/L
	IR06MW49F	10/31/91	4		√					UG/L
	IR06MW49F	01/06/92	4		√					UG/L
	IR06MW49F	11/08/93	4		√					UG/L
	IR06MW49F	02/16/94	2		√					UG/L
	IR06MW49F	05/16/94	2		√					UG/L
	IR06MW49F	08/19/94	4		√					UG/L
	IR06MW55F	12/27/93	14		√		√			UG/L
VINYL CHLORIDE	IR06MW22A	01/03/91	12	0.02	√	0.5	√			UG/L
	IR06MW22A	07/15/91	24		√		√			UG/L
	IR06MW22A	11/03/93	17		√		√			UG/L
	IR06MW22A	02/14/94	46		√		√			UG/L
	IR06MW22A	08/25/94	10		√		√			UG/L
	IR06MW23A	07/16/91	6		√		√			UG/L
	IR06MW23A	11/03/93	3		√		√			UG/L
	IR06MW23A	02/15/94	6		√		√			UG/L
	IR06MW23A	05/17/94	8		√		√			UG/L
	IR06MW23A	08/19/94	4		√		√			UG/L
	IR06MW30A	01/04/91	26		√		√			UG/L
	IR06MW30A	07/15/91	24		√		√			UG/L
	IR06MW30A	01/09/92	35		√		√			UG/L
	IR06MW30A	11/03/93	32		√		√			UG/L
	IR06MW30A	02/15/94	62		√		√			UG/L
	IR06MW30A	05/18/94	51		√		√			UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
VOC										
VINYL CHLORIDE	IR06MW30A	08/23/94	40	0.02	√	0.5	√			UG/L
	IR06MW35A	11/04/93	2		√		√			UG/L
	IR06MW35A	02/15/94	6		√		√			UG/L
	IR06MW35A	05/13/94	2		√		√			UG/L
	IR06MW35A	08/19/94	1		√		√			UG/L
	IR06MW40A	02/16/94	12		√		√			UG/L
	IR06MW40A	05/13/94	14		√		√			UG/L
	IR06MW40A	08/19/94	1		√		√			UG/L
	IR06MW42A	02/14/94	0.7		√		√			UG/L
	IR06MW48F	01/08/92	6		√		√			UG/L
	IR06MW48F	11/08/93	7		√		√			UG/L
	IR06MW48F	02/14/94	12		√		√			UG/L
	IR06MW48F	05/16/94	11		√		√			UG/L
	IR06MW48F	08/19/94	6		√		√			UG/L
SVOC										
1,4-DICHLOROBENZENE	IR06MW35A	06/11/90	5	0.5	√	5				UG/L
BIS(2-ETHYLHEXYL)PHTHALATE	IR06MW34A	11/04/93	5	5	√	4	√	360		UG/L
	IR06MW35A	11/04/93	20		√		√			UG/L
CARBAZOLE	IR06MW42A	11/08/93	47	3	√					UG/L
	IR06MW42A	05/16/94	53		√					UG/L
	IR06MW42A	08/26/94	33		√					UG/L
NAPHTHALENE	IR06MW42A	06/13/90	690	240	√					UG/L
	IR06MW42A	01/08/91	810		√					UG/L
	IR06MW42A	07/16/91	1,200		√					UG/L
	IR06MW42A	01/10/92	1,700		√					UG/L
	IR06MW42A	11/08/93	380		√					UG/L
	IR06MW42A	02/14/94	280		√					UG/L
	IR06MW42A	05/16/94	360		√					UG/L
PENTACHLOROPHENOL	IR06MW22A	01/06/92	3	0.6	√	1	√	8		UG/L
PHENANTHRENE	IR06MW30A	06/12/90	10	240				5	√	UG/L
	IR06MW30A	08/23/94	5						√	UG/L
	IR06MW32A	06/12/90	6						√	UG/L
	IR06MW32A	11/04/93	9						√	UG/L
	IR06MW32A	02/15/94	10						√	UG/L
	IR06MW32A	05/18/94	7						√	UG/L
	IR06MW32A	08/24/94	10						√	UG/L
	IR06MW34A	06/13/90	10						√	UG/L
	IR06MW34A	01/04/91	11						√	UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
SVOC										
PHENANTHRENE	IR06MW34A	07/15/91	6	240				5	✓	UG/L
	IR06MW34A	01/09/92	8						✓	UG/L
	IR06MW34A	11/04/93	5						✓	UG/L
	IR06MW42A	06/13/90	62						✓	UG/L
	IR06MW42A	01/08/91	160						✓	UG/L
	IR06MW42A	07/16/91	130						✓	UG/L
	IR06MW42A	01/10/92	130						✓	UG/L
	IR06MW42A	11/08/93	110						✓	UG/L
	IR06MW42A	02/14/94	74						✓	UG/L
	IR06MW42A	05/16/94	74						✓	UG/L
	IR06MW42A	08/26/94	5						✓	UG/L
PEST										
HEPTACHLOR EPOXIDE	IR06MW54F	05/25/95	0.03	0.01	✓	0.01	✓			UG/L
TPHEXT										
TPH-DIESEL	IR06MW22A	07/15/91	1,500	100a	✓					UG/L
	IR06MW22A	11/04/93	11,000		✓					UG/L
	IR06MW22A	02/14/94	1,800		✓					UG/L
	IR06MW22A	05/17/94	2,700		✓					UG/L
	IR06MW22A	08/30/94	3,100		✓					UG/L
	IR06MW23A	07/16/91	560		✓					UG/L
	IR06MW23A	11/03/93	600		✓					UG/L
	IR06MW23A	02/15/94	170		✓					UG/L
	IR06MW23A	05/17/94	420		✓					UG/L
	IR06MW27A	06/12/90	640		✓					UG/L
	IR06MW27A	07/16/91	1,200		✓					UG/L
	IR06MW27A	11/04/93	1,100		✓					UG/L
	IR06MW27A	02/15/94	700		✓					UG/L
	IR06MW27A	05/17/94	1,100		✓					UG/L
	IR06MW27A	09/01/94	690		✓					UG/L
	IR06MW30A	07/15/91	390		✓					UG/L
	IR06MW30A	11/03/93	860		✓					UG/L
	IR06MW30A	02/15/94	440		✓					UG/L
	IR06MW30A	05/18/94	530		✓					UG/L
	IR06MW30A	08/23/94	570		✓					UG/L
	IR06MW32A	06/12/90	650		✓					UG/L
	IR06MW32A	01/07/91	4,200		✓					UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
TPHEXT										
TPH-DIESEL	IR06MW32A	07/17/91	4,900	100a	√					UG/L
	IR06MW32A	11/04/93	2,900		√					UG/L
	IR06MW32A	02/15/94	5,400		√					UG/L
	IR06MW32A	05/18/94	2,900		√					UG/L
	IR06MW32A	08/24/94	5,800		√					UG/L
	IR06MW34A	11/04/93	590		√					UG/L
	IR06MW34A	02/17/94	380		√					UG/L
	IR06MW34A	05/18/94	440		√					UG/L
	IR06MW34A	08/19/94	130		√					UG/L
	IR06MW35A	11/04/93	560		√					UG/L
	IR06MW40A	11/08/93	510		√					UG/L
	IR06MW40A	02/16/94	200		√					UG/L
	IR06MW40A	08/19/94	120		√					UG/L
	IR06MW41A	01/03/91	3,500		√					UG/L
	IR06MW41A	07/16/91	730		√					UG/L
	IR06MW41A	11/08/93	850		√					UG/L
	IR06MW41A	02/16/94	490		√					UG/L
	IR06MW41A	05/13/94	520		√					UG/L
	IR06MW41A	08/19/94	520		√					UG/L
	IR06MW42A	07/16/91	1,900		√					UG/L
	IR06MW42A	11/08/93	3,200		√					UG/L
	IR06MW42A	02/14/94	2,100		√					UG/L
	IR06MW42A	05/16/94	3,900		√					UG/L
	IR06MW42A	08/26/94	1,100		√					UG/L
	IR06MW47F	11/08/93	1,000		√					UG/L
	IR06MW48F	11/08/93	760		√					UG/L
	IR06MW48F	05/16/94	140		√					UG/L
	IR06MW49F	11/08/93	410		√					UG/L
	IR06MW49F	02/16/94	1,300		√					UG/L
	IR06MW49F	05/16/94	2,300		√					UG/L
	IR06MW49F	08/19/94	2,200		√					UG/L
TPH-EXTRACTABLE UNKNOWN HYDRO.	IR06MW22A	01/06/92	7,300	100a	√					UG/L
	IR06MW27A	01/07/92	1,600		√					UG/L
	IR06MW41A	01/08/92	2,900		√					UG/L
TPH-MOTOR OIL	IR06MW22A	02/14/94	2,200	100a	√					UG/L
	IR06MW22A	05/17/94	1,400		√					UG/L
	IR06MW22A	08/30/94	1,500		√					UG/L
	IR06MW23A	05/17/94	380		√					UG/L
	IR06MW23A	08/19/94	360		√					UG/L
	IR06MW27A	02/15/94	490		√					UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
TPHEXT										
TPH-MOTOR OIL	IR06MW27A	05/17/94	1,700	100a	√					UG/L
	IR06MW27A	09/01/94	150		√					UG/L
	IR06MW30A	02/15/94	210		√					UG/L
	IR06MW30A	05/18/94	160		√					UG/L
	IR06MW30A	08/23/94	180		√					UG/L
	IR06MW32A	02/15/94	1,600		√					UG/L
	IR06MW32A	05/18/94	830		√					UG/L
	IR06MW32A	08/24/94	1,300		√					UG/L
	IR06MW34A	02/17/94	660		√					UG/L
	IR06MW34A	05/18/94	230		√					UG/L
	IR06MW34A	08/19/94	380		√					UG/L
	IR06MW35A	02/15/94	350		√					UG/L
	IR06MW35A	05/13/94	510		√					UG/L
	IR06MW35A	08/19/94	600		√					UG/L
	IR06MW40A	05/13/94	120		√					UG/L
	IR06MW40A	08/19/94	190		√					UG/L
	IR06MW41A	02/16/94	160		√					UG/L
	IR06MW41A	05/13/94	190		√					UG/L
	IR06MW42A	02/14/94	450		√					UG/L
	IR06MW42A	05/16/94	540		√					UG/L
	IR06MW42A	08/26/94	450		√					UG/L
	IR06MW44A	08/25/94	3,100		√					UG/L
	IR06MW45A	08/25/94	1,400		√					UG/L
	IR06MW46A	08/25/94	470		√					UG/L
	IR06MW47F	02/16/94	390		√					UG/L
	IR06MW47F	05/18/94	300		√					UG/L
	IR06MW48F	02/14/94	700		√					UG/L
	IR06MW48F	05/16/94	1,100		√					UG/L
	IR06MW48F	08/19/94	550		√					UG/L
	IR06MW49F	02/16/94	410		√					UG/L
	IR06MW49F	05/16/94	680		√					UG/L
	IR06MW49F	08/19/94	2,200		√					UG/L
	IR06MW50F	05/25/95	630		√					UG/L
	IR06MW51F	08/01/95	220		√					UG/L
	IR06MW52F	05/25/95	700		√					UG/L
	IR06MW53F	03/15/94	1,000		√					UG/L
	IR06MW53F	05/25/95	270		√					UG/L
	IR06MW54F	05/25/95	290		√					UG/L
	IR06MW55F	08/17/94	390		√					UG/L
	IR06MW55F	05/25/95	590		√					UG/L

TABLE 4.4-8 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-06
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
TPHEXT										
TPH-MOTOR OIL	IR06MW56F	08/17/94	360	100a	√					UG/L
	IR06MW56F	05/25/95	560		√					UG/L
	IR06MW57F	09/13/94	460		√					UG/L
	IR06MW57F	05/24/95	680		√					UG/L
	IR06MW58F	06/21/94	120		√					UG/L
	IR06MW58F	08/17/94	560		√					UG/L
	IR06MW58F	05/24/95	410		√					UG/L
TRPH										
TRPH	IR06MW51F	08/01/95	500	100a	√					UG/L
	IR06MW53F	03/15/94	800		√					UG/L
O&G										
TOTAL OIL & GREASE	IR06MW22A	01/07/91	6,000	100a	√					UG/L
	IR06MW22A	07/15/91	460		√					UG/L
	IR06MW23A	01/07/91	260		√					UG/L
	IR06MW30A	01/04/91	420		√					UG/L
	IR06MW32A	01/07/91	3,400		√					UG/L
	IR06MW32A	07/17/91	390		√					UG/L
	IR06MW41A	01/03/91	870		√					UG/L
	IR06MW41A	01/08/92	4,700		√					UG/L

Notes:

MCL Maximum contaminant level
NAWQC National Ambient Water Quality Criteria
O&G Total oil and grease
PEST Pesticides/polychlorinated biphenyls
PRG Preliminary remediation goal
SVOC Semivolatile organic compounds
TPHEXT Total petroleum hydrocarbons-extractable
TPHPRG Total petroleum hydrocarbons-purgeable
TRPH Total recoverable petroleum hydrocarbons
UG/L Microgram per liter
VOC Volatile organic compounds

a TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-1

SUMMARY OF DIP TANK SLUDGE ANALYTICAL TESTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
PA25SU06	9304X862				✓		✓	✓	✓	✓	✓		✓				✓	✓		✓

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-2

STATISTICAL SUMMARY OF DIP TANK SLUDGE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	19,400	19,400	19,400	MG/KG	3.4	1	1	76,700	0	100,000	0		
	ARSENIC	11.8	11.8	11.8	MG/KG	0.30	1	1	0.32	1	2.0	1		
	BARIUM	5,490	5,490	5,490	MG/KG	0.62	1	1	5,340	1	100,000	0		
	CADMIUM	379	379	379	MG/KG	0.45	1	1	9.0	1	852	0		
	CALCIUM	15,700	15,700	15,700	MG/KG	12.3	1	1						
	CHROMIUM	1,060	1,060	1,060	MG/KG	0.38	1	1	211	1	1,580	0		
	CHROMIUM VI	5.5	5.5	5.5	MG/KG	0.05	1	1	0.20	1	225	0		
	COBALT	55.6	55.6	55.6	MG/KG	0.64	1	1						
	COPPER	2,200	2,200	2,200	MG/KG	0.04	1	1	2,850	0	63,300	0		
	IRON	175,000	175,000	175,000	MG/KG	3.6	1	1						
	MAGNESIUM	4,680	4,680	4,680	MG/KG	19.6	1	1						
	MANGANESE	845	845	845	MG/KG	0.17	1	1	382	1	8,300	0		
	MERCURY	2.1	2.1	2.1	MG/KG	0.05	1	1	23.0	0	511	0		
	MOLYBDENUM	68.1	68.1	68.1	MG/KG	0.53	1	1	383	0	8,520	0		
	NICKEL	828	828	828	MG/KG	0.96	1	1	150	1	34,100	0		
	POTASSIUM	1,260	1,260	1,260	MG/KG	113	1	1						
	SILVER	28.9	28.9	28.9	MG/KG	0.40	1	1	383	0	8,520	0		
	SODIUM	9,650	9,650	9,650	MG/KG	24.5	1	1						
	VANADIUM	44.4	44.4	44.4	MG/KG	0.66	1	1	537	0	11,900	0		
	ZINC	71,300	71,300	71,300	MG/KG	0.28	1	1	23,000	1	100,000	0		
SVOC	PENTACHLOROPHENOL	50,000	50,000	50,000	UG/KG	11,000	1	1	2,500	1	7,900	1		
PEST	AROCLOR-1260	7,100	7,100	7,100	UG/KG	35	1	1	66	1	340	1		

TABLE 4.11-2 (Continued)

STATISTICAL SUMMARY OF DIP TANK SLUDGE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
TPHEXT	TPH-DIESEL	900	900	900	MG/KG	53	1	1	1,000	0i				
O&G	TOTAL OIL & GREASE	7,800	7,800	7,800	MG/KG	27	1	1	1,000	1i				

TABLE 4.11-2 (Continued)

STATISTICAL SUMMARY OF DIP TANK SLUDGE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/KG	Microgram per kilogram
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures.
Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples.
The range of HPAL values for chromium, cobalt, and nickel are 114.618 to 114.618, 21.191 to 21.191, and 114.215 to 114.215 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-3

DIP TANK SLUDGE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25SU06
Sampling Depth (feet bgs)	0.00
Sample Number	9304X862
Sample Date	01/25/93
Metal (mg/kg)	
ALUMINUM	19,400
ARSENIC	11.8 *#
BARIUM	5,490 *
CADMIUM	379 *
CALCIUM	15,700
CHROMIUM	1,060 *
CHROMIUM VI	5.5 *
COBALT	55.6
COPPER	2,200
IRON	175,000
MAGNESIUM	4,680
MANGANESE	845 *
MERCURY	2.1
MOLYBDENUM	68.1
NICKEL	828 *
POTASSIUM	1,260
SILVER	28.9
SODIUM	9,650
VANADIUM	44.4
ZINC	71,300 *
Semivolatile Organic Compound (ug/kg)	
PENTACHLOROPHENOL	50,000 *#
Pesticide/Polychlorinated Biphenyl (ug/kg)	
AROCLOR-1260	7,100 *#
TPH-Extractable (mg/kg)	
TPH-DIESEL	900
Oil and Grease (mg/kg)	
TOTAL OIL & GREASE	7,800

TABLE 4.11-3 (Continued)

DIP TANK SLUDGE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25SU06
Sampling Depth (feet bgs)	0.00
Sample Number	9304X862
Sample Date	01/25/93
Percent Moisture (%)	
% SOLIDS	94.0
pH (pH units)	
PH	7.0

Notes:

%	Percent
bgs	Below ground surface
mg/kg	Milligram per kilogram
NA	Not analyzed
ND()	Not detected (detection limit in parentheses)
µg/kg	Microgram per kilogram
*	Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for residential use
#	Detected concentration greater than U.S. Environmental Protection Agency Region IX PRG for industrial use
▒	Detected concentration greater than at least one screening criterion.

TABLE 4.11-4

SUMMARY OF SUMP LIQUID ANALYTICAL TESTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
PA25SU01	9303X855						✓	✓		✓			✓				✓	✓		✓

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-5

STATISTICAL SUMMARY OF SUMP LIQUID ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
METAL	BARIUM	55.8	55.8	55.8	UG/L	0.60	1	1	2,600	0				
	CALCIUM	53,000	53,000	53,000	UG/L	60.0	1	1						
	CHROMIUM	482	482	482	UG/L	1.9	1	1						
	IRON	1,050	1,050	1,050	UG/L	25.3	1	1						
	LEAD	1.9	1.9	1.9	UG/L	1.0	1	1	4.0	0			8.1	0
	MAGNESIUM	3,850	3,850	3,850	UG/L	62.2	1	1						
	MANGANESE	136	136	136	UG/L	0.60	1	1	180	0				
	MOLYBDENUM	4.9	4.9	4.9	UG/L	2.7	1	1	180	0				
	NICKEL	17.7	17.7	17.7	UG/L	17.4	1	1	730	0			8.2	1
	POTASSIUM	76,500	76,500	76,500	UG/L	600	1	1						
	SODIUM	41,300	41,300	41,300	UG/L	59.7	1	1						
	VANADIUM	3.0	3.0	3.0	UG/L	1.8	1	1	260	0				
VOC	1,1,2,2-TETRACHLOROETHANE	1	1	1	UG/L	10	1	1	0.06	1				
	1,2-DICHLOROETHANE	2	2	2	UG/L	10	1	1	0.1	1				
	4-METHYL-2-PENTANONE	7	7	7	UG/L	10	1	1	2,900	0				
	BENZENE	1	1	1	UG/L	10	1	1	0.4	1				
	CHLOROBENZENE	2	2	2	UG/L	10	1	1	39	0				
	CHLOROFORM	2	2	2	UG/L	10	1	1	0.2	1				
	ETHYLBENZENE	1	1	1	UG/L	10	1	1	1,300	0				
	METHYLENE CHLORIDE	3,500	3,500	3,500	UG/L	10	1	1	4	1				
	TETRACHLOROETHENE	2	2	2	UG/L	10	1	1	1	1				
	TOLUENE	7	7	7	UG/L	10	1	1	720	0				

TABLE 4.11-5 (Continued)

STATISTICAL SUMMARY OF SUMP LIQUID ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
	TRICHLOROETHENE	26	26	26	UG/L	10	1	1	2	1				
	VINYL CHLORIDE	5	5	5	UG/L	10	1	1	0.02	1				
	XYLENE (TOTAL)	7	7	7	UG/L	10	1	1	1,400	0				
SVOC	2,4-DIMETHYLPHENOL	560	560	560	UG/L	2,500	1	1	730	0				
	2-METHYLPHENOL	3,300	3,300	3,300	UG/L	2,500	1	1	1,800	1				
	4-METHYLPHENOL	5,700	5,700	5,700	UG/L	2,500	1	1	180	1				
	PHENOL	17,000	17,000	17,000	UG/L	2,500	1	1	22,000	0				
PEST	AROCLOR-1260	140	140	140	UG/L	11	1	1	0.009	1				
TPHPRG	TPH-PURGEABLE UNKNOWN HYDROCA.	620	620	620	UG/L	500	1	1	100	1i				
TPHEXT	TPH-EXTRACTABLE UNKNOWN HYDRO.	15,000	15,000	15,000	UG/L	1,000	1	1	100	1i				

TABLE 4.11-5 (Continued)

STATISTICAL SUMMARY OF SUMP LIQUID ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures.
Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-6

SUMP LIQUID ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25SU01
Sample Number	9303X855
Sample Date	01/22/93
Metal (ug/L)	
BARIUM	55.8
CALCIUM	53,000
CHROMIUM	482
IRON	1,050
LEAD	1.9
MAGNESIUM	3,850
MANGANESE	136
MOLYBDENUM	4.9
NICKEL	17.7 B
POTASSIUM	76,500
SODIUM	41,300
VANADIUM	3.0
Volatile Organic Compound (ug/L)	
1,1,2,2-TETRACHLOROETHANE	1 *
1,2-DICHLOROETHANE	2 *
4-METHYL-2-PENTANONE	7
BENZENE	1 *
CHLOROBENZENE	2
CHLOROFORM	2 *
ETHYLBENZENE	1
METHYLENE CHLORIDE	3,500 *
TETRACHLOROETHENE	2 *
TOLUENE	7
TRICHLOROETHENE	26 *
VINYL CHLORIDE	5 *
XYLENE (TOTAL)	7
Semivolatile Organic Compound (ug/L)	
2,4-DIMETHYLPHENOL	560
2-METHYLPHENOL	3,300 *
4-METHYLPHENOL	5,700 *
PHENOL	17,000
Pesticide/Polychlorinated Biphenyl (ug/L)	
AROCLOR-1260	140 *

TABLE 4.11-6 (Continued)

SUMP LIQUID ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25SU01
Sample Number	9303X855
Sample Date	01/22/93
TPH-Purgeable (ug/L)	
TPH-PURGEABLE UNKNOWN HYDROCARBON	620
TPH-Extractable (ug/L)	
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	15,000

Notes:

NA	Not analyzed
ND()	Not detected (detection limit in parentheses)
µg/L	Microgram per liter
*	Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for tap water
ß	Detected concentration greater than National Ambient Water Quality Criteria (NAWQC) based on 4-day average study of saltwater aquatic life
▒	Detected concentration greater than at least one screening criterion.

TABLE 4.11-7

SUMMARY OF FLOOR SCRAPE ANALYTICAL TESTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
PA25FS08	9304X863						✓	✓	✓	✓	✓		✓				✓	✓		✓

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-8

STATISTICAL SUMMARY OF FLOOR SCRAPE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	7,810	7,810	7,810	MG/KG	3.3	1	1	76,700	0	100,000	0		
	ANTIMONY	334	334	334	MG/KG	3.1	1	1	30.7	1	681	0		
	BARIUM	639	639	639	MG/KG	0.60	1	1	5,340	0	100,000	0		
	CADMIUM	14.5	14.5	14.5	MG/KG	0.43	1	1	9.0	1	852	0		
	CALCIUM	2,980	2,980	2,980	MG/KG	11.9	1	1						
	CHROMIUM	420	420	420	MG/KG	0.37	1	1	211	1	1,580	0		
	COBALT	20.2	20.2	20.2	MG/KG	0.62	1	1						
	COPPER	120,000	120,000	120,000	MG/KG	0.04	1	1	2,850	1	63,300	1		
	IRON	93,100	93,100	93,100	MG/KG	3.5	1	1						
	MAGNESIUM	1,290	1,290	1,290	MG/KG	18.9	1	1						
	MANGANESE	800	800	800	MG/KG	0.16	1	1	382	1	8,300	0		
	MERCURY	0.30	0.30	0.30	MG/KG	0.05	1	1	23.0	0	511	0		
	MOLYBDENUM	57.0	57.0	57.0	MG/KG	0.51	1	1	383	0	8,520	0		
	NICKEL	865	865	865	MG/KG	0.93	1	1	150	1	34,100	0		
	SILVER	30.2	30.2	30.2	MG/KG	0.39	1	1	383	0	8,520	0		
	SODIUM	2,160	2,160	2,160	MG/KG	23.7	1	1						
	VANADIUM	18.3	18.3	18.3	MG/KG	0.64	1	1	537	0	11,900	0		
	ZINC	4,330	4,330	4,330	MG/KG	0.27	1	1	23,000	0	100,000	0		
PEST	AROCLOR-1260	60,000	60,000	60,000	UG/KG	1,700	1	1	66	1	340	1		
TPHPRG	TPH-GASOLINE	6	6	6	MG/KG	5	1	1	100	0i				
TPHEXT	TPH-DIESEL	11,000	11,000	11,000	MG/KG	510	1	1	1,000	1i				
O&G	TOTAL OIL & GREASE	170,000	170,000	170,000	MG/KG	26	1	1	1,000	1i				

TABLE 4.11-8 (Continued)

STATISTICAL SUMMARY OF FLOOR SCRAPE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/KG	Microgram per kilogram
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 47.211 to 47.211, 10.879 to 10.879, and 33.698 to 33.698 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-9

FLOOR SCRAPE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25FS08
Sampling Depth (feet bgs)	0.00
Sample Number	9304X863
Sample Date	01/25/93
Metal (mg/kg)	
ALUMINUM	7,810
ANTIMONY	334 *
BARIUM	639
CADMIUM	14.5 *
CALCIUM	2,980
CHROMIUM	420 *
COBALT	20.2
COPPER	120,000 *#
IRON	93,100
MAGNESIUM	1,290
MANGANESE	800 *
MERCURY	0.30
MOLYBDENUM	57.0
NICKEL	865 *
SILVER	30.2
SODIUM	2,160
VANADIUM	18.3
ZINC	4,330
Pesticide/Polychlorinated Biphenyl (ug/kg)	
AROCLOR-1260	60,000 *#
TPH-Purgeable (mg/kg)	
TPH-GASOLINE	6
TPH-Extractable (mg/kg)	
TPH-DIESEL	11,000
Oil and Grease (mg/kg)	
TOTAL OIL & GREASE	170,000
Percent Moisture (%)	
% SOLIDS	97.2

TABLE 4.11-9 (Continued)

FLOOR SCRAPE ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25FS08
Sampling Depth (feet bgs)	0.00
Sample Number	9304X863
Sample Date	01/25/93
pH (pH units)	
PH	7.0

Notes:

%	Percent
bgs	Below ground surface
mg/kg	Milligram per kilogram
NA	Not analyzed
ND()	Not detected (detection limit in parentheses)
µg/kg	Microgram per kilogram
*	Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for residential use
#	Detected concentration greater than U.S. Environmental Protection Agency Region IX PRG for industrial use
▒	Detected concentration greater than at least one screening criterion.

TABLE 4.11-10

SUMMARY OF SOIL ANALYTICAL TESTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR25B012	9347A105						✓			✓			✓				✓	✓	✓	✓
IR25B012	9347A106						✓			✓			✓				✓	✓	✓	✓
IR25B012	9347A107						✓			✓			✓				✓	✓	✓	✓
IR25B012	9347A108						✓			✓			✓				✓	✓	✓	✓
IR25B013	9347A100						✓			✓	✓		✓				✓	✓	✓	✓
IR25B013	9347A101						✓			✓	✓		✓				✓	✓	✓	✓
IR25B013	9347A102						✓			✓	✓		✓				✓	✓	✓	✓
IR25MW11A	9347A111						✓			✓	✓		✓				✓	✓	✓	
IR25MW11A	9347A112						✓			✓			✓				✓	✓	✓	✓
IR25MW11A	9347A113						✓			✓			✓				✓	✓	✓	
IR25MW11A	9347A114						✓			✓			✓				✓	✓	✓	✓
IR25MW15A1	9423C256						✓		✓	✓	✓		✓				✓	✓	✓	✓
IR25MW15A1	9423C257						✓		✓	✓	✓		✓				✓	✓	✓	✓
IR25MW15A1	9423C258						✓		✓	✓	✓		✓				✓	✓	✓	✓
IR25MW15A2	9421C244						✓			✓	✓		✓				✓	✓	✓	✓
IR25MW16A	9421A854						✓		✓	✓	✓		✓				✓	✓	✓	✓
IR25MW16A	9421A855						✓		✓	✓	✓		✓				✓	✓	✓	✓
IR25MW16A	9421A856						✓		✓	✓	✓		✓				✓	✓	✓	✓
IR25MW16A	9421A857						✓		✓	✓	✓		✓				✓	✓	✓	✓
PA25B002	9304N075						✓	✓	✓		✓		✓				✓	✓		✓
PA25B002	9304N076						✓	✓	✓		✓		✓				✓	✓		✓
PA25B009	9306H401						✓	✓			✓		✓				✓	✓		✓
PA25SS04	9303X851						✓	✓		✓	✓		✓				✓	✓		✓
PA25SS10	9307A608						✓	✓		✓			✓				✓	✓		✓

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-11

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	4,380	34,800	12,000	MG/KG	4.0	24	24	76,700	0	100,000	0		
	ANTIMONY	9.5	73.8	31.8	MG/KG	5.3	11	3	30.7	1	681	0	9.05	3
	ARSENIC	0.93	6.0	3.5	MG/KG	0.48	24	17	0.32	17	2.0	12	11.10	0
	BARIUM	19.4	241	101	MG/KG	1.2	24	23	5,340	0	100,000	0	314.36	0
	BERYLLIUM	0.22	0.48	0.32	MG/KG	0.08	24	6	0.14	6	1.1	0	0.71	0
	CADMIUM	0.38	3.3	1.8	MG/KG	0.59	24	3	9.0	0	852	0	3.14	1
	CALCIUM	1,310	12,200	4,780	MG/KG	10.1	24	16						
	CHROMIUM	34.4	1,670	322	MG/KG	0.47	24	24	211	8	1,580	1	h	7
	COBALT	7.5	87.1	31.8	MG/KG	0.59	24	24					h	1
	COPPER	4.6	485	42.7	MG/KG	0.31	24	24	2,850	0	63,300	0	124.31	1
	IRON	9,930	60,200	31,200	MG/KG	3.0	24	24						
	LEAD	2.4	1,230	62.7	MG/KG	0.65	24	22	130	1	1,000	1	8.99	6
	MAGNESIUM	3,210	189,000	41,700	MG/KG	13.8	24	24						
	MANGANESE	80.8	1,400	532	MG/KG	0.15	24	24	382	14	8,300	0	1431.18	0
	MERCURY	0.09	0.56	0.21	MG/KG	0.06	24	17	23.0	0	511	0	2.28	0
	MOLYBDENUM	0.71	2.5	1.4	MG/KG	1.1	23	3	383	0	8,520	0	2.68	0
	NICKEL	47.2	1,860	511	MG/KG	1.6	24	24	150	17	34,100	0	h	5
	POTASSIUM	280	1,770	652	MG/KG	95.9	24	20						
	SILVER	0.66	1.0	0.83	MG/KG	0.47	24	2	383	0	8,520	0	1.43	0
	SODIUM	93.4	1,370	497	MG/KG	30.7	24	10						
	THALLIUM	0.53	0.53	0.53	MG/KG	0.49	22	1					0.81	0
	VANADIUM	27.5	76.7	54.2	MG/KG	0.65	24	24	537	0	11,900	0	117.17	0

TABLE 4.11-11 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	ZINC	17.2	1,770	176	MG/KG	0.55	24	13	23,000	0	100,000	0	109.86	1
VOC	1,2-DICHLOROETHANE	20	16,000	3,500	UG/KG	1,000,000	22	8	440	3	980	2		
	1,2-DICHLOROETHENE (TOTAL)	11	2,100	320	UG/KG	87,000	22	7	75,000	0	270,000	0		
	2-BUTANONE	12	16	14	UG/KG	12	22	2	8,700,000	0	34,000,000	0		
	ACETONE	13	67	31	UG/KG	19	22	6	2,000,000	0	8,400,000	0		
	CHLOROBENZENE	6	420	210	UG/KG	75,000	22	2	160,000	0	570,000	0		
	ETHYLBENZENE	3	1,100	550	UG/KG	25	22	2	2,900,000	0	3,100,000	0		
	METHYLENE CHLORIDE	4	4	4	UG/KG	12	22	3	11,000	0	25,000	0		
	TETRACHLOROETHENE	4	750,000	66,000	UG/KG	700,000	22	12	7,000	2	25,000	2		
	TOLUENE	0.9	0.9	0.9	UG/KG	13	22	1	1,900,000	0	2,700,000	0		
	TRICHLOROETHENE	5	47,000	9,400	UG/KG	26	22	5	7,100	1	17,000	1		
	VINYL CHLORIDE	26	26	26	UG/KG	12	22	1	5	1	11	1		
	XYLENE (TOTAL)	5,200	5,200	5,200	UG/KG	36	22	1	980,000	0	980,000	0		
SVOC	1,2,4-TRICHLOROBENZENE	140	140	140	UG/KG	370	24	1	620,000	0	5,900,000	0		
	1,2-DICHLOROBENZENE	160	66,000	11,000	UG/KG	2,300	24	7	2,300,000	0	2,300,000	0		
	1,3-DICHLOROBENZENE	12	12	12	UG/KG	390	24	1	2,800,000	0	2,800,000	0		
	1,4-DICHLOROBENZENE	72	17,000	4,000	UG/KG	3,000	24	5	7,400	1	20,000	0		
	2,4-DIMETHYLPHENOL	3,100	4,200	3,700	UG/KG	7,000	24	2	1,300,000	0	14,000,000	0		
	2-METHYLNAPHTHALENE	52	56,000	11,000	UG/KG	7,800	24	6	800,000	0	800,000	0		
	4-METHYLPHENOL	110	1,300	710	UG/KG	1,200	24	2	330,000	0	3,400,000	0		
	ACENAPHTHENE	22	2,300	650	UG/KG	5,900	24	4	360,000	0	360,000	0		
	ANTHRACENE	1,700	1,700	1,700	UG/KG	21,000	24	1	19,000	0	19,000	0		

TABLE 4.11-11 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	BENZO(A)ANTHRACENE	250	420	340	UG/KG	380	23	2	610	0	2,600	0		
	BENZO(A)PYRENE	210	210	210	UG/KG	370	23	1	61	1	260	0		
	BENZO(B)FLUORANTHENE	220	270	250	UG/KG	380	23	2	610	0	2,600	0		
	BENZO(K)FLUORANTHENE	190	340	270	UG/KG	380	23	2	610	0	26,000	0		
	CHRYSENE	230	540	380	UG/KG	660	23	4	6,100	0	24,000	0		
	DIBENZOFURAN	41	41	41	UG/KG	430	24	1	260,000	0	2,700,000	0		
	FLUORANTHENE	240	480	360	UG/KG	380	24	2	2,600,000	0	27,000,000	0		
	FLUORENE	3,500	4,500	4,000	UG/KG	17,000	24	2	300,000	0	300,000	0		
	NAPHTHALENE	19,000	19,000	19,000	UG/KG	21,000	24	1	800,000	0	800,000	0		
	PHENANTHRENE	170	14,000	5,700	UG/KG	8,600	24	4	800,000	0	800,000	0		
	PYRENE	230	5,500	1,700	UG/KG	5,600	24	4	2,000,000	0	20,000,000	0		
PEST	4,4'-DDD	2	2	2	UG/KG	4	21	1	1,900	0	7,900	0		
	ALDRIN	4	4	4	UG/KG	2	21	1	26	0	110	0		
	ALPHA-CHLORDANE	0.1	5	3	UG/KG	2	21	2	340	0	1,500	0		
	ENDOSULFAN SULFATE	5	5	5	UG/KG	4	21	1	3,300	0	34,000	0		
	ENDRIN ALDEHYDE	3	3	3	UG/KG	4	21	1	20,000	0	200,000	0		
	GAMMA-CHLORDANE	4	4	4	UG/KG	2	21	1	340	0	1,500	0		
	HEPTACHLOR	4	4	4	UG/KG	2	21	1	99	0	420	0		
	AROCLOR-1260	22	3,800	1,300	UG/KG	190	21	5	66	2	340	2		
TPHPRG	TPH-GASOLINE	0.7	1,300	230	MG/KG	160	24	9	100	3i				
	TPH-PURGEABLE UNKNOWN HYDROCA.	4	4	4	MG/KG	1	4	1	100	0i				
TPHEXT	TPH-DIESEL	10	19,000	2,900	MG/KG	260	24	10	1,000	3i				

TABLE 4.11-11 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	TPH-EXTRACTABLE UNKNOWN HYDRO.	13	3,400	1,200	MG/KG	71	4	3	1,000	1i				
	TPH-MOTOR OIL	13	21,000	5,300	MG/KG	2,500	9	4	1,000	1i				
TRPH	TRPH	6	21,000	4,100	MG/KG	330	19	12	1,000	3i				
O&G	TOTAL OIL & GREASE	110	35,000	14,000	MG/KG	42	5	5	1,000	4i				

TABLE 4.11-11 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/KG	Microgram per kilogram
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 88.365 to 1468.332, 17.428 to 144.109, and 79.847 to 3817.093 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-12

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25B012	IR25B012	IR25B012	IR25B012	IR25B013	IR25B013	IR25B013
Sampling Depth (feet bgs)	1.25	6.25	11.25	16.25	1.25	6.25	11.25
Sample Number	9347A105	9347A106	9347A107	9347A108	9347A100	9347A101	9347A102
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93	11/23/93	11/23/93	11/23/93
Metal (mg/kg)							
ALUMINUM	9,030	10,700	8,950	11,700	11,800	9,110	7,580
ANTIMONY	NA	NA	NA	NA	NA	NA	NA
ARSENIC	ND (3.1)	5.4 *#	4.4 *#	4.1 *#	5.3 *#	4.2 *#	ND (3.3)
BARIUM	109	123	56.7	76.7	125	71.3	30.0
BERYLLIUM	ND (0.29)	ND (0.27)	ND (0.28)	ND (0.30)	ND (0.25)	ND (0.34)	ND (0.22)
CADMIUM	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.27)	ND (0.29)	ND (0.28)
CALCIUM	ND (1,810)	ND (2,310)	ND (1,550)	2,790	6,940	ND (1,240)	ND (1,910)
CHROMIUM	167	152	179	162	116	112 a	85.5
COBALT	41.3	18.1	17.6	20.1	26.3	15.6	11.8
COPPER	13.9	21.0	10.6	20.1	28.5	10.2	9.2
IRON	25,000	25,600	23,900	27,200	23,700	30,700	18,900
LEAD	7.2	5.9	4.7	13.5 a	8.6	5.6	2.7
MAGNESIUM	22,400	19,100	12,700	24,100	27,300	3,800	5,810
MANGANESE	784 *	255	389 *	395 *	821 *	148	368
MERCURY	0.16	0.38	0.19	0.19	0.23	0.21	0.09
MOLYBDENUM	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.0)	ND (1.1)	ND (1.1)
NICKEL	406 *	247 *	246 *	282 *	316 *	97.8 a	112
POTASSIUM	331	376	351	465	433	310	327
SILVER	ND (0.57)	ND (0.56)	ND (0.57)	ND (0.56)	ND (0.54)	ND (0.58)	ND (0.56)
SODIUM	ND (344)	ND (906)	ND (328)	ND (574)	ND (871)	ND (627)	ND (535)
THALLIUM	ND (0.50)	ND (0.49)	ND (0.49)	ND (0.49)	ND (0.47)	ND (0.51)	ND (0.49)
VANADIUM	55.0	55.7	59.3	53.2	41.6	76.7	43.7
ZINC	ND (35.1)	ND (48.4)	ND (29.3)	ND (43.7)	ND (43.6)	ND (33.8)	ND (29.5)
Volatile Organic Compound (ug/kg)							
1,2-DICHLOROETHANE	ND (12)	27	86	20	ND (56)	ND (1,500)	11,000 *#
1,2-DICHLOROETHENE (TOTAL)	ND (12)	12	ND (12)	20	ND (56)	ND (1,500)	2,100
2-BUTANONE	ND (12)	ND (12)	16	ND (12)	ND (56)	ND (1,500)	ND (5,900)
ACETONE	13	22	67	17	50	ND (1,500)	ND (5,900)
CHLOROBENZENE	ND (12)	ND (12)	ND (12)	ND (12)	ND (56)	ND (1,500)	ND (5,900)
ETHYLBENZENE	ND (12)	ND (12)	ND (12)	ND (12)	ND (56)	ND (1,500)	ND (5,900)
METHYLENE CHLORIDE	ND (12)	4	ND (12)	4	ND (56)	ND (1,500)	ND (5,900)
TETRACHLOROETHENE	7	21	ND (12)	10	860	ND (1,500)	41,000 *#
TOLUENE	ND (12)	ND (12)	ND (12)	ND (12)	ND (56)	ND (1,500)	ND (5,900)
TRICHLOROETHENE	ND (12)	5	ND (12)	ND (12)	57	ND (1,500)	ND (5,900)
VINYL CHLORIDE	ND (12)	ND (12)	ND (12)	26 *#	ND (56)	ND (1,500)	ND (5,900)

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25B012	IR25B012	IR25B012	IR25B012	IR25B013	IR25B013	IR25B013
Sampling Depth (feet bgs)	1.25	6.25	11.25	16.25	1.25	6.25	11.25
Sample Number	9347A105	9347A106	9347A107	9347A108	9347A100	9347A101	9347A102
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93	11/23/93	11/23/93	11/23/93
Volatile Organic Compound (ug/kg)							
XYLENE (TOTAL)	ND (12)	ND (12)	ND (12)	ND (12)	ND (56)	ND (1,500)	ND (5,900)
Semivolatile Organic Compound (ug/kg)							
1,2,4-TRICHLOROBENZENE	ND (400)	ND (390)	ND (390)	ND (390)	140	ND (400)	ND (2,000)
1,2-DICHLOROBENZENE	ND (400)	ND (390)	ND (390)	160	170	590	11,000
1,3-DICHLOROBENZENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
1,4-DICHLOROBENZENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	160	2,500
2,4-DIMETHYLPHENOL	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	3,100
2-METHYLNAPHTHALENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
4-METHYLPHENOL	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	1,300
ACENAPHTHENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
ANTHRACENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
BENZO(A)ANTHRACENE	ND (400)	ND (390)	ND (390)	ND (390)	250	ND (400)	ND (2,000)
BENZO(A)PYRENE	ND (400)	ND (390)	ND (390)	ND (390)	210 *	ND (400)	ND (2,000)
BENZO(B)FLUORANTHENE	ND (400)	ND (390)	ND (390)	ND (390)	220	ND (400)	ND (2,000)
BENZO(K)FLUORANTHENE	ND (400)	ND (390)	ND (390)	ND (390)	190	ND (400)	ND (2,000)
CHRYSENE	ND (400)	ND (390)	ND (390)	ND (390)	230	ND (400)	ND (2,000)
DIBENZOFURAN	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
FLUORANTHENE	ND (400)	ND (390)	ND (390)	ND (390)	240	ND (400)	ND (2,000)
FLUORENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
NAPHTHALENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
PHENANTHRENE	ND (400)	ND (390)	ND (390)	ND (390)	ND (380)	ND (400)	ND (2,000)
PYRENE	ND (400)	ND (390)	ND (390)	ND (390)	230	ND (400)	ND (2,000)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (4)	ND (4)	ND (4)	ND (4)	ND (38)	ND (4)	ND (4)
ALDRIN	ND (2)	ND (2)	ND (2)	ND (2)	ND (19)	ND (2)	ND (2)
ALPHA-CHLORDANE	ND (2)	ND (2)	ND (2)	ND (2)	ND (19)	ND (2)	ND (2)
ENDOSULFAN SULFATE	ND (4)	ND (4)	ND (4)	ND (4)	ND (38)	ND (4)	ND (4)
ENDRIN ALDEHYDE	ND (4)	ND (4)	ND (4)	ND (4)	ND (38)	ND (4)	ND (4)
GAMMA-CHLORDANE	ND (2)	ND (2)	ND (2)	ND (2)	ND (19)	ND (2)	ND (2)
HEPTACHLOR	ND (2)	ND (2)	ND (2)	ND (2)	ND (19)	ND (2)	ND (2)
AROCLOR-1260	ND (40)	46	ND (39)	59	2,400 *#	ND (40)	ND (39)

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25B012	IR25B012	IR25B012	IR25B012	IR25B013	IR25B013	IR25B013
Sampling Depth (feet bgs)	1.25	6.25	11.25	16.25	1.25	6.25	11.25
Sample Number	9347A105	9347A106	9347A107	9347A108	9347A100	9347A101	9347A102
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93	11/23/93	11/23/93	11/23/93
TPH-Purgeable (mg/kg)							
TPH-GASOLINE	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	6	3
TPH-PURGEABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (12)	ND (12)	ND (12)	ND (12)	10	ND (12)	27
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	NA	NA	NA
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	8	38	ND (6)	6	52	ND (6)	8
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	NA	NA	NA	NA	9.3	8.0	7.8

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW15A1	IR25MW15A1	IR25MW15A1
Sampling Depth (feet bgs)	1.25	6.25	11.25	16.25	11.25	16.25	21.25
Sample Number	9347A111	9347A112	9347A113	9347A114	9423C256	9423C257	9423C258
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93	06/08/94	06/08/94	06/08/94
Metal (mg/kg)							
ALUMINUM	18,700	20,400	5,030	8,730	8,750	6,430	4,380
ANTIMONY	NA	NA	NA	NA	ND (1.1)	ND (0.89)	ND (0.57)
ARSENIC	ND (2.3)	ND (2.8)	ND (1.5)	ND (2.6)	2.8 *#	1.7 *	0.93 *
BARIUM	201	102	ND (1.7)	24.2	89.6	76.1	19.4
BERYLLIUM	ND (0.35)	ND (0.45)	ND (0.05)	ND (0.13)	0.35 *	0.26 *	ND (0.18)
CADMIUM	ND (0.29)	ND (0.29)	ND (0.29)	ND (0.31)	ND (0.07)	ND (0.07)	ND (1.5)
CALCIUM	9,110	3,520	ND (502)	ND (1,960)	1,810	1,310	1,940
CHROMIUM	209	194	653 *	718 *	124 #	90.9	58.3
COBALT	71.6 #	27.7	69.0	60.3	14.3	9.6	7.5
COPPER	47.4	30.9	8.9	15.1	18.8	7.2	4.6
IRON	49,700	36,500	32,600	30,000	24,100	16,800	9,930
LEAD	4.3	8.0	ND (0.27)	2.7	11.9 #	3.5	2.4
MAGNESIUM	48,800	38,100	189,000	128,000	5,090	4,470	3,210
MANGANESE	1,400 *	570 *	614 *	639 *	283	209	80.8
MERCURY	0.56	0.21	0.09	0.11	ND (0.06)	ND (0.06)	ND (0.06)
MOLYBDENUM	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.2)	ND (0.29)	ND (0.16)	ND (0.17)
NICKEL	1,310 *#	468 *	1,240 *	1,230 *	126 #	94.7	47.2
POTASSIUM	702	581	ND (148)	ND (157)	475	280	819
SILVER	ND (0.57)	ND (0.58)	ND (0.58)	ND (0.62)	ND (0.19)	ND (0.19)	ND (0.20)
SODIUM	ND (703)	ND (1,890)	ND (281)	ND (507)	583	424	895
THALLIUM	ND (0.50)	ND (0.51)	ND (0.51)	ND (0.54)	ND (0.47)	ND (0.47)	0.53
VANADIUM	71.4	53.7	28.6	36.2	61.1	37.2	29.2
ZINC	ND (76.6)	ND (66.1)	ND (21.3)	ND (33.5)	37.0	22.4	17.2
Volatile Organic Compound (ug/kg)							
1,2-DICHLOROETHANE	NA	ND (12)	NA	ND (3,200)	ND (1,500)	16,000 *#	650 *
1,2-DICHLOROETHENE (TOTAL)	NA	ND (12)	NA	ND (3,200)	ND (1,500)	ND (74,000)	13
2-BUTANONE	NA	12	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (61)
ACETONE	NA	14	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (91)
CHLOROBENZENE	NA	ND (12)	NA	ND (3,200)	420	ND (74,000)	ND (61)
ETHYLBENZENE	NA	ND (12)	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (61)
METHYLENE CHLORIDE	NA	4	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (13)
TETRACHLOROETHENE	NA	ND (12)	NA	ND (3,200)	2,000	750,000 *#	210
TOLUENE	NA	ND (12)	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (61)
TRICHLOROETHENE	NA	ND (12)	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (61)
VINYL CHLORIDE	NA	ND (12)	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (61)

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW15A1	IR25MW15A1	IR25MW15A1
Sampling Depth (feet bgs)	1.25	6.25	11.25	16.25	11.25	16.25	21.25
Sample Number	9347A111	9347A112	9347A113	9347A114	9423C256	9423C257	9423C258
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93	06/08/94	06/08/94	06/08/94
Volatile Organic Compound (ug/kg)							
XYLENE (TOTAL)	NA	ND (12)	NA	ND (3,200)	ND (1,500)	ND (74,000)	ND (61)
Semivolatile Organic Compound (ug/kg)							
1,2,4-TRICHLOROBENZENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
1,2-DICHLOROBENZENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	1,400	66,000	ND (410)
1,3-DICHLOROBENZENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	12	ND (12,000)	ND (410)
1,4-DICHLOROBENZENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	330	17,000 *	ND (410)
2,4-DIMETHYLPHENOL	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	4,200	ND (410)
2-METHYLNAPHTHALENE	1,200	ND (400)	6,000	ND (13,000)	52	1,600	ND (410)
4-METHYLPHENOL	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
ACENAPHTHENE	260	ND (400)	ND (12,000)	ND (13,000)	22	ND (12,000)	ND (410)
ANTHRACENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
BENZO(A)ANTHRACENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
BENZO(A)PYRENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
BENZO(B)FLUORANTHENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
BENZO(K)FLUORANTHENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
CHRYSENE	540	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
DIBENZOFURAN	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
FLUORANTHENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
FLUORENE	ND (400)	ND (400)	4,500	ND (13,000)	ND (390)	ND (12,000)	ND (410)
NAPHTHALENE	ND (400)	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
PHENANTHRENE	830	ND (400)	7,800	ND (13,000)	ND (390)	ND (12,000)	ND (410)
PYRENE	670	ND (400)	ND (12,000)	ND (13,000)	ND (390)	ND (12,000)	ND (410)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
ALDRIN	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
ALPHA-CHLORDANE	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
ENDOSULFAN SULFATE	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
ENDRIN ALDEHYDE	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
GAMMA-CHLORDANE	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
HEPTACHLOR	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
AROCLOR-1260	22	ND (40)	ND (40)	ND (43)	ND (20)	ND (20)	ND (20)

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW15A1	IR25MW15A1	IR25MW15A1
Sampling Depth (feet bgs)	1.25	6.25	11.25	16.25	11.25	16.25	21.25
Sample Number	9347A111	9347A112	9347A113	9347A114	9423C256	9423C257	9423C258
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93	06/08/94	06/08/94	06/08/94
TPH-Purgeable (mg/kg)							
TPH-GASOLINE	1	ND (6)	4	0.8	310	1,300	0.7
TPH-PURGEABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	28	ND (12)	19,000	2,400	34	290	ND (12)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	NA	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	NA	NA	NA	NA	13	67	ND (12)
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	8,300	10	21,000	480	13	55	ND (6)
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	NA	NA
Percent Moisture (%)							
% SOLIDS	NA	NA	NA	NA	14.9	14.9	18.1
pH (pH units)							
PH	8.2	NA	NA	NA	7.9	7.6	9.2

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A2	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	PA25B002	PA25B002
Sampling Depth (feet bgs)	32.75	4.75	9.75	14.75	21.75	11.25	16.25
Sample Number	9421C244	9421A854	9421A855	9421A856	9421A857	9304N075	9304N076
Sample Date	05/24/94	05/23/94	05/23/94	05/23/94	05/23/94	01/26/93	01/26/93
Metal (mg/kg)							
ALUMINUM	5,190	10,300	34,800	14,400	14,600	8,000	11,700
ANTIMONY	73.8 *a	12.0 a	ND (3.0)	ND (1.7)	ND (1.8)	NA	NA
ARSENIC	6.0 *#	2.0 *	1.9 *	3.9 *#	5.1 *#	2.8 *	2.6 *#
BARIUM	24.3	61.9	241	102	32.8	49.1	147
BERYLLIUM	ND (0.26)	ND (0.07)	0.48 *	0.22 *	ND (0.19)	ND (0.19)	ND (0.33)
CADMIUM	ND (1.1)	0.38	ND (0.15)	ND (0.02)	ND (0.02)	ND (0.48)	ND (0.51)
CALCIUM	ND (1,200)	1,720	5,150	3,630	3,980	2,630	2,760
CHROMIUM	1,670 *#a	1,350 *a	290 *	120 a	147 a	34.4	144
COBALT	76.6	87.1	26.9	14.4	14.4	8.3	18.2
COPPER	28.7	25.7	47.9	13.7	16.2	61.9	19.1
IRON	43,000	55,600	44,700	29,500	32,100	16,100	27,400
LEAD	ND (1.1)	4.2	7.6	13.2 a	3.4	15.6 a	9.7 a
MAGNESIUM	172,000	129,000	53,200	3,680	5,650	5,040	6,820
MANGANESE	705 *	802 *	532 *	224	203	337	299
MERCURY	ND (0.07)	0.13	ND (0.03)	ND (0.03)	ND (0.03)	0.14	0.13
MOLYBDENUM	2.5	ND (0.42)	ND (0.24)	ND (0.42)	ND (0.40)	ND (0.57)	ND (0.61)
NICKEL	1,750 *	1,860 *	466 *	69.3	240 *a	54.2	168 *a
POTASSIUM	ND (278)	512	1,130	685	1,770	802	692
SILVER	ND (0.53)	ND (0.14)	ND (0.12)	ND (0.14)	ND (0.11)	ND (0.67)	ND (0.75)
SODIUM	ND (1,390)	93.4	110	ND (32.3)	1,370	191	365
THALLIUM	ND (0.53)	ND (0.21)	ND (0.15)	ND (0.20)	ND (0.16)	NA	NA
VANADIUM	55.2	49.1	68.7	76.1	66.8	27.5	73.5
ZINC	25.0	53.4	72.8	35.7	38.7	67.3	25.9
Volatile Organic Compound (ug/kg)							
1,2-DICHLOROETHANE	440	ND (3,600)	ND (12)	ND (12)	ND (12)	ND (11)	54
1,2-DICHLOROETHENE (TOTAL)	14	ND (3,600)	11	ND (12)	ND (12)	ND (11)	68
2-BUTANONE	ND (2)	ND (3,600)	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)
ACETONE	ND (18)	ND (3,600)	ND (6)	ND (20)	ND (20)	ND (11)	ND (86)
CHLOROBENZENE	ND (13)	ND (3,600)	ND (12)	ND (12)	ND (12)	ND (11)	6
ETHYLBENZENE	3	1,100	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)
METHYLENE CHLORIDE	ND (4)	ND (3,600)	ND (12)	ND (12)	ND (3)	ND (10)	ND (14)
TETRACHLOROETHENE	750	ND (3,600)	ND (12)	ND (12)	ND (12)	9	130
TOLUENE	0.9	ND (3,600)	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)
TRICHLOROETHENE	6	47,000 *#	ND (12)	ND (12)	ND (12)	ND (11)	27
VINYL CHLORIDE	ND (13)	ND (3,600)	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A2	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	PA25B002	PA25B002
Sampling Depth (feet bgs)	32.75	4.75	9.75	14.75	21.75	11.25	16.25
Sample Number	9421C244	9421A854	9421A855	9421A856	9421A857	9304N075	9304N076
Sample Date	05/24/94	05/23/94	05/23/94	05/23/94	05/23/94	01/26/93	01/26/93
Volatile Organic Compound (ug/kg)							
XYLENE (TOTAL)	NA	5,200	ND (12)	ND (12)	ND (12)	ND (11)	ND (12)
Semivolatile Organic Compound (ug/kg)							
1,2,4-TRICHLOROBENZENE	ND (430)	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
1,2-DICHLOROBENZENE	340	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
1,3-DICHLOROBENZENE	ND (430)	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
1,4-DICHLOROBENZENE	72	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
2,4-DIMETHYLPHENOL	ND (430)	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
2-METHYLNAPHTHALENE	54	56,000	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
4-METHYLPHENOL	110	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
ACENAPHTHENE	31	2,300	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
ANTHRACENE	ND (430)	1,700	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
BENZO(A)ANTHRACENE	ND (430)	NA	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
BENZO(A)PYRENE	ND (430)	NA	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
BENZO(B)FLUORANTHENE	ND (430)	NA	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
BENZO(K)FLUORANTHENE	ND (430)	NA	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
CHRYSENE	ND (430)	NA	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
DIBENZOFURAN	41	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
FLUORANTHENE	ND (430)	ND (21,000)	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
FLUORENE	ND (430)	3,500	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
NAPHTHALENE	ND (430)	19,000	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
PHENANTHRENE	ND (430)	14,000	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
PYRENE	ND (430)	5,500	ND (430)	ND (390)	ND (430)	ND (23,000)	ND (12,000)
Pesticide/Polychlorinated Biphenyl (ug/kg)							
4,4'-DDD	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	NA	NA
ALDRIN	ND (2)	4	ND (2)	ND (2)	ND (2)	NA	NA
ALPHA-CHLORDANE	ND (2)	5	ND (2)	ND (2)	ND (2)	NA	NA
ENDOSULFAN SULFATE	ND (4)	5	ND (4)	ND (4)	ND (4)	NA	NA
ENDRIN ALDEHYDE	ND (4)	3	ND (4)	ND (4)	ND (4)	NA	NA
GAMMA-CHLORDANE	ND (2)	4	ND (2)	ND (2)	ND (2)	NA	NA
HEPTACHLOR	ND (2)	4	ND (2)	ND (2)	ND (2)	NA	NA
AROCLOR-1260	ND (43)	ND (43)	ND (43)	ND (39)	ND (43)	NA	NA

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A2	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	PA25B002	PA25B002
Sampling Depth (feet bgs)	32.75	4.75	9.75	14.75	21.75	11.25	16.25
Sample Number	9421C244	9421A854	9421A855	9421A856	9421A857	9304N075	9304N076
Sample Date	05/24/94	05/23/94	05/23/94	05/23/94	05/23/94	01/26/93	01/26/93
TPH-Purgeable (mg/kg)							
TPH-GASOLINE	ND (1)	430	ND (0.7)	ND (0.6)	ND (0.7)	ND (6)	ND (7)
TPH-PURGEABLE UNKNOWN HYDROCARBON	4	NA	NA	NA	NA	NA	NA
TPH-Extractable (mg/kg)							
TPH-DIESEL	ND (1)	6,100	ND (13)	ND (12)	ND (14)	540	230
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	13	NA	NA	NA	NA	NA	NA
TPH-MOTOR OIL	ND (13)	21,000	ND (130)	ND (120)	ND (140)	NA	NA
Total Recoverable Petroleum Hydrocarbons (mg/kg)							
TRPH	ND (33)	20,000	ND (34)	ND (28)	ND (31)	NA	NA
Oil and Grease (mg/kg)							
TOTAL OIL & GREASE	NA	NA	NA	NA	NA	26,000	35,000
Percent Moisture (%)							
% SOLIDS	NA	76.7	76.9	83.9	76.4	87.9	82.5
pH (pH units)							
PH	8.0	8.0	6.9	7.2	8.8	8.1	7.8

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25B009	PA25SS04	PA25SS10
Sampling Depth (feet bgs)	4.75	0.75	1.25
Sample Number	9306H401	9303X851	9307A608
Sample Date	02/10/93	01/21/93	02/18/93
Metal (mg/kg)			
ALUMINUM	17,200	13,200	17,100
ANTIMONY	ND (6.6)	ND (23.2)	9.5 a
ARSENIC	3.0 *#	ND (0.62)	4.1 *#
BARIUM	140	239	191
BERYLLIUM	0.52 *	ND (0.41)	0.31 *
CADMIUM	ND (1.1)	3.3 a	1.7
CALCIUM	12,200	10,400	6,590
CHROMIUM	399 *	321 *a	220 *
COBALT	45.9	26.3	34.8
COPPER	41.6	485 a	37.6
IRON	33,600	60,200	31,600
LEAD	6.5	1,230 *#a	8.5
MAGNESIUM	39,800	18,600	33,400
MANGANESE	987 *	796 *	1,120 *
MERCURY	0.11	0.49	0.21
MOLYBDENUM	1.1	NA	0.71
NICKEL	710 *	270 *	465 *
POTASSIUM	ND (697)	1,280	729
SILVER	1.0	0.66	ND (0.48)
SODIUM	601	337	ND (997)
THALLIUM	ND (0.70)	ND (0.56)	ND (0.71)
VANADIUM	60.0	61.9	58.8
ZINC	58.2	1,770 a	58.7
Volatile Organic Compound (ug/kg)			
1,2-DICHLOROETHANE	ND (11)	ND (13)	ND (12)
1,2-DICHLOROETHENE (TOTAL)	ND (11)	ND (13)	ND (12)
2-BUTANONE	ND (11)	ND (13)	ND (2)
ACETONE	ND (3)	ND (3)	ND (8)
CHLOROBENZENE	ND (11)	ND (13)	ND (12)
ETHYLBENZENE	ND (11)	ND (13)	NA
METHYLENE CHLORIDE	ND (7)	ND (25)	ND (12)
TETRACHLOROETHENE	4	ND (13)	ND (12)
TOLUENE	ND (11)	ND (13)	NA
TRICHLOROETHENE	ND (11)	ND (13)	ND (12)
VINYL CHLORIDE	ND (11)	ND (13)	ND (12)

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25B009	PA25SS04	PA25SS10
Sampling Depth (feet bgs)	4.75	0.75	1.25
Sample Number	9306H401	9303X851	9307A608
Sample Date	02/10/93	01/21/93	02/18/93
Volatile Organic Compound (ug/kg)			
XYLENE (TOTAL)	ND (11)	ND (13)	NA
Semivolatile Organic Compound (ug/kg)			
1,2,4-TRICHLOROBENZENE	ND (1,500)	ND (14,000)	ND (390)
1,2-DICHLOROBENZENE	ND (1,500)	ND (14,000)	ND (390)
1,3-DICHLOROBENZENE	ND (1,500)	ND (14,000)	ND (390)
1,4-DICHLOROBENZENE	ND (1,500)	ND (14,000)	ND (390)
2,4-DIMETHYLPHENOL	ND (1,500)	ND (14,000)	ND (390)
2-METHYLNAPHTHALENE	ND (1,500)	ND (14,000)	ND (390)
4-METHYLPHENOL	ND (1,500)	ND (14,000)	ND (390)
ACENAPHTHENE	ND (1,500)	ND (14,000)	ND (390)
ANTHRACENE	ND (1,500)	ND (14,000)	ND (390)
BENZO(A)ANTHRACENE	ND (1,500)	ND (14,000)	420
BENZO(A)PYRENE	ND (1,500)	ND (14,000)	ND (390)
BENZO(B)FLUORANTHENE	ND (1,500)	ND (14,000)	270
BENZO(K)FLUORANTHENE	ND (1,500)	ND (14,000)	340
CHRYSENE	360	ND (14,000)	400
DIBENZOFURAN	ND (1,500)	ND (14,000)	ND (390)
FLUORANTHENE	ND (1,500)	ND (14,000)	480
FLUORENE	ND (1,500)	ND (14,000)	ND (390)
NAPHTHALENE	ND (1,500)	ND (14,000)	ND (390)
PHENANTHRENE	ND (1,500)	ND (14,000)	170
PYRENE	ND (1,500)	ND (14,000)	490
Pesticide/Polychlorinated Biphenyl (ug/kg)			
4,4'-DDD	NA	ND (44)	2
ALDRIN	NA	ND (23)	ND (2)
ALPHA-CHLORDANE	NA	ND (23)	0.1
ENDOSULFAN SULFATE	NA	ND (44)	ND (4)
ENDRIN ALDEHYDE	NA	ND (44)	ND (4)
GAMMA-CHLORDANE	NA	ND (23)	ND (2)
HEPTACHLOR	NA	ND (23)	ND (2)
AROCLOR-1260	NA	3,800 *#	ND (39)

TABLE 4.11-12 (Continued)

SOIL ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	PA25B009	PA25SS04	PA25SS10
Sampling Depth (feet bgs)	4.75	0.75	1.25
Sample Number	9306H401	9303X851	9307A608
Sample Date	02/10/93	01/21/93	02/18/93
TPH-Purgeable (mg/kg)			
TPH-GASOLINE	ND (1)	ND (1)	ND (1)
TPH-PURGEABLE UNKNOWN HYDROCARBON	ND (1)	ND (1)	ND (0.006)
TPH-Extractable (mg/kg)			
TPH-DIESEL	ND (11)	ND (200)	ND (1)
TPH-EXTRACTABLE UNKNOWN HYDROCARBON	65	3,400	ND (1)
TPH-MOTOR OIL	NA	NA	24
Total Recoverable Petroleum Hydrocarbons (mg/kg)			
TRPH	NA	NA	NA
Oil and Grease (mg/kg)			
TOTAL OIL & GREASE	3,300	6,000	110
Percent Moisture (%)			
% SOLIDS	NA	NA	NA
pH (pH units)			
PH	8.6	7.4	NA

Notes:

%	Percent
bgs	Below ground surface
mg/kg	Milligram per kilogram
NA	Not analyzed
ND()	Not detected (detection limit in parentheses)
µg/kg	Microgram per kilogram
*	Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for residential use
#	Detected concentration greater than U.S. Environmental Protection Agency Region IX PRG for industrial use
α	Detected concentration greater than the Hunters Point ambient level.
▒	Detected concentration greater than at least one screening criterion.

TABLE 4.11-13

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR25MW11A	9352X119						√						√				√	√	√	√
IR25MW11A	9352X120						√						√				√	√	√	√
IR25MW11A	9433E138						√			√	√		√				√	√	√	
IR25MW11A	9523X670		√				√				√		√	√			√	√	√	√
IR25MW15A1	9424E014																	√		√
IR25MW15A1	9424X375						√			√	√		√				√		√	
IR25MW15A1	9432E116						√			√	√		√				√	√	√	√
IR25MW15A1	9521X628		√				√			√	√		√	√			√	√	√	√
IR25MW15A1	9540H750																			√
IR25MW15A1	9540H751																			√
IR25MW15A1	9540H752																			√
IR25MW15A2	9423E011						√			√	√		√				√	√	√	√
IR25MW15A2	9423E012						√			√	√		√				√	√	√	√
IR25MW15A2	9432E115						√			√	√		√				√	√	√	√
IR25MW15A2	9521X629		√				√			√	√		√	√			√	√	√	√
IR25MW15A2	9521X630		√				√			√	√		√	√			√	√	√	√
IR25MW15A2	9540H753																			√
IR25MW15A2	9540H754																			√
IR25MW16A	9422X351																	√		√
IR25MW16A	9422X352																	√		√
IR25MW16A	9422X354						√			√			√				√		√	
IR25MW16A	9422X355						√			√			√				√		√	
IR25MW16A	9433K017																	√		√
IR25MW16A	9433K018						√			√	√		√				√		√	
IR25MW16A	9522X645		√				√			√	√		√	√			√	√	√	√
IR25MW16A	9522X646		√				√			√	√		√	√			√	√	√	√
IR25MW17A	9426E032																	√		√
IR25MW17A	9426E039						√			√	√		√				√		√	
IR25MW17A	9433N577																	√		√
IR25MW17A	9433N582						√			√	√		√				√		√	
IR25MW17A	9522X647																	√		√
IR25MW17A	9522X652		√				√			√	√		√	√			√		√	

TABLE 4.11-13 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-14

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAVGC Value	Above[h] NAVGC
METAL	ALUMINUM	42.4	88.9	65.7	UG/L	24.5	15	2	37,000	0				
	ARSENIC	2.0	4.1	3.0	UG/L	2.0	15	4	0.04	4	50.0	0	36.0	0
	BARIUM	41.4	280	141	UG/L	2.9	15	15	2,600	0	1,000	0		
	BERYLLIUM	0.13	0.13	0.13	UG/L	0.10	15	1	0.02	1	4.0	0		
	CADMIUM	0.33	1.6	0.95	UG/L	0.20	15	2	18.0	0	5.0	0	9.3	0
	CALCIUM	25,700	166,000	92,100	UG/L	75.5	15	15						
	CHROMIUM	0.67	0.67	0.67	UG/L	0.40	15	1			50.0	0		
	COBALT	1.1	88.8	16.3	UG/L	0.58	15	12						
	COPPER	1.0	17.8	4.8	UG/L	1.0	15	8	1,400	0			2.4	6
	IRON	20.4	3,960	1,140	UG/L	13.6	15	5						
	LEAD	6.7	6.7	6.7	UG/L	1.3	15	1	4.0	1	50.0	0	8.1	0
	MAGNESIUM	96,900	844,000	353,000	UG/L	41.4	15	15						
	MANGANESE	647	8,250	2,980	UG/L	0.31	15	15	180	15				
	MERCURY	0.07	0.15	0.11	UG/L	0.07	15	2	11.0	0	2.0	0	0.03	2
	MOLYBDENUM	5.2	7.0	6.0	UG/L	0.65	15	4	180	0				
	NICKEL	3.8	103	50.5	UG/L	2.1	15	12	730	0	100	1	8.2	10
	POTASSIUM	4,840	250,000	80,100	UG/L	217	15	13						
	SELENIUM	3.0	4.6	4.0	UG/L	2.5	15	4	180	0	50.0	0	71.0	0
	SODIUM	236,000	3,330,000	1,360,000	UG/L	1,030	15	15						
	THALLIUM	1.6	18.5	6.7	UG/L	2.1	15	10			2.0	9		
	VANADIUM	1.1	10.7	4.3	UG/L	1.2	15	12	260	0				
	ZINC	29.5	75.3	57.4	UG/L	0.30	15	3	11,000	0			81.0	0

TABLE 4.11-14 (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
VOC	1,1,1-TRICHLOROETHANE	55	720	390	UG/L	1,100	18	2	1,300	0	200	1		
	1,1-DICHLOROETHENE	30	30	30	UG/L	10	18	1	0.05	1	6	1		
	1,2-DICHLOROETHANE	2	150,000	41,000	UG/L	2,700	18	11	0.1	11	0.5	11		
	1,2-DICHLOROETHENE (TOTAL)	10	57,000	16,000	UG/L	2,600	14	11	55	8				
	1,2-DICHLOROPROPANE	330	330	330	UG/L	10	18	1	0.2	1	5	1		
	4-METHYL-2-PENTANONE	9	9	9	UG/L	10	14	1	2,900	0				
	ACETONE	160	160	160	UG/L	10	14	1	610	0				
	BENZENE	43	43	43	UG/L	10	18	1	0.4	1	1	1		
	CHLOROBENZENE	78	2,200	900	UG/L	670	18	3	39	3	70	3		
	CHLOROETHANE	1	15	8	UG/L	11	18	2	710	0				
	CHLOROFORM	39	39	39	UG/L	10	18	1	0.2	1	100	0		
	CIS-1,2-DICHLOROETHENE	0.5	25,000	8,400	UG/L	700	4	3	61	2	6	2		
	ETHYLBENZENE	10	10	10	UG/L	10	18	1	1,300	0	700	0		
	METHYLENE CHLORIDE	200	200	200	UG/L	10	18	1	4	1	5	1		
	TETRACHLOROETHENE	220	56,000	23,000	UG/L	3,000	18	10	1	10	5	10		
	TOLUENE	52	52	52	UG/L	10	18	1	720	0	150	0		
	TRICHLOROETHENE	6	9,900	2,600	UG/L	2,300	18	13	2	13	5	13		
	TRICHLOROFLUOROMETHANE	1	1	1	UG/L	1	4	1	1,300	0				
	VINYL CHLORIDE	41	6,600	1,600	UG/L	660	18	7	0.02	7	0.5	7		
	XYLENE (TOTAL)	85	85	85	UG/L	10	18	1	1,400	0	1,800	0		
SVOC	1,2,4-TRICHLOROBENZENE	6	110	41	UG/L	350	12	3	190	0	70	1		
	1,2-DICHLOROBENZENE	960	62,000	18,000	UG/L	400	16	7	370	7	600	7		

TABLE 4.11-14 (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
	1,3-DICHLOROBENZENE	10	260	110	UG/L	56	16	5						
	1,4-DICHLOROBENZENE	240	14,000	5,300	UG/L	400	16	7	0.5	7	5	7		
	2,4-DIMETHYLPHENOL	23	16,000	3,500	UG/L	220	13	6	730	3				
	2,4-DINITROTOLUENE	4,900	4,900	4,900	UG/L	10	13	1	73	1				
	2-CHLORONAPHTHALENE	1	1	1	UG/L	10	12	1	2,900	0				
	2-METHYLNAPHTHALENE	5	920	250	UG/L	440	13	6	240	2				
	2-METHYLPHENOL	47	3,800	1,500	UG/L	330	12	4	1,800	2				
	4-METHYLPHENOL	8	9,100	2,000	UG/L	56	13	5	180	2				
	ACENAPHTHENE	2	3	2	UG/L	25	12	2	370	0				
	ACENAPHTHYLENE	0.7	0.7	0.7	UG/L	10	12	1	370	0				
	CHRYSENE	200	200	200	UG/L	10	13	1	9	1				
	DIBENZOFURAN	3	15	9	UG/L	10	13	2	150	0				
	FLUORENE	1	1	1	UG/L	10	12	1	240	0				
	HEXACHLOROETHANE	7	7	7	UG/L	10	12	1	5	1				
	NAPHTHALENE	6	370	100	UG/L	350	14	8	240	1				
	PENTACHLOROPHENOL	6,100	6,100	6,100	UG/L	25	14	1	0.6	1	1	1	8	1
	PHENANTHRENE	3	590	280	UG/L	500	13	3	240	2			5	2
	PHENOL	23	2,300	710	UG/L	260	13	5	22,000	0				
PEST	DIELDRIN	0.06	0.06	0.06	UG/L	0.1	13	1	0.004	1			0.002	1
	ENDOSULFAN SULFATE	0.08	0.08	0.08	UG/L	0.1	13	1	2	0			0.009	1
	ENDRIN KETONE	0.1	0.1	0.1	UG/L	0.1	13	1	11	0				
	HEPTACHLOR EPOXIDE	0.03	0.03	0.03	UG/L	0.05	13	1	0.007	1	0.01	1		

TABLE 4.11-14 (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
	AROCLOR-1260	0.8	11	5	UG/L	1	13	5	0.009	5				
TPHPRG	TPH-GASOLINE	47	650,000	110,000	UG/L	3,900	15	10	100	8i				
TPHEXT	TPH-DIESEL	65	3,400,000	320,000	UG/L	25,000	15	14	100	12i				
	TPH-MOTOR OIL	70	17,000	2,900	UG/L	3,100	14	10	100	8i				
TRPH	TRPH	600	63,000,000	7,600,000	UG/L	2,300,000	15	11	100	11i				
ANION	CHLORIDE	539,000	5,690,000	2,250,000	UG/L	42,000	5	5						
	NITRATE	29.0	110	64.3	UG/L	20.0	5	3	58,000	0				
	SULFATE	24,100	1,370,000	392,000	UG/L	2,820	5	5						
SOLIDS	TOTAL DISSOLVED SOLIDS	1,600,000	10,000,000	5,000,000	UG/L	10,000	5	5						

TABLE 4.11-14 (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures.
Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-15

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW15A1	IR25MW15A1	IR25MW15A1
Sample Number	9352X119	9352X120	9433E138	9523X670	9424E014	9424X375	9432E116
Sample Date	12/28/93	12/28/93	08/18/94	06/07/95	06/13/94	06/14/94	08/11/94
Metal (ug/L)							
ALUMINUM	ND (19.2)	ND (21.4)	ND (35.3)	ND (66.7)	NA	ND (22.8)	42.4
ARSENIC	ND (3.2)	4.2 *	ND (1.5)	3.1 *	NA	ND (4.6)	4.1 *
BARIUM	138	140	193	126	NA	45.5	94.5
BERYLLIUM	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.16)	NA	ND (0.10)	ND (0.10)
CADMIUM	ND (1.2)	ND (1.2)	ND (0.20)	ND (0.10)	NA	ND (0.20)	ND (0.20)
CALCIUM	38,400	41,300	43,100	25,700	NA	43,900	102,000
CHROMIUM	ND (2.3)	ND (2.3)	ND (0.70)	ND (1.0)	NA	ND (1.3)	ND (0.70)
COBALT	ND (2.7)	ND (2.7)	ND (0.70)	1.1	NA	ND (1.9)	3.4
COPPER	ND (1.2)	1.4	ND (13.9)	ND (0.97)	NA	ND (8.5)	4.6 B
IRON	ND (4.6)	ND (4.6)	ND (55.7)	401	NA	ND (11.7)	20.4
LEAD	ND (2.1)	ND (3.5)	ND (1.2)	ND (1.3)	NA	ND (0.90)	ND (2.6)
MAGNESIUM	121,000	132,000	161,000	96,900	NA	114,000	263,000
MANGANESE	828 *	853 *	1,030 *	723 *	NA	447 *	2,080 *
MERCURY	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	NA	0.07 B	ND (0.10)
MOLYBDENUM	ND (5.0)	ND (5.0)	ND (0.54)	ND (2.3)	NA	5.2	7.0
NICKEL	9.5 B	ND (7.2)	ND (6.6)	3.8	NA	26.4 B	35.6 B
POTASSIUM	4,410	5,270	10,100	ND (2,830)	NA	27,500	31,000
SELENIUM	ND (32.0)	ND (3.2)	ND (2.3)	ND (3.5)	NA	ND (2.7)	4.0
SODIUM	593,000	610,000	646,000	495,000	NA	664,000	1,020,000
THALLIUM	ND (4.2)	7.0 B	2.8 B	1.6	NA	ND (0.99)	ND (2.0)
VANADIUM	4.1	5.0	ND (1.1)	1.1	NA	10.7	6.5
ZINC	ND (26.1)	ND (26.4)	ND (14.6)	ND (15.2)	NA	ND (5.2)	ND (11.6)
Volatile Organic Compound (ug/L)							
1,1,1-TRICHLOROETHANE	ND (10,000)	ND (1,000)	NA	ND (10)	720 B	NA	ND (10,000)
1,1-DICHLOROETHENE	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (10,000)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	37,000 *B	NA	NA
1,2-DICHLOROETHANE	ND (10,000)	ND (1,000)	NA	ND (10)	30,000 *B	NA	140,000 *B
1,2-DICHLOROETHENE (TOTAL)	ND (10,000)	ND (1,000)	NA	49	NA	NA	57,000 *
1,2-DICHLOROPROPANE	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (10,000)
1,4-DICHLOROBENZENE	NA	NA	NA	NA	7,800 *B	NA	NA
4-METHYL-2-PENTANONE	ND (10,000)	ND (1,000)	NA	ND (10)	NA	NA	ND (10,000)
ACETONE	ND (10,000)	ND (1,000)	NA	ND (10)	NA	NA	ND (10,000)
BENZENE	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (10,000)
CHLOROBENZENE	ND (10,000)	ND (1,000)	NA	78 *6	ND (1,000)	NA	ND (10,000)
CHLOROETHANE	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (10,000)
CHLOROFORM	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (10,000)

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW15A1	IR25MW15A1	IR25MW15A1
Sample Number	9352X119	9352X120	9433E138	9523X670	9424E014	9424X375	9432E116
Sample Date	12/28/93	12/28/93	08/18/94	06/07/95	06/13/94	06/14/94	08/11/94
Volatile Organic Compound (ug/L)							
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	25,000 *&	NA	NA
ETHYLBENZENE	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (10,000)
METHYLENE CHLORIDE	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (2,600)
TETRACHLOROETHENE	ND (10,000)	ND (1,000)	NA	ND (10)	30,000 *&	NA	50,000 *&
TOLUENE	ND (10,000)	ND (1,000)	NA	ND (10)	ND (1,000)	NA	ND (10,000)
TRICHLOROETHENE	ND (10,000)	ND (1,000)	NA	ND (10)	4,200 *&	NA	4,100 *&
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	ND (1,000)	NA	NA
VINYL CHLORIDE	ND (10,000)	ND (1,000)	NA	87 *&	1,400 *&	NA	ND (10,000)
XYLENE (TOTAL)	ND (10,000)	ND (1,000)	NA	ND (10)	ND (3,000)	NA	ND (10,000)
Semivolatile Organic Compound (ug/L)							
1,2,4-TRICHLOROBENZENE	NA	NA	ND (1,000)	NA	NA	110 &	ND (200)
1,2-DICHLOROBENZENE	NA	50	ND (500)	NA	NA	62,000 *&	19,000 *&
1,3-DICHLOROBENZENE	NA	NA	ND (500)	NA	NA	ND (520)	260
1,4-DICHLOROBENZENE	NA	NA	ND (500)	NA	NA	14,000 *&	5,900 *&
2,4-DIMETHYLPHENOL	NA	NA	ND (1,000)	NA	NA	2,700 *	16,000 *
2,4-DINITROTOLUENE	NA	NA	ND (1,000)	4,900 *	NA	ND (1,000)	ND (200)
2-CHLORONAPHTHALENE	NA	NA	ND (1,000)	NA	NA	ND (1,000)	ND (200)
2-METHYLNAPHTHALENE	260 *	420 *	920 *	NA	NA	180	ND (200)
2-METHYLPHENOL	NA	NA	ND (1,000)	NA	NA	2,100 *	3,800 *
4-METHYLPHENOL	NA	NA	ND (1,000)	NA	NA	ND (1,000)	9,100 *
ACENAPHTHENE	NA	NA	ND (1,000)	NA	NA	ND (1,000)	ND (200)
ACENAPHTHYLENE	NA	NA	ND (1,000)	NA	NA	ND (1,000)	ND (200)
CHRYSENE	NA	NA	ND (1,000)	200 *	NA	ND (1,000)	ND (200)
DIBENZOFURAN	NA	NA	ND (1,000)	NA	NA	ND (1,000)	ND (200)
FLUORENE	NA	180	ND (1,000)	NA	NA	ND (1,000)	ND (200)
HEXACHLOROETHANE	NA	NA	ND (1,000)	NA	NA	ND (1,000)	ND (200)
NAPHTHALENE	67	110	160	NA	NA	370 *	130
PENTACHLOROPHENOL	NA	NA	ND (2,500)	6,100 *&&	NA	ND (2,600)	ND (500)
PHENANTHRENE	190 &	300 *&	590 *&	NA	NA	ND (1,000)	ND (200)
PHENOL	NA	NA	ND (1,000)	NA	NA	500	2,300
Pesticide/Polychlorinated Biphenyl (ug/L)							
DIELDRIN	NA	NA	ND (2)	NA	NA	ND (0.1)	ND (0.1)
ENDOSULFAN SULFATE	NA	NA	ND (2)	NA	NA	ND (0.1)	ND (0.1)
ENDRIN KETONE	NA	NA	ND (2)	NA	NA	ND (0.1)	ND (0.1)
HEPTACHLOR EPOXIDE	NA	NA	ND (0.2)	NA	NA	0.03 *&	ND (0.01)

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW11A	IR25MW15A1	IR25MW15A1	IR25MW15A1
Sample Number	9352X119	9352X120	9433E138	9523X670	9424E014	9424X375	9432E116
Sample Date	12/28/93	12/28/93	08/18/94	06/07/95	06/13/94	06/14/94	08/11/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
AROCLOR-1260	NA	NA	ND (10)	NA	NA	2 *	ND (0.5)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	1,500	1,300,000	ND (25,000)	ND (13,000)	90,000	NA	180,000
TPH-Extractable (ug/L)							
TPH-DIESEL TPH-MOTOR OIL	480,000 NA	490,000 NA	3,400,000 ND (200,000)	250,000 17,000	NA NA	37,000 ND (2,000)	110,000 ND (10,000)
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	4,200,000	3,900,000	16,000,000	63,000,000	NA	4,300	8,100
Anion (ug/L)							
CHLORIDE NITRATE SULFATE	NA NA NA	NA NA NA	NA NA NA	539,000 ND (20.0) 24,100	NA NA NA	NA NA NA	NA NA NA
pH (pH units)							
PH	NA	NA	7.6	7.6	NA	7.3	7.7
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	1,600,000	NA	NA	NA

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A1	IR25MW15A1	IR25MW15A1	IR25MW15A1	IR25MW15A2	IR25MW15A2	IR25MW15A2
Sample Number	9521X628	9540H750	9540H751	9540H752	9423E011	9423E012	9432E115
Sample Date	05/26/95	10/05/95	10/05/95	10/05/95	06/10/94	06/10/94	08/11/94
Metal (ug/L)							
ALUMINUM	ND (59.9)	NA	NA	NA	ND (34.1)	ND (34.1)	ND (35.3)
ARSENIC	ND (4.3)	NA	NA	NA	ND (1.3)	ND (1.3)	ND (1.5)
BARIUM	41.4	NA	NA	NA	273	273	275
BERYLLIUM	ND (0.20)	NA	NA	NA	ND (0.13)	ND (0.16)	ND (0.10)
CADMIUM	ND (0.10)	NA	NA	NA	ND (1.6)	ND (0.89)	0.33
CALCIUM	53,000	NA	NA	NA	115,000	111,000	107,000
CHROMIUM	ND (1.0)	NA	NA	NA	ND (2.8)	ND (0.90)	ND (0.70)
COBALT	4.0	NA	NA	NA	12.1	11.6	31.4
COPPER	3.8 B	NA	NA	NA	27.5 B	ND (16.1)	2.1
IRON	ND (17.6)	NA	NA	NA	ND (40.7)	ND (40.7)	384
LEAD	ND (1.3)	NA	NA	NA	ND (1.5)	ND (0.98)	ND (1.7)
MAGNESIUM	141,000	NA	NA	NA	341,000	339,000	321,000
MANGANESE	1,280 *	NA	NA	NA	4,300 *	4,030 *	6,550 *
MERCURY	ND (0.10)	NA	NA	NA	ND (0.10)	ND (0.10)	ND (0.10)
MOLYBDENUM	ND (5.4)	NA	NA	NA	ND (2.9)	ND (1.7)	ND (1.9)
NICKEL	32.7 B	NA	NA	NA	33.4 B	29.9 B	61.0 B
POTASSIUM	ND (5,050)	NA	NA	NA	240,000	229,000	250,000
SELENIUM	ND (3.5)	NA	NA	NA	4.4	ND (3.0)	4.6
SODIUM	592,000	NA	NA	NA	2,950,000	2,890,000	3,330,000
THALLIUM	ND (2.6)	NA	NA	NA	7.0 B	7.1 B	8.6 B
VANADIUM	8.9	NA	NA	NA	2.2	1.6	ND (1.1)
ZINC	29.5	NA	NA	NA	ND (33.9)	ND (19.1)	ND (17.8)
Volatile Organic Compound (ug/L)							
1,1,1-TRICHLOROETHANE	ND (10)	ND (2,000)	ND (2,000)	ND (5,000)	57	53	ND (500)
1,1-DICHLOROETHENE	30 *δ	ND (2,000)	ND (2,000)	ND (5,000)	ND (50)	ND (50)	ND (500)
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	150,000 *δ	12,000 *δ	11,000 *δ	100,000 *δ	2,400 *δ	2,300 *δ	4,500 *δ
1,2-DICHLOROETHENE (TOTAL)	36,000 *	42,000 *	40,000 *	40,000 *	NA	NA	320 *
1,2-DICHLOROPROPANE	330 *δ	ND (2,000)	ND (2,000)	ND (5,000)	ND (50)	ND (50)	ND (500)
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	9	ND (2,000)	ND (2,000)	ND (5,000)	NA	NA	ND (500)
ACETONE	160	ND (2,000)	ND (2,000)	ND (5,000)	NA	NA	ND (500)
BENZENE	43 *δ	ND (2,000)	ND (2,000)	ND (5,000)	ND (50)	ND (50)	ND (500)
CHLOROBENZENE	420 *δ	2,200 *δ	2,200 *δ	ND (5,000)	ND (50)	ND (50)	ND (500)
CHLOROETHANE	ND (10)	ND (2,000)	ND (2,000)	ND (5,000)	ND (50)	ND (50)	ND (500)
CHLOROFORM	39 *	ND (2,000)	ND (2,000)	ND (5,000)	ND (50)	ND (50)	ND (500)

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A1	IR25MW15A1	IR25MW15A1	IR25MW15A1	IR25MW15A2	IR25MW15A2	IR25MW15A2
Sample Number	9521X628	9540H750	9540H751	9540H752	9423E011	9423E012	9432E115
Sample Date	05/26/95	10/05/95	10/05/95	10/05/95	06/10/94	06/10/94	08/11/94
Volatile Organic Compound (ug/L)							
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	190 *δ	170 *δ	NA
ETHYLBENZENE	10	ND (2,000)	ND (2,000)	ND (5,000)	ND (50)	ND (50)	ND (500)
METHYLENE CHLORIDE	200 *δ	ND (2,000)	ND (2,000)	ND (5,000)	ND (170)	ND (160)	ND (500)
TETRACHLOROETHENE	54,000 *δ	30,000 *δ	28,000 *δ	56,000 *δ	4,000 *δ	3,700 *δ	5,200 *δ
TOLUENE	52	ND (2,000)	ND (2,000)	ND (5,000)	ND (50)	ND (50)	ND (500)
TRICHLOROETHENE	6,400 *δ	10,000 *δ	9,800 *δ	7,200 *δ	71 *δ	67 *δ	350 *δ
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	ND (50)	ND (50)	NA
VINYL CHLORIDE	2,400 *δ	6,600 *δ	6,600 *δ	ND (5,000)	ND (50)	ND (50)	ND (500)
XYLENE (TOTAL)	85	ND (2,000)	ND (2,000)	ND (5,000)	ND (150)	ND (150)	ND (500)
Semivolatile Organic Compound (ug/L)							
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	7	8	ND (50)
1,2-DICHLOROBENZENE	2,700 *δ	NA	NA	NA	1,000 *δ	1,000 *δ	2,700 *δ
1,3-DICHLOROBENZENE	210	NA	NA	NA	17	20	30
1,4-DICHLOROBENZENE	8,100 *δ	NA	NA	NA	340 *δ	360 *δ	680 *δ
2,4-DIMETHYLPHENOL	2,000 *	NA	NA	NA	200	210	270
2,4-DINITROTOLUENE	NA	NA	NA	NA	ND (10)	ND (10)	ND (50)
2-CHLORONAPHTHALENE	NA	NA	NA	NA	ND (10)	ND (10)	ND (50)
2-METHYLNAPHTHALENE	NA	NA	NA	NA	7	9	20
2-METHYLPHENOL	NA	NA	NA	NA	47	47	63
4-METHYLPHENOL	720 *	NA	NA	NA	120	130	140
ACENAPHTHENE	NA	NA	NA	NA	3	3	ND (50)
ACENAPHTHYLENE	NA	NA	NA	NA	0.7	0.7	ND (50)
CHRYSENE	NA	NA	NA	NA	ND (10)	ND (10)	ND (50)
DIBENZOFURAN	15	NA	NA	NA	3	3	ND (50)
FLUORENE	NA	NA	NA	NA	1	1	ND (50)
HEXACHLOROETHANE	NA	NA	NA	NA	ND (10)	ND (10)	ND (50)
NAPHTHALENE	34	NA	NA	NA	13	14	24
PENTACHLOROPHENOL	ND (25)	NA	NA	NA	ND (25)	ND (25)	ND (130)
PHENANTHRENE	NA	NA	NA	NA	0.3	ND (10)	ND (50)
PHENOL	680	NA	NA	NA	25	27	23
Pesticide/Polychlorinated Biphenyl (ug/L)							
DIELDRIN	0.06 *β	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)
ENDOSULFAN SULFATE	ND (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)
ENDRIN KETONE	0.1	NA	NA	NA	ND (0.1)	ND (0.1)	ND (0.1)
HEPTACHLOR EPOXIDE	ND (0.01)	NA	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A1	IR25MW15A1	IR25MW15A1	IR25MW15A1	IR25MW15A2	IR25MW15A2	IR25MW15A2
Sample Number	9521X628	9540H750	9540H751	9540H752	9423E011	9423E012	9432E115
Sample Date	05/26/95	10/05/95	10/05/95	10/05/95	06/10/94	06/10/94	08/11/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
AROCLOR-1260	ND (0.5)	NA	NA	NA	5 *	3 *	11 *
TPH-Purgeable (ug/L)							
TPH-GASOLINE	150,000	NA	NA	NA	8,600	7,300	11,000
TPH-Extractable (ug/L)							
TPH-DIESEL	130,000	NA	NA	NA	4,800	4,300	4,500
TPH-MOTOR OIL	7,100	NA	NA	NA	930	1,200	ND (1,500)
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	6,200	NA	NA	NA	1,300	2,100	700
Anion (ug/L)							
CHLORIDE	1,100,000	NA	NA	NA	NA	NA	NA
NITRATE	29.0	NA	NA	NA	NA	NA	NA
SULFATE	327,000	NA	NA	NA	NA	NA	NA
pH (pH units)							
PH	7.6	NA	NA	NA	7.1	7.1	7.1
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	2,900,000	NA	NA	NA	NA	NA	NA

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A2	IR25MW15A2	IR25MW15A2	IR25MW15A2	IR25MW16A	IR25MW16A	IR25MW16A
Sample Number	9521X629	9521X630	9540H753	9540H754	9422X351	9422X352	9422X354
Sample Date	05/26/95	05/26/95	10/05/95	10/05/95	06/01/94	06/01/94	06/02/94
Metal (ug/L)							
ALUMINUM	164	ND (28.6)	NA	NA	NA	NA	ND (8.7)
ARSENIC	ND (7.0)	ND (1.4)	NA	NA	NA	NA	ND (2.0)
BARIUM	298	261	NA	NA	NA	NA	104
BERYLLIUM	ND (1.6)	ND (0.22)	NA	NA	NA	NA	0.20 *
CADMIUM	ND (0.64)	ND (0.47)	NA	NA	NA	NA	ND (0.20)
CALCIUM	113,000	115,000	NA	NA	NA	NA	94,100
CHROMIUM	ND (5.0)	ND (1.0)	NA	NA	NA	NA	0.51
COBALT	98.4	79.2	NA	NA	NA	NA	5.9
COPPER	5.0 B	ND (1.8)	NA	NA	NA	NA	ND (5.0)
IRON	4,330	3,590	NA	NA	NA	NA	ND (17.1)
LEAD	ND (6.5)	ND (1.3)	NA	NA	NA	NA	ND (0.90)
MAGNESIUM	388,000	331,000	NA	NA	NA	NA	334,000
MANGANESE	9,030 *	7,460 *	NA	NA	NA	NA	1,080 *
MERCURY	ND (0.10)	ND (0.10)	NA	NA	NA	NA	ND (0.07)
MOLYBDENUM	ND (4.0)	ND (0.92)	NA	NA	NA	NA	10.5
NICKEL	113 B6	92.1 B	NA	NA	NA	NA	122 B6
POTASSIUM	118,000	122,000	NA	NA	NA	NA	178,000
SELENIUM	ND (17.5)	ND (3.5)	NA	NA	NA	NA	ND (2.7)
SODIUM	2,850,000	2,700,000	NA	NA	NA	NA	3,380,000
THALLIUM	23.6 B	13.4 B	NA	NA	NA	NA	ND (9.9)
VANADIUM	ND (3.5)	1.3	NA	NA	NA	NA	2.7
ZINC	84.5 B	50.3	NA	NA	NA	NA	ND (4.5)
Volatile Organic Compound (ug/L)							
1,1,1-TRICHLOROETHANE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA
1,1-DICHLOROETHENE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	ND (0.5)	ND (0.5)	NA
1,2-DICHLOROETHANE	1,700 *B	1,500 *B	6,500 *B	1,400 *B	ND (0.5)	ND (0.5)	NA
1,2-DICHLOROETHENE (TOTAL)	760 *	760 *	2,700 *	410 *	NA	NA	NA
1,2-DICHLOROPROPANE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	ND (0.5)	ND (0.5)	NA
4-METHYL-2-PENTANONE	ND (50)	ND (50)	ND (500)	ND (20)	NA	NA	NA
ACETONE	ND (50)	ND (50)	ND (500)	ND (20)	NA	NA	NA
BENZENE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA
CHLOROBENZENE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA
CHLOROETHANE	ND (50)	ND (50)	ND (500)	15	ND (0.5)	ND (0.5)	NA
CHLOROFORM	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A2	IR25MW15A2	IR25MW15A2	IR25MW15A2	IR25MW16A	IR25MW16A	IR25MW16A
Sample Number	9521X629	9521X630	9540H753	9540H754	9422X351	9422X352	9422X354
Sample Date	05/26/95	05/26/95	10/05/95	10/05/95	06/01/94	06/01/94	06/02/94
Volatile Organic Compound (ug/L)							
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	0.5	0.4	NA
ETHYLBENZENE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA
METHYLENE CHLORIDE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.8)	ND (0.5)	NA
TETRACHLOROETHENE	600 *δ	580 *δ	720 *δ	220 *δ	ND (0.5)	ND (0.5)	NA
TOLUENE	ND (50)	ND (50)	ND (500)	ND (20)	ND (0.5)	ND (0.5)	NA
TRICHLOROETHENE	170 *δ	160 *δ	1,200 *δ	98 *δ	6 *δ	6 *δ	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	ND (0.5)	ND (0.5)	NA
VINYL CHLORIDE	40 *δ	41 *δ	350 *δ	55 *δ	ND (0.5)	ND (0.5)	NA
XYLENE (TOTAL)	ND (50)	ND (50)	ND (500)	ND (20)	ND (1)	ND (1)	NA
Semivolatile Organic Compound (ug/L)							
1,2,4-TRICHLOROBENZENE	ND (10)	6	NA	NA	NA	NA	ND (10)
1,2-DICHLOROBENZENE	810 *δ	1,100 *δ	NA	NA	NA	NA	ND (5)
1,3-DICHLOROBENZENE	9	11	NA	NA	NA	NA	ND (5)
1,4-DICHLOROBENZENE	200 *δ	270 *δ	NA	NA	NA	NA	ND (5)
2,4-DIMETHYLPHENOL	16	30	NA	NA	NA	NA	ND (10)
2,4-DINITROTOLUENE	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
2-CHLORONAPHTHALENE	1	1	NA	NA	NA	NA	ND (10)
2-METHYLNAPHTHALENE	4	6	NA	NA	NA	NA	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
4-METHYLPHENOL	7	9	NA	NA	NA	NA	ND (10)
ACENAPHTHENE	1	2	NA	NA	NA	NA	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
CHRYSENE	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
DIBENZOFURAN	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
FLUORENE	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
HEXACHLOROETHANE	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
NAPHTHALENE	5	7	NA	NA	NA	NA	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)	NA	NA	NA	NA	ND (26)
PHENANTHRENE	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
PHENOL	ND (10)	ND (10)	NA	NA	NA	NA	ND (10)
Pesticide/Polychlorinated Biphenyl (ug/L)							
DIELDRIN	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)
ENDOSULFAN SULFATE	ND (0.1)	ND (0.1)	NA	NA	NA	NA	0.1 δ
ENDRIN KETONE	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)
HEPTACHLOR EPOXIDE	ND (0.01)	ND (0.01)	NA	NA	NA	NA	ND (0.01)

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW15A2	IR25MW15A2	IR25MW15A2	IR25MW15A2	IR25MW16A	IR25MW16A	IR25MW16A
Sample Number	9521X629	9521X630	9540H753	9540H754	9422X351	9422X352	9422X354
Sample Date	05/26/95	05/26/95	10/05/95	10/05/95	06/01/94	06/01/94	06/02/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
AROCLOR-1260	4 *	9 *	NA	NA	NA	NA	ND (0.5)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	3,100	3,200	NA	NA	46	48	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	1,100	1,200	NA	NA	NA	NA	130
TPH-MOTOR OIL	350	700	NA	NA	NA	NA	260
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	500	800	NA	NA	NA	NA	510
Anion (ug/L)							
CHLORIDE	5,700,000	5,680,000	NA	NA	NA	NA	NA
NITRATE	ND (20.0)	ND (20.0)	NA	NA	NA	NA	NA
SULFATE	152,000	143,000	NA	NA	NA	NA	NA
pH (pH units)							
PH	7.0	7.0	NA	NA	NA	NA	NA
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	10,000,000	11,000,000	NA	NA	NA	NA	NA

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW17A	IR25MW17A
Sample Number	9422X355	9433K017	9433K018	9522X645	9522X646	9426E032	9426E039
Sample Date	06/02/94	08/18/94	08/19/94	06/01/95	06/01/95	06/30/94	07/01/94
Metal (ug/L)							
ALUMINUM	ND (8.6)	NA	ND (35.3)	ND (47.2)	ND (50.1)	NA	ND (35.3)
ARSENIC	2.9 *	NA	ND (1.5)	ND (7.5)	ND (6.2)	NA	ND (1.5)
BARIUM	145	NA	137	173	161	NA	97.6
BERYLLIUM	ND (0.10)	NA	ND (0.10)	ND (0.10)	ND (0.10)	NA	ND (0.11)
CADMIUM	ND (0.20)	NA	1.6	ND (0.97)	ND (0.10)	NA	ND (0.20)
CALCIUM	101,000	NA	106,000	85,900	83,800	NA	166,000
CHROMIUM	0.83	NA	ND (0.70)	ND (1.0)	ND (1.0)	NA	ND (0.70)
COBALT	4.3	NA	6.0	7.2	6.6	NA	10.4
COPPER	ND (3.7)	NA	2.9 B	ND (0.83)	ND (0.66)	NA	ND (1.7)
IRON	ND (32.5)	NA	ND (18.8)	1,030	852	NA	ND (18.8)
LEAD	ND (0.89)	NA	ND (2.4)	12.6 *B	ND (1.4)	NA	ND (1.3)
MAGNESIUM	293,000	NA	280,000	319,000	316,000	NA	844,000
MANGANESE	572 *	NA	1,540 *	2,800 *	2,720 *	NA	3,840 *
MERCURY	ND (0.05)	NA	0.15 B	ND (0.10)	ND (0.10)	NA	ND (0.10)
MOLYBDENUM	3.0	NA	ND (1.4)	ND (2.5)	ND (1.7)	NA	ND (2.5)
NICKEL	19.5 B	NA	ND (7.9)	ND (7.4)	ND (7.5)	NA	77.8 B
POTASSIUM	112,000	NA	110,000	86,400	83,300	NA	10,300
SELENIUM	ND (2.7)	NA	ND (2.3)	ND (3.5)	ND (3.5)	NA	ND (3.8)
SODIUM	1,940,000	NA	1,550,000	2,520,000	2,330,000	NA	284,000
THALLIUM	ND (1.0)	NA	3.5 B	ND (2.9)	ND (4.3)	NA	5.8 B
VANADIUM	4.4	NA	5.8	3.0	2.8	NA	1.3
ZINC	ND (10.9)	NA	ND (12.0)	ND (24.5)	ND (25.6)	NA	ND (3.1)
Volatile Organic Compound (ug/L)							
1,1,1-TRICHLOROETHANE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
1,1-DICHLOROETHENE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	ND (0.5)	NA
1,2-DICHLOROETHANE	NA	ND (10)	NA	ND (10)	ND (10)	2 *B	NA
1,2-DICHLOROETHENE (TOTAL)	NA	10	NA	17	16	NA	NA
1,2-DICHLOROPROPANE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	ND (0.5)	NA
4-METHYL-2-PENTANONE	NA	ND (10)	NA	ND (10)	ND (10)	NA	NA
ACETONE	NA	ND (10)	NA	ND (10)	ND (10)	NA	NA
BENZENE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
CHLOROBENZENE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
CHLOROETHANE	NA	ND (10)	NA	ND (10)	ND (10)	1	NA
CHLOROFORM	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW17A	IR25MW17A
Sample Number	9422X355	9433K017	9433K018	9522X645	9522X646	9426E032	9426E039
Sample Date	06/02/94	08/18/94	08/19/94	06/01/95	06/01/95	06/30/94	07/01/94
Volatile Organic Compound (ug/L)							
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	ND (0.5)	NA
ETHYLBENZENE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
METHYLENE CHLORIDE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
TETRACHLOROETHENE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
TOLUENE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
TRICHLOROETHENE	NA	86 *6	NA	63 *6	66 *6	ND (0.5)	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	1	NA
VINYL CHLORIDE	NA	ND (10)	NA	ND (10)	ND (10)	ND (0.5)	NA
XYLENE (TOTAL)	NA	ND (10)	NA	ND (10)	ND (10)	ND (1)	NA
Semivolatile Organic Compound (ug/L)							
1,2,4-TRICHLOROBENZENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
1,2-DICHLOROBENZENE	ND (5)	NA	ND (5)	ND (5)	ND (5)	NA	ND (5)
1,3-DICHLOROBENZENE	ND (5)	NA	ND (5)	ND (5)	ND (5)	NA	ND (5)
1,4-DICHLOROBENZENE	ND (5)	NA	ND (5)	ND (5)	ND (5)	NA	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
2,4-DINITROTOLUENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
2-CHLORONAPHTHALENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
2-METHYLNAPHTHALENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
2-METHYLPHENOL	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
4-METHYLPHENOL	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
ACENAPHTHENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
ACENAPHTHYLENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
CHRYSENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
DIBENZOFURAN	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
FLUORENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
HEXACHLOROETHANE	ND (10)	NA	ND (10)	8 *	6 *	NA	ND (10)
NAPHTHALENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
PENTACHLOROPHENOL	ND (25)	NA	ND (25)	ND (25)	ND (25)	NA	ND (25)
PHENANTHRENE	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
PHENOL	ND (10)	NA	ND (10)	ND (10)	ND (10)	NA	ND (10)
Pesticide/Polychlorinated Biphenyl (ug/L)							
DIELDRIN	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)
ENDOSULFAN SULFATE	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)
ENDRIN KETONE	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	NA	ND (0.1)
HEPTACHLOR EPOXIDE	ND (0.01)	NA	ND (0.01)	ND (0.01)	ND (0.01)	NA	ND (0.01)

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW16A	IR25MW17A	IR25MW17A
Sample Number	9422X355	9433K017	9433K018	9522X645	9522X646	9426E032	9426E039
Sample Date	06/02/94	08/18/94	08/19/94	06/01/95	06/01/95	06/30/94	07/01/94
Pesticide/Polychlorinated Biphenyl (ug/L)							
AROCLOR-1260	ND (0.5)	NA	ND (0.5)	0.6 *	1 *	NA	ND (0.5)
TPH-Purgeable (ug/L)							
TPH-GASOLINE	NA	180	NA	82	56	ND (50)	NA
TPH-Extractable (ug/L)							
TPH-DIESEL	180	NA	65	130	120	NA	100
TPH-MOTOR OIL	350	NA	220	1,800	1,300	NA	70
Total Recoverable Petroleum Hydrocarbons (ug/L)							
TRPH	930	NA	ND (1,000)	600	600	NA	ND (1,000)
Anion (ug/L)							
CHLORIDE	NA	NA	NA	3,080,000	3,160,000	NA	NA
NITRATE	NA	NA	NA	55.0	53.0	NA	NA
SULFATE	NA	NA	NA	81,900	97,800	NA	NA
pH (pH units)							
PH	NA	NA	7.1	7.0	7.0	NA	7.0
Solids (ug/L)							
TOTAL DISSOLVED SOLIDS	NA	NA	NA	6,200,000	6,400,000	NA	NA

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW17A	IR25MW17A
Sample Number	9433N582	9522X652
Sample Date	08/19/94	06/02/95
Metal (ug/L)		
ALUMINUM	ND (35.3)	ND (44.5)
ARSENIC	ND (1.5)	ND (1.4)
BARIUM	78.8	49.6
BERYLLIUM	ND (0.11)	ND (0.10)
CADMIUM	ND (0.20)	ND (0.14)
CALCIUM	142,000	144,000
CHROMIUM	ND (0.70)	ND (1.0)
COBALT	12.8	13.3
COPPER	ND (1.7)	3.4 B
IRON	ND (18.8)	ND (10.1)
LEAD	ND (1.0)	ND (1.3)
MAGNESIUM	778,000	835,000
MANGANESE	4,570 *	5,640 *
MERCURY	ND (0.10)	ND (0.10)
MOLYBDENUM	ND (2.5)	5.3
NICKEL	86.7 B	70.1 B
POTASSIUM	7,740	5,300
SELENIUM	4.4	ND (3.5)
SODIUM	263,000	236,000
THALLIUM	6.9 B	7.2 B
VANADIUM	ND (1.1)	3.4
ZINC	ND (3.1)	75.3
Volatile Organic Compound (ug/L)		
1,1,1-TRICHLOROETHANE	NA	NA
1,1-DICHLOROETHENE	NA	NA
1,2-DICHLOROBENZENE	NA	NA
1,2-DICHLOROETHANE	NA	NA
1,2-DICHLOROETHENE (TOTAL)	NA	NA
1,2-DICHLOROPROPANE	NA	NA
1,4-DICHLOROBENZENE	NA	NA
4-METHYL-2-PENTANONE	NA	NA
ACETONE	NA	NA
BENZENE	NA	NA
CHLOROBENZENE	NA	NA
CHLOROETHANE	NA	NA
CHLOROFORM	NA	NA

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW17A	IR25MW17A
Sample Number	9433N582	9522X652
Sample Date	08/19/94	06/02/95
Volatile Organic Compound (ug/L)		
CIS-1,2-DICHLOROETHENE	NA	NA
ETHYLBENZENE	NA	NA
METHYLENE CHLORIDE	NA	NA
TETRACHLOROETHENE	NA	NA
TOLUENE	NA	NA
TRICHLOROETHENE	NA	NA
TRICHLOROFLUOROMETHANE	NA	NA
VINYL CHLORIDE	NA	NA
XYLENE (TOTAL)	NA	NA
Semivolatile Organic Compound (ug/L)		
1,2,4-TRICHLOROBENZENE	ND (10)	ND (10)
1,2-DICHLOROBENZENE	ND (5)	ND (5)
1,3-DICHLOROBENZENE	ND (5)	ND (5)
1,4-DICHLOROBENZENE	ND (5)	ND (5)
2,4-DIMETHYLPHENOL	ND (10)	ND (10)
2,4-DINITROTOLUENE	ND (10)	ND (10)
2-CHLORONAPHTHALENE	ND (10)	ND (10)
2-METHYLNAPHTHALENE	ND (10)	ND (10)
2-METHYLPHENOL	ND (10)	ND (10)
4-METHYLPHENOL	ND (10)	ND (10)
ACENAPHTHENE	ND (10)	ND (10)
ACENAPHTHYLENE	ND (10)	ND (10)
CHRYSENE	ND (10)	ND (10)
DIBENZOFURAN	ND (10)	ND (10)
FLUORENE	ND (10)	ND (10)
HEXACHLOROETHANE	ND (10)	ND (10)
NAPHTHALENE	ND (10)	ND (10)
PENTACHLOROPHENOL	ND (25)	ND (25)
PHENANTHRENE	ND (10)	ND (10)
PHENOL	ND (10)	ND (10)
Pesticide/Polychlorinated Biphenyl (ug/L)		
DIELDRIN	ND (0.1)	ND (0.1)
ENDOSULFAN SULFATE	ND (0.1)	ND (0.1)
ENDRIN KETONE	ND (0.1)	ND (0.1)
HEPTACHLOR EPOXIDE	ND (0.01)	ND (0.01)

TABLE 4.11-15 (Continued)

MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25MW17A	IR25MW17A
Sample Number	9433N582	9522X652
Sample Date	08/19/94	06/02/95
Pesticide/Polychlorinated Biphenyl (ug/L)		
AROCLOR-1260	ND (0.5)	ND (0.5)
TPH-Purgeable (ug/L)		
TPH-GASOLINE	NA	NA
TPH-Extractable (ug/L)		
TPH-DIESEL	ND (100)	850
TPH-MOTOR OIL	86	1,300
Total Recoverable Petroleum Hydrocarbons (ug/L)		
TRPH	ND (1,000)	ND (1,000)
Anion (ug/L)		
CHLORIDE	NA	816,000
NITRATE	NA	110
SULFATE	NA	1,370,000
pH (pH units)		
PH	7.4	7.0
Solids (ug/L)		
TOTAL DISSOLVED SOLIDS	NA	3,700,000

Notes:

NA	Not analyzed
ND()	Not detected (detection limit in parentheses)
µg/L	Microgram per liter
*	Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for tap water
B	Detected concentration greater than National Ambient Water Quality Criteria (NAWQC) based on 4-day average study of saltwater aquatic life
δ	Detected concentration greater than maximum contaminant level (MCL) U.S. Environmental Protection Agency Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent
▒	Detected concentration greater than at least one screening criterion.

TABLE 4.11-16

SUMMARY OF GRAB GROUNDWATER ANALYTICAL TESTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	AMMON	ANION	ASBESTOS	CHROM	CYAN	METAL	O&G	PCTMST	PEST	PH	SALIN	SVOC	TDS	TMICROB	TOC	TPHEXT	TPHPRG	TRPH	VOC
IR25B012	9347A103						✓			✓			✓				✓	✓	✓	✓
IR25B012	9347A109						✓			✓			✓				✓	✓	✓	✓
IR25B013	9347A104						✓			✓			✓				✓	✓	✓	✓
IR25MW11A	9347A115W						✓			✓			✓				✓	✓		

Notes:

AMMON	Ammonia
CHROM	CHROMIUM VI
CYAN	Cyanide
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-17

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
METAL	ALUMINUM	29.9	46.7	38.3	UG/L	11.0	3	2	37,000	0				
	BARIUM	70.0	157	112	UG/L	7.2	3	3	2,600	0	1,000	0		
	CALCIUM	30,100	92,800	53,600	UG/L	12.0	3	3						
	COBALT	4.7	6.9	5.8	UG/L	2.5	3	2						
	COPPER	4.2	14.9	8.8	UG/L	1.6	3	3	1,400	0			2.4	3
	IRON	136	136	136	UG/L	6.3	3	1						
	MAGNESIUM	93,000	337,000	177,000	UG/L	26.2	3	3						
	MANGANESE	1,140	2,340	1,740	UG/L	0.60	3	2	180	2				
	MERCURY	0.15	0.15	0.15	UG/L	0.10	3	1	11.0	0	2.0	0	0.03	1
	NICKEL	22.8	44.5	33.6	UG/L	6.8	3	3	730	0	100	0	8.2	3
	POTASSIUM	3,930	5,680	4,650	UG/L	610	3	3						
	SODIUM	620,000	769,000	700,000	UG/L	37.8	3	3						
	THALLIUM	1.8	2.7	2.3	UG/L	2.1	3	2			2.0	1		
	ZINC	25.2	25.2	25.2	UG/L	1.3	3	1	11,000	0			81.0	0
VOC	1,2-DICHLOROETHANE	50	55,000	28,000	UG/L	5,000	2	2	0.1	2	0.5	2		
	1,2-DICHLOROETHENE (TOTAL)	150	55,000	28,000	UG/L	5,000	2	2	55	2				
	CHLOROBENZENE	29	29	29	UG/L	10	2	1	39	0	70	0		
	TETRACHLOROETHENE	34	59,000	30,000	UG/L	5,000	2	2	1	2	5	2		
	TRICHLOROETHENE	14	12,000	6,000	UG/L	5,000	2	2	2	2	5	2		
	VINYL CHLORIDE	310	310	310	UG/L	10	2	1	0.02	1	0.5	1		
SVOC	1,2-DICHLOROBENZENE	150	34,000	17,000	UG/L	2,500	2	2	370	1	600	1		
	1,4-DICHLOROBENZENE	33	7,900	4,000	UG/L	2,500	2	2	0.5	2	5	2		

TABLE 4.11-17 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL Value[f]	Above[g] MCL	NAWQC Value	Above[h] NAWQC
	2,4-DIMETHYLPHENOL	15,000	15,000	15,000	UG/L	5,000	2	1	730	1				
	2-METHYLNAPHTHALENE	1,300	1,300	1,300	UG/L	250	3	1	240	1				
	2-METHYLPHENOL	3,100	3,100	3,100	UG/L	5,000	2	1	1,800	1				
	4-METHYLPHENOL	7,700	7,700	7,700	UG/L	5,000	2	1	180	1				
	HEXACHLOROETHANE	530	530	530	UG/L	250	3	1	5	1				
	NAPHTHALENE	360	360	360	UG/L	250	3	1	240	1				
	PHENANTHRENE	910	910	910	UG/L	250	3	1	240	1			5	1
	PHENOL	1,800	1,800	1,800	UG/L	5,000	2	1	22,000	0				
TPHPRG	TPH-GASOLINE	390	21,000,000	7,100,000	UG/L	17,000,000	3	3	100	3i				
TPHEXT	TPH-DIESEL	1,000	440,000	160,000	UG/L	52,000	3	3	100	3i				
TRPH	TRPH	6,900	6,900	6,900	UG/L	5,000	2	1	100	1i				

TABLE 4.11-17 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Notes:

AMMON	Ammonia
CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
O&G	Total oil and grease
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TDS	Total dissolved solids
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures.
Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-18

GRAB GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25B012	IR25B012	IR25B013	IR25MW11A
Sample Number	9347A103	9347A109	9347A104	9347A115W
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93
Metal (ug/L)				
ALUMINUM	ND (11.0)	ND (11.0)	29.9	46.7
BARIUM	172	142	70.0	111
CALCIUM	92,600	93,000	37,900	30,100
COBALT	7.2	6.6	4.7	ND (2.5)
COPPER	5.6 B	2.7 B	7.4 B	14.9 B
IRON	ND (6.3)	269	ND (70.0)	ND (84.6)
MAGNESIUM	336,000	338,000	93,000	102,000
MANGANESE	2,340 *	2,340 *	1,140 *	ND (483)
MERCURY	ND (0.10)	0.24 B	ND (0.10)	ND (0.10)
NICKEL	34.2 B	32.9 B	44.5 B	22.8 B
POTASSIUM	5,850	5,510	4,350	3,930
SODIUM	779,000	759,000	712,000	620,000
THALLIUM	ND (2.1)	2.5 B	2.7 B	ND (2.1)
ZINC	ND (5.9)	ND (8.4)	ND (26.0)	25.2
Volatile Organic Compound (ug/L)				
1,2-DICHLOROETHANE	46 *B	54 *B	55,000 *B	NA
1,2-DICHLOROETHENE (TOTAL)	150 *	150 *	55,000 *	NA
CHLOROBENZENE	28	29	ND (10,000)	NA
TETRACHLOROETHENE	31 *B	37 *B	59,000 *B	NA
TRICHLOROETHENE	14 *B	14 *B	12,000 *B	NA
VINYL CHLORIDE	300 *B	310 *B	ND (10,000)	NA
Semivolatile Organic Compound (ug/L)				
1,2-DICHLOROBENZENE	150	140	34,000 *B	NA
1,4-DICHLOROBENZENE	34 *B	31 *B	7,900 *B	NA
2,4-DIMETHYLPHENOL	ND (20)	ND (20)	15,000 *	NA
2-METHYLNAPHTHALENE	ND (20)	ND (20)	ND (5,000)	1,300 *
2-METHYLPHENOL	ND (20)	ND (20)	3,100 *	NA
4-METHYLPHENOL	ND (20)	ND (20)	7,700 *	NA
HEXACHLOROETHANE	ND (20)	ND (20)	ND (5,000)	530 *
NAPHTHALENE	ND (20)	ND (20)	ND (5,000)	360 *
PHENANTHRENE	ND (20)	ND (20)	ND (5,000)	910 *B
PHENOL	ND (20)	ND (20)	1,800	NA

TABLE 4.11-18 (Continued)

GRAB GROUNDWATER ANALYTICAL RESULTS - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Station Number	IR25B012	IR25B012	IR25B013	IR25MW11A
Sample Number	9347A103	9347A109	9347A104	9347A115W
Sample Date	11/24/93	11/24/93	11/24/93	11/24/93
TPH-Purgeable (ug/L)				
TPH-GASOLINE	370	410	150,000	21,000,000
TPH-Extractable (ug/L)				
TPH-DIESEL	1,800	280	49,000	440,000
Total Recoverable Petroleum Hydrocarbons (ug/L)				
TRPH	ND (1,000)	ND (1,000)	6,900	NA

Notes:

NA Not analyzed
ND() Not detected (detection limit in parentheses)
µg/L Microgram per liter

* Detected concentration greater than U.S. Environmental Protection Agency Region IX preliminary remediation goals (PRG) for tap water
β Detected concentration greater than National Ambient Water Quality Criteria (NAWQC) based on 4-day average study of saltwater aquatic life
δ Detected concentration greater than maximum contaminant level (MCL)
U.S. Environmental Protection Agency Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

▒ Detected concentration greater than at least one screening criterion.

TABLE 4.11-19

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
ANTIMONY	IR25MW15A2	32.75	73.8	30.7	√	9.05	√	MG/KG
	IR25MW16A	4.75	12.0				√	MG/KG
	PA25SS10	1.25	9.5				√	MG/KG
ARSENIC	IR25B012	6.25	5.4	0.32	√	11.10		MG/KG
	IR25B012	11.25	4.4		√			MG/KG
	IR25B012	16.25	4.1		√			MG/KG
	IR25B013	1.25	5.3		√			MG/KG
	IR25B013	6.25	4.2		√			MG/KG
	IR25MW15A1	11.25	2.8		√			MG/KG
	IR25MW15A1	16.25	1.7		√			MG/KG
	IR25MW15A1	21.25	0.93		√			MG/KG
	IR25MW15A2	32.75	6.0		√			MG/KG
	IR25MW16A	4.75	2.0		√			MG/KG
	IR25MW16A	9.75	1.9		√			MG/KG
	IR25MW16A	14.75	3.9		√			MG/KG
	IR25MW16A	21.75	5.1		√			MG/KG
	PA25B002	11.25	2.0		√			MG/KG
	PA25B002	16.25	2.6		√			MG/KG
	PA25B009	4.75	3.0		√			MG/KG
	PA25SS10	1.25	4.1		√			MG/KG
BERYLLIUM	IR25MW15A1	11.25	0.35	0.14	√	0.71		MG/KG
	IR25MW15A1	16.25	0.26		√			MG/KG
	IR25MW16A	9.75	0.48		√			MG/KG
	IR25MW16A	14.75	0.22		√			MG/KG
	PA25B009	4.75	0.32		√			MG/KG
	PA25SS10	1.25	0.31		√			MG/KG
CADMIUM	PA25SS04	0.75	3.3	9.0		3.14	√	MG/K
CHROMIUM	IR25B013	6.25	112	211		99.29	√	MG/K
	IR25MW11A	11.25	653		√	1,468.33		MG/KG
	IR25MW11A	16.25	718		√	1,122.05		MG/KG
	IR25MW15A1	11.25	124			121.43	√	MG/KG
	IR25MW15A2	32.75	1,670		√	1,374.01	√	MG/KG
	IR25MW16A	4.75	1,350		√	1,126.75	√	MG/KG
	IR25MW16A	9.75	290		√	611.74		MG/KG
	IR25MW16A	14.75	120			97.06	√	MG/KG
	IR25MW16A	21.75	147			130.41	√	MG/KG
	PA25B009	4.75	399		√	500.82		MG/KG
	PA25SS04	0.75	321		√	296.44	√	MG/KG
	PA25SS10	1.25	220		√	443.80		MG/KG
COBALT	IR25MW11A	1.25	71.6			71.37	√	MG/KG
COPPER	PA25SS04	0.75	485	2,850		124.31	√	MG/KG
LEAD	IR25B012	16.25	13.5	130		8.99	√	MG/KG
	IR25MW15A1	11.25	11.9				√	MG/KG
	IR25MW16A	14.75	13.2				√	MG/KG
	PA25B002	11.25	15.6				√	MG/KG
	PA25B002	16.25	9.7				√	MG/KG
	PA25SS04	0.75	1,230		√		√	MG/KG
MANGANESE	IR25B012	1.25	784	382	√	1,431.18		MG/KG
	IR25B012	11.25	389		√			MG/KG
	IR25B012	16.25	395		√			MG/KG
	IR25B013	1.25	821		√			MG/KG
	IR25MW11A	1.25	1,400		√			MG/KG
	IR25MW11A	6.25	570		√			MG/KG
	IR25MW11A	11.25	614		√			MG/KG
	IR25MW11A	16.25	639		√			MG/KG
	IR25MW15A2	32.75	705		√			MG/KG
	IR25MW16A	4.75	602		√			MG/KG
	IR25MW16A	9.75	532		√			MG/KG
	PA25B009	4.75	987		√			MG/KG
	PA25SS04	0.75	796		√			MG/KG

TABLE 4.11-19 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
METAL								
MANGANESE	PA25SS10	1.25	1,120	382	√	1,431.18		MG/KG
NICKEL	IR25B012	1.25	406	150	√	503.26		MG/KG
	IR25B012	6.25	247		√	432.58		MG/KG
	IR25B012	11.25	246		√	293.29		MG/KG
	IR25B012	16.25	282		√	540.02		MG/KG
	IR25B013	1.25	316		√	608.54		MG/KG
	IR25B013	6.25	97.8			93.74	√	MG/KG
	IR25MW11A	1.25	1,310		√	1,054.66	√	MG/KG
	IR25MW11A	6.25	468		√	833.88		MG/KG
	IR25MW11A	11.25	1,240		√	3,817.09		MG/KG
	IR25MW11A	16.25	1,230		√	2,636.41		MG/KG
	IR25MW15A1	11.25	126			123.66	√	MG/KG
	IR25MW15A2	32.75	1,750		√	3,483.87		MG/KG
	IR25MW16A	4.75	1,860		√	2,651.61		MG/KG
	IR25MW16A	9.75	466		√	1,144.29		MG/KG
	IR25MW16A	21.75	240		√	136.42	√	MG/KG
	PA25B002	16.25	168		√	163.15	√	MG/KG
	PA25B009	4.75	710		√	868.92		MG/KG
	PA25SS04	0.75	270		√	422.29		MG/KG
	PA25SS10	1.25	465		√	735.79		MG/KG
ZINC	PA25SS04	0.75	1,770	23,000		109.86	√	MG/KG
VOC								
1,2-DICHLOROETHANE	IR25B013	11.25	11,000	0.4	√			UG/KG
	IR25MW15A1	16.25	16,000		√			UG/KG
	IR25MW15A1	21.25	650		√			UG/KG
TETRACHLOROETHENE	IR25B013	11.25	41,000	7	√			UG/KG
	IR25MW15A1	16.25	750,000		√			UG/KG
TRICHLOROETHENE	IR25MW16A	4.75	47,000	7	√			UG/KG
VINYL CHLORIDE	IR25B012	16.25	26	0.005	√			UG/KG
SVOC								
1,4-DICHLOROBENZENE	IR25MW15A1	16.25	17,000	7	√			UG/KG
BENZO(A)PYRENE	IR25B013	1.25	210	0.06	√			UG/KG
PEST								
AROCLOR-1260	IR25B013	1.25	2,400	0.07	√			UG/KG
	PA25SS04	0.75	3,800		√			UG/KG
TPHPRG								
TPH-GASOLINE	IR25MW15A1	11.25	310	100a	√			MG/KG
	IR25MW15A1	16.25	1,300		√			MG/KG
	IR25MW16A	4.75	430		√			MG/KG
TPHEXT								
TPH-DIESEL	IR25MW11A	11.25	19,000	1,000a	√			MG/KG
	IR25MW11A	16.25	2,400		√			MG/KG
	IR25MW16A	4.75	6,100		√			MG/KG
TPH-EXTRACTABLE UNKNOWN HYDRO.	PA25SS04	0.75	3,400	1,000a	√			MG/KG
TPH-MOTOR OIL	IR25MW16A	4.75	21,000	1,000a	√			MG/KG
TRPH								
TRPH	IR25MW11A	1.25	8,300	1,000a	√			MG/KG
	IR25MW11A	11.25	21,000		√			MG/KG

TABLE 4.11-19 (Continued)

SUMMARY OF SOIL ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Depth (feet bgs)	Concentration	Res. PRG Value	Exceeds PRG	HPAL Value	Exceeds HPAL	Units
TRPH								
TRPH	IR25MW16A	4.75	20,000	1,000a	✓			MG/KG
O&G								
TOTAL OIL & GREASE	PA25B002	11.25	26,000	1,000a	✓			MG/KG
	PA25B002	16.25	35,000		✓			MG/KG
	PA25B009	4.75	3,300		✓			MG/KG
	PA25SS04	0.75	6,000		✓			MG/KG

Notes:

bgs	Below ground surface
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
O&G	Total oil and grease
PEST	Pesticides/polychlorinated biphenyls
PRG	Preliminary remediation goal
Res.	Residential
SVOC	Semivolatile organic compounds
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/KG	Microgram per kilogram
VOC	Volatile organic compounds

a TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.11-20

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
ARSENIC	IR25MW11A	12/28/93	2.9	0.04	✓	50.0		36.0		UG/L
	IR25MW11A	06/07/95	3.1		✓					UG/L
	IR25MW15A1	08/11/94	4.1		✓					UG/L
	IR25MW16A	06/02/94	2.0		✓					UG/L
BERYLLIUM	IR25MW16A	06/02/94	0.13	0.02	✓	4.0				UG/L
COPPER	IR25MW15A1	08/11/94	4.6	1,400				2.4	✓	UG/L
	IR25MW15A1	05/26/95	3.8						✓	UG/L
	IR25MW15A2	06/10/94	17.8						✓	UG/L
	IR25MW15A2	05/26/95	3.0						✓	UG/L
	IR25MW16A	08/19/94	2.9						✓	UG/L
	IR25MW17A	06/02/95	3.4						✓	UG/L
LEAD	IR25MW16A	06/01/95	6.7	4.0	✓	50.0		8.1		UG/L
MANGANESE	IR25MW11A	12/28/93	841	180	✓					UG/L
	IR25MW11A	08/18/94	1,030		✓					UG/L
	IR25MW11A	06/07/95	723		✓					UG/L
	IR25MW15A1	06/14/94	647		✓					UG/L
	IR25MW15A1	08/11/94	2,080		✓					UG/L
	IR25MW15A1	05/26/95	1,280		✓					UG/L
	IR25MW15A2	06/10/94	4,160		✓					UG/L
	IR25MW15A2	08/11/94	6,550		✓					UG/L
	IR25MW15A2	05/26/95	8,250		✓					UG/L
	IR25MW16A	06/02/94	826		✓					UG/L
	IR25MW16A	08/19/94	1,540		✓					UG/L
	IR25MW16A	06/01/95	2,760		✓					UG/L
	IR25MW17A	07/01/94	3,840		✓					UG/L
	IR25MW17A	08/19/94	4,570		✓					UG/L
	IR25MW17A	06/02/95	5,640		✓					UG/L
MERCURY	IR25MW15A1	06/14/94	0.07	11.0		2.0		0.03	✓	UG/L
	IR25MW16A	08/19/94	0.15						✓	UG/L
NICKEL	IR25MW15A1	06/14/94	26.4	730		100		8.2	✓	UG/L
	IR25MW15A1	08/11/94	35.6						✓	UG/L
	IR25MW15A1	05/26/95	32.7						✓	UG/L
	IR25MW15A2	06/10/94	31.7						✓	UG/L
	IR25MW15A2	08/11/94	61.0						✓	UG/L
	IR25MW15A2	05/26/95	103				✓		✓	UG/L
	IR25MW16A	06/02/94	70.8						✓	UG/L
	IR25MW17A	07/01/94	77.8						✓	UG/L
	IR25MW17A	08/19/94	86.7						✓	UG/L
	IR25MW17A	06/02/95	70.1						✓	UG/L
THALLIUM	IR25MW11A	12/28/93	4.5			2.0	✓			UG/L

TABLE 4.11-20 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
METAL										
THALLIUM	IR25MW11A	08/18/94	2.8			2.0	√			UG/L
	IR25MW15A2	06/10/94	7.1				√			UG/L
	IR25MW15A2	08/11/94	8.6				√			UG/L
	IR25MW15A2	05/26/95	18.5				√			UG/L
	IR25MW16A	08/19/94	3.5				√			UG/L
	IR25MW17A	07/01/94	5.8				√			UG/L
	IR25MW17A	08/19/94	6.9				√			UG/L
	IR25MW17A	06/02/95	7.2				√			UG/L
VOC										
1,1,1-TRICHLOROETHANE	IR25MW15A1	06/13/94	720	1,300		200	√			UG/L
1,1-DICHLOROETHENE	IR25MW15A1	05/26/95	30	0.05	√	6	√			UG/L
1,2-DICHLOROBENZENE	IR25MW15A1	06/13/94	37,000	370	√	600	√			UG/L
1,2-DICHLOROETHANE	IR25MW15A1	06/13/94	30,000	0.1	√	0.5	√			UG/L
	IR25MW15A1	08/11/94	140,000		√		√			UG/L
	IR25MW15A1	05/26/95	150,000		√		√			UG/L
	IR25MW15A1	10/05/95	12,000		√		√			UG/L
	IR25MW15A1	10/05/95	100,000		√		√			UG/L
	IR25MW15A2	06/10/94	2,400		√		√			UG/L
	IR25MW15A2	08/11/94	4,500		√		√			UG/L
	IR25MW15A2	05/26/95	1,600		√		√			UG/L
	IR25MW15A2	10/05/95	6,500		√		√			UG/L
	IR25MW15A2	10/05/95	1,400		√		√			UG/L
	IR25MW17A	06/30/94	2		√		√			UG/L
1,2-DICHLOROETHENE (TOTAL)	IR25MW15A1	08/11/94	57,000	55	√					UG/L
	IR25MW15A1	05/26/95	36,000		√					UG/L
	IR25MW15A1	10/05/95	41,000		√					UG/L
	IR25MW15A1	10/05/95	40,000		√					UG/L
	IR25MW15A2	08/11/94	320		√					UG/L
	IR25MW15A2	05/26/95	760		√					UG/L
	IR25MW15A2	10/05/95	2,700		√					UG/L
	IR25MW15A2	10/05/95	410		√					UG/L
1,2-DICHLOROPROPANE	IR25MW15A1	05/26/95	330	0.2	√	5	√			UG/L
1,4-DICHLOROBENZENE	IR25MW15A1	06/13/94	7,800	0.5	√	5	√			UG/L
BENZENE	IR25MW15A1	05/26/95	43	0.4	√	1	√			UG/L
CHLOROBENZENE	IR25MW11A	06/07/95	78	39	√	70	√			UG/L
	IR25MW15A1	05/26/95	420		√		√			UG/L
	IR25MW15A1	10/05/95	2,200		√		√			UG/L
CHLOROFORM	IR25MW15A1	05/26/95	39	0.2	√	100				UG/L

TABLE 4.11-20 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
VOC										
CIS-1,2-DICHLOROETHENE	IR25MW15A1	06/13/94	25,000	61	√	6	√			UG/L
	IR25MW15A2	06/10/94	180		√		√			UG/L
METHYLENE CHLORIDE	IR25MW15A1	05/26/95	200	4	√	5	√			UG/L
TETRACHLOROETHENE	IR25MW15A1	06/13/94	30,000	1	√	5	√			UG/L
	IR25MW15A1	08/11/94	50,000		√		√			UG/L
	IR25MW15A1	05/26/95	54,000		√		√			UG/L
	IR25MW15A1	10/05/95	29,000		√		√			UG/L
	IR25MW15A1	10/05/95	56,000		√		√			UG/L
	IR25MW15A2	06/10/94	3,900		√		√			UG/L
	IR25MW15A2	08/11/94	5,200		√		√			UG/L
	IR25MW15A2	05/26/95	590		√		√			UG/L
	IR25MW15A2	10/05/95	720		√		√			UG/L
	IR25MW15A2	10/05/95	220		√		√			UG/L
TRICHLOROETHENE	IR25MW15A1	06/13/94	4,200	2	√	5	√			UG/L
	IR25MW15A1	08/11/94	4,100		√		√			UG/L
	IR25MW15A1	05/26/95	6,400		√		√			UG/L
	IR25MW15A1	10/05/95	9,900		√		√			UG/L
	IR25MW15A1	10/05/95	7,200		√		√			UG/L
	IR25MW15A2	06/10/94	69		√		√			UG/L
	IR25MW15A2	08/11/94	350		√		√			UG/L
	IR25MW15A2	05/26/95	170		√		√			UG/L
	IR25MW15A2	10/05/95	1,200		√		√			UG/L
	IR25MW15A2	10/05/95	98		√		√			UG/L
	IR25MW16A	06/01/94	6		√		√			UG/L
	IR25MW16A	08/18/94	86		√		√			UG/L
	IR25MW16A	06/01/95	65		√		√			UG/L
VINYL CHLORIDE	IR25MW11A	06/07/95	87	0.02	√	0.5	√			UG/L
	IR25MW15A1	06/13/94	1,400		√		√			UG/L
	IR25MW15A1	05/26/95	2,400		√		√			UG/L
	IR25MW15A1	10/05/95	6,600		√		√			UG/L
	IR25MW15A2	05/26/95	41		√		√			UG/L
	IR25MW15A2	10/05/95	350		√		√			UG/L
	IR25MW15A2	10/05/95	55		√		√			UG/L
SVOC										
1,2,4-TRICHLOROBENZENE	IR25MW15A1	06/14/94	110	190		70	√			UG/L
1,2-DICHLOROBENZENE	IR25MW15A1	06/14/94	62,000	370	√	600	√			UG/L
	IR25MW15A1	08/11/94	19,000		√		√			UG/L

TABLE 4.11-20 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
SVOC										
1,2-DICHLOROBENZENE	IR25MW15A1	05/26/95	2,700	370	√	600	√			UG/L
	IR25MW15A2	06/10/94	1,000		√		√			UG/L
	IR25MW15A2	08/11/94	2,700		√		√			UG/L
	IR25MW15A2	05/26/95	960		√		√			UG/L
1,4-DICHLOROBENZENE	IR25MW15A1	06/14/94	14,000	0.5	√	5	√			UG/L
	IR25MW15A1	08/11/94	5,900		√		√			UG/L
	IR25MW15A1	05/26/95	8,100		√		√			UG/L
	IR25MW15A2	06/10/94	350		√		√			UG/L
	IR25MW15A2	08/11/94	680		√		√			UG/L
	IR25MW15A2	05/26/95	240		√		√			UG/L
2,4-DIMETHYLPHENOL	IR25MW15A1	06/14/94	2,700	730	√					UG/L
	IR25MW15A1	08/11/94	16,000		√					UG/L
	IR25MW15A1	05/26/95	2,000		√					UG/L
2,4-DINITROTOLUENE	IR25MW11A	06/07/95	4,900	73	√					UG/L
2-METHYLNAPHTHALENE	IR25MW11A	12/28/93	340	240	√					UG/L
	IR25MW11A	08/18/94	920		√					UG/L
2-METHYLPHENOL	IR25MW15A1	06/14/94	2,100	1,800	√					UG/L
	IR25MW15A1	08/11/94	3,800		√					UG/L
4-METHYLPHENOL	IR25MW15A1	08/11/94	9,100	180	√					UG/L
	IR25MW15A1	05/26/95	720		√					UG/L
CHRYSENE	IR25MW11A	06/07/95	200	9	√					UG/L
HEXACHLOROETHANE	IR25MW16A	06/01/95	7	5	√					UG/L
NAPHTHALENE	IR25MW15A1	06/14/94	370	240	√					UG/L
PENTACHLOROPHENOL	IR25MW11A	06/07/95	6,100	0.6	√	1	√	8	√	UG/L
PHENANTHRENE	IR25MW11A	12/28/93	250	240	√			5	√	UG/L
	IR25MW11A	08/18/94	590		√				√	UG/L
PEST										
DIELDRIN	IR25MW15A1	05/26/95	0.06		√			0.002	√	UG/L
ENDOSULFAN SULFATE	IR25MW16A	06/02/94	0.08	2				0.009	√	UG/L
HEPTACHLOR EPOXIDE	IR25MW15A1	06/14/94	0.03	0.01	√	0.01	√			UG/L
AROCLOR-1260	IR25MW15A1	06/14/94	2	0.01	√					UG/L
	IR25MW15A2	06/10/94	4		√					UG/L
	IR25MW15A2	08/11/94	11		√					UG/L
	IR25MW15A2	05/26/95	6		√					UG/L
	IR25MW16A	06/01/95	0.8		√					UG/L

TABLE 4.11-20 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
TPHPRG										
TPH-GASOLINE	IR25MW11A	12/28/93	650,000	100a	√					UG/L
	IR25MW15A1	06/13/94	90,000		√					UG/L
	IR25MW15A1	08/11/94	180,000		√					UG/L
	IR25MW15A1	05/26/95	150,000		√					UG/L
	IR25MW15A2	06/10/94	8,000		√					UG/L
	IR25MW15A2	08/11/94	11,000		√					UG/L
	IR25MW15A2	05/26/95	3,200		√					UG/L
	IR25MW16A	08/18/94	180		√					UG/L
TPHEXT										
TPH-DIESEL	IR25MW11A	12/28/93	490,000	100a	√					UG/L
	IR25MW11A	08/18/94	3,400,000		√					UG/L
	IR25MW11A	06/07/95	250,000		√					UG/L
	IR25MW15A1	06/14/94	37,000		√					UG/L
	IR25MW15A1	08/11/94	110,000		√					UG/L
	IR25MW15A1	05/26/95	130,000		√					UG/L
	IR25MW15A2	06/10/94	4,600		√					UG/L
	IR25MW15A2	08/11/94	4,500		√					UG/L
	IR25MW15A2	05/26/95	1,200		√					UG/L
	IR25MW16A	06/02/94	160		√					UG/L
	IR25MW16A	06/01/95	130		√					UG/L
	IR25MW17A	06/02/95	850		√					UG/L
TPH-MOTOR OIL	IR25MW11A	06/07/95	17,000	100a	√					UG/L
	IR25MW15A1	05/26/95	7,100		√					UG/L
	IR25MW15A2	06/10/94	1,100		√					UG/L
	IR25MW15A2	05/26/95	530		√					UG/L
	IR25MW16A	06/02/94	310		√					UG/L
	IR25MW16A	08/19/94	220		√					UG/L
	IR25MW16A	06/01/95	1,600		√					UG/L
	IR25MW17A	06/02/95	1,300		√					UG/L
TRPH										
TRPH	IR25MW11A	12/28/93	4,100,000	100a	√					UG/L
	IR25MW11A	08/18/94	16,000,000		√					UG/L
	IR25MW11A	06/07/95	63,000,000		√					UG/L
	IR25MW15A1	06/14/94	4,300		√					UG/L
	IR25MW15A1	08/11/94	8,100		√					UG/L
	IR25MW15A1	05/26/95	6,200		√					UG/L

TABLE 4.11-20 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS EXCEEDING SCREENING CRITERION - IR-25
HUNTERS POINT SHIPYARD, PARCEL B REMEDIAL INVESTIGATION

Analysis/Analyte	Sample Location	Sample Date	Concentration	Tap Water PRG Value	Exceeds PRG	MCL Value	Exceeds MCL	NAWQC Value	Exceeds NAWQC	Units
TRPH										
TRPH	IR25MW15A2	06/10/94	1,700	100a	√					UG/L
	IR25MW15A2	08/11/94	700		√					UG/L
	IR25MW15A2	05/26/95	650		√					UG/L
	IR25MW16A	06/02/94	720		√					UG/L
	IR25MW16A	06/01/95	600		√					UG/L

Notes:

MCL Maximum contaminant level
NAWQC National Ambient Water Quality Criteria
O&G Total oil and grease
PEST Pesticides/polychlorinated biphenyls
PRG Preliminary remediation goal
SVOC Semivolatile organic compounds
TPHEXT Total petroleum hydrocarbons-extractable
TPHPRG Total petroleum hydrocarbons-purgeable
TRPH Total recoverable petroleum hydrocarbons
UG/L Microgram per liter
VOC Volatile organic compounds

a TPH, TRPH, or O&G screening level, not PRG value

concentrations in soil, an evaluation of ambient metals concentrations in groundwater, a hydrogeological characterization, quarterly groundwater monitoring, tidal influence monitoring, air monitoring, a radiation investigation, and a qualitative ERA.

Radiation investigations conducted at Parcel C indicate that either no radioactive material was ever used or stored at Parcel C buildings or that the buildings were released for unrestricted use by the Atomic Energy Commission or its successor, the Nuclear Regulatory Commission.

Several interim removal actions have been performed at Parcel C. Completed interim removal actions consist of sandblast grit fixation, small-scale PCB spill removal actions at Buildings 231 and 258, UST removals, and six exploratory excavations. The exploratory excavations (EE-6, EE-7, EE-8, EE-9, EE-10, and EE-11) were conducted to remove those areas identified by physical staining that have potentially contributed sediments to the storm drain system. The excavated volumes ranged from 7 to 309 cubic yards.

PARCEL C REMEDIAL INVESTIGATION

During the Parcel C RI, activities that were used to assess site conditions included literature searches, interviews with former on-site employees, geophysical surveys, radiological surveys, aerial map surveys, installation of soil borings and monitoring wells, groundwater and soil sampling and analysis, and aquifer testing. Based on past activities and uses, the Navy identified 12 areas of concern at Parcel C where contaminants have potentially been released to soil or groundwater: IR-27, IR-28, IR-29, IR-30, IR-45, IR-49, IR-50, IR-51, IR-57, IR-58, IR-63, and IR-64. The following three areas of concern span the entire installation: IR-45, the Steam Lines; IR-50, the Storm Drain and Sanitary Sewer Systems; and IR-51, the Former Transformer Sites. The Parcel C RI investigated only utility lines and transformer locations physically located within Parcel C boundaries.

The following soil and groundwater samples were collected from Parcel C for chemical laboratory analysis:

- 1,173 soil samples
- 570 groundwater samples
- 129 source samples

Field duplicate and field quality control (QC) samples were not included, since their results were analyzed with the original samples. Based on past site uses, the samples were analyzed for one or a combination of the following compounds: metals, semivolatile organic compounds (SVOC), volatile organic compounds (VOC), polychlorinated biphenyls (PCB), pesticides, and petroleum-related products. RI screening criteria, the HHRA, and the ERA are discussed below.

REMEDIAL INVESTIGATION SCREENING CRITERIA

RI screening criteria were developed for chemical analytes detected in soil and groundwater samples to evaluate their distribution in soil and groundwater and to identify chemicals of potential concern (COPC) that pose a potential human health risk at Parcel C.

For investigation and evaluation of the nature and extent of contaminants at each site, the following screening criteria were used:

- U.S. EPA Preliminary Remediation Goals (PRG) for metals, VOCs, SVOCs, pesticides, and PCBs in soil.
- U.S. EPA tap water PRGs, EPA Title 40 CFR or California Code of Federal Regulations Title 22 Maximum Contaminant Levels (MCL), and EPA National Ambient Quality Criteria (NAWQC) for metals, VOCs, SVOCs, pesticides, and PCBs in groundwater.
- HPS petroleum hydrocarbon screening criteria for petroleum hydrocarbons in soil and groundwater.
- Hunters Point Ambient Levels (HPALs) and Hunters Point Groundwater Ambient Levels (HGALs) for metals in soil and groundwater, respectively.

Detected concentrations of metals, VOCs, SVOCs, pesticides, and PCBs are evaluated in the HHRA to provide a site-specific evaluation of COPCs.

To evaluate the chemical distribution in soil and groundwater, chemicals detected at concentrations exceeding the screening criteria are mapped on parcelwide and site-specific figures and show the following:

- The proximity of maximum detected concentrations to a potential source or an environmental release.

TABLE 4.2-1
IR-27 RI FIELD ACTIVITIES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	HydroPunch	Grab	
Soil Borings	1	NA	3	NA	NA	NA	NA
Pump Chamber Hydrographs	1	NA	NA	NA	NA	NA	NA
Pump Chamber Samples	1	1	NA	NA	NA	NA	NA
Additional Activities							
Tidal Influence Study							

Notes:
NA = Not applicable

TABLE 4.2-2
IR-27 SOURCE CHARACTERIZATION SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Matrix	Location	Analyses
PA27SU02	1/26/93	Water	Pump Chamber, Building 205	Metals, VOCs, SVOCs, Pesticides/PCBs, TPH-e, TPH-p

NOTES:

IR - Installation Restoration
PA - Preliminary Assessment
PCBs - Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.2-3
IR-27 SOIL SAMPLES FROM SOIL BORINGS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	T.D.	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30-40	
Soil Borings								
IR27B004	4/13/94	16.5	0	1	2	0	0	Metals, Pesticides/PCBs, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH

NOTES:

bgs - below ground surface
IR - Installation Restoration
PCBs - Polychlorinated biphenyls
TD - Total Depth
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.2-4

SUMMARY OF SUMP WATER ANALYTICAL TESTS - IR-27
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA27SU02	9304X868						✓		✓					✓			✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.2-5

STATISTICAL SUMMARY OF SUMP WATER ANALYTICAL RESULTS - IR-27
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ARSENIC	4.0	4.0	4.0	UG/L	1.4	1	1	0.04	1	50.0	0	36.0	0		
	BARIUM	86.9	86.9	86.9	UG/L	2.9	1	1	2,600	0	1,000	0				
	CALCIUM	114,000	114,000	114,000	UG/L	58.0	1	1								
	CHROMIUM	41.2	41.2	41.2	UG/L	1.8	1	1			50.0	0				
	MAGNESIUM	385,000	385,000	385,000	UG/L	91.9	1	1								
	MANGANESE	15.1	15.1	15.1	UG/L	0.80	1	1	180	0						
	POTASSIUM	172,000	172,000	172,000	UG/L	530	1	1								
	SODIUM	3,860,000	3,860,000	3,860,000	UG/L	115	1	1								
	ZINC	103	103	103	UG/L	1.3	1	1	11,000	0			81.0	1		

TABLE 4.2-5 (Continued)

STATISTICAL SUMMARY OF SUMP WATER ANALYTICAL RESULTS - IR-27
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.2-6

SUMMARY OF SOIL ANALYTICAL TESTS - IR-27
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR27B004	9415R009						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR27B004	9415R010						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR27B004	9415R011						✓	✓	✓	✓				✓			✓		✓	✓	✓
PA49TA06	9307H420						✓			✓				✓			✓		✓	✓	✓
PA49TA07	9307H419						✓			✓				✓			✓		✓	✓	✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.2-7

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-27
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	3,260	11,400	6,040	MG/KG	6.2	5	5	76,700	0	100,000	0		
	ANTIMONY	6.3	10.2	7.8	MG/KG	0.37	5	3	30.7	0	681	0	9.05	1
	ARSENIC	1.6	6.9	4.3	MG/KG	0.61	5	2	0.32	2	2.0	1	11.10	0
	BARIUM	89.1	455	203	MG/KG	1.1	5	5	5,340	0	100,000	0	314.36	1
	BERYLLIUM	0.31	0.31	0.31	MG/KG	0.16	5	1	0.14	1	1.1	0	0.71	0
	CADMIUM	0.57	4.4	1.8	MG/KG	0.35	5	4	9.0	0	852	0	3.14	1
	CALCIUM	5,040	22,400	10,800	MG/KG	16.7	5	5						
	CHROMIUM	633	1,120	787	MG/KG	0.45	5	5	211	5	1,580	0	h	0
	COBALT	49.8	80.0	60.5	MG/KG	1.0	5	5					h	0
	COPPER	3.0	162	44.7	MG/KG	0.31	5	5	2,850	0	63,300	0	124.31	1
	IRON	29,700	39,400	34,300	MG/KG	6.2	5	5						
	LEAD	1.5	122	36.0	MG/KG	1.6	5	5	130	0	1,000	0	8.99	3
	MAGNESIUM	107,000	204,000	156,000	MG/KG	13.7	5	5						
	MANGANESE	440	2,180	834	MG/KG	0.19	5	5	382	5	8,300	0	1431.18	1
	MERCURY	0.07	10.0	3.0	MG/KG	0.06	5	4	23.0	0	511	0	2.28	1
	NICKEL	1,050	1,480	1,170	MG/KG	3.9	5	5	150	5	34,100	0	h	0
	POTASSIUM	358	358	358	MG/KG	11.7	5	1						
	SODIUM	109	1,890	1,210	MG/KG	33.5	5	5						
	VANADIUM	24.2	52.0	31.8	MG/KG	0.44	5	5	537	0	11,900	0	117.17	0
	ZINC	15.8	1,640	464	MG/KG	1.1	5	5	23,000	0	100,000	0	109.86	3
VOC	ETHYLBENZENE	0.004	0.004	0.004	MG/KG	0.010	5	1	2,900	0	3,100	0		
	TOLUENE	0.009	0.009	0.009	MG/KG	0.010	5	1	1,900	0	2,700	0		

TABLE 4.2-7 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-27
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	XYLENE (TOTAL)	0.020	0.020	0.020	MG/KG	0.010	5	1	980	0	980	0		
SVOC	BENZO(A)ANTHRACENE	0.089	0.12	0.10	MG/KG	0.59	5	2	0.61	0	2.6	0		
	BENZO(A)PYRENE	0.088	0.14	0.11	MG/KG	0.59	5	2	0.061	2	0.26	0		
	BENZO(B)FLUORANTHENE	0.13	0.21	0.17	MG/KG	0.59	5	2	0.61	0	2.6	0		
	BENZO(G,H,I)PERYLENE	0.076	0.076	0.076	MG/KG	0.37	5	1	800	0	800	0		
	BENZO(K)FLUORANTHENE	0.078	0.078	0.078	MG/KG	0.37	5	1	0.61	0	26	0		
	CHRYSENE	0.097	0.15	0.12	MG/KG	0.59	5	2	6.1	0	24	0		
	FLUORANTHENE	0.18	0.24	0.21	MG/KG	0.59	5	2	2,600	0	27,000	0		
	INDENO(1,2,3-CD)PYRENE	0.075	0.075	0.075	MG/KG	0.37	5	1	0.61	0	2.6	0		
	PHENANTHRENE	0.12	0.15	0.14	MG/KG	0.59	5	2	800	0	800	0		
	PYRENE	0.13	0.16	0.15	MG/KG	0.59	5	2	2,000	0	20,000	0		
TPHEXT	TPH-EXTRACTABLE UNKNOWN HYDRO.	21	22	22	MG/KG	12	2	2	1,000	0i				
	TPH-MOTOR OIL	3,000	3,000	3,000	MG/KG	600	3	1	1,000	1i				
TRPH	TRPH	110	880	500	MG/KG	72	5	2	1,000	0i				

TABLE 4.2-7 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-27
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 990.432 to 1544.996, 107.192 to 149.729, and 2220.533 to 4093.959 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.3-1
IR-28 RI FIELD ACTIVITIES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	HydroPunch	Grab	
Soil Borings	166	NA	594	NA	83	38	A, B, F
Monitoring Wells	55	NA	101	196	6	1	A, B, F
Piezometers	4	NA	0	6	0	0	A
Surface Soil Samples	10	NA	10	NA	NA	NA	NA
Sump Sediment Samples	8	8	NA	NA	NA	NA	NA
Storm Drain Sediment Samples	3	3	NA	NA	NA	NA	NA
Sanitary Sewer Sediment Samples	0	0	NA	NA	NA	NA	NA
Sandblast Samples	2	2	NA	NA	NA	NA	NA
Floor Scrape Samples	2	2	NA	NA	NA	NA	NA
Floor Vault Sediment Samples	1	1	NA	NA	NA	NA	NA
Bulk Sediment Samples	1	1	NA	NA	NA	NA	NA
Aquifer Tests	61	NA	NA	NA	NA	NA	A, B, F

Notes:
A - A-aquifer
B - B-aquifer
F - Bedrock Water-Bearing Zone
IR - Installation Restoration
NA - Not Applicable
Sampling stations include samples collected for each site investigation, and do not reflect the sample reassociation that was done for the calculation of human health risk.

TABLE 4.3-2
IR-28 SOURCE CHARACTERIZATION SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Sample Type	Sample Location	Analyses
Building 211/253				
PA28SW01	1/28/93	Storm drain sediment	West of Building 253	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
Building 219				
PA28FS15	1/25/93	Floor scrape	Inside Building 219	Pest, TPH-e, TPH-p, % moisture, pH
Building 230				
PA28SW22	1/22/93	Storm drain sediment	South of Building 230	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
Building 231				
PA28SU31	1/26/93	Sump sediment	Inside Building 231, west end	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28SU32	1/26/93	Sump sediment	Inside Building 231, west end	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28FS46	1/27/93	Floor scrape	Inside Building 231, east end	Hydrazine, Phosphorus
PA28SU24	1/27/93	Sump sediment	Inside Building 231, east end	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28SU29	1/27/93	Sump sediment	Inside Building 231, center	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28SU30	1/27/93	Sump sediment	Inside Building 231, center	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28SU33	1/27/93	Sump sediment	Inside Building 231, west end	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28SU36	1/27/93	Sump sediment	Inside Building 231, east end	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28SU37	1/27/93	Sump sediment	Inside Building 231, west end	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28BK41	1/28/93	Bulk sediment	Inside Building 231, center	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA28SB28	1/28/93 2/2/93	Sandblast material	Inside Building 231, center	Metals (+Cr), Cyanide, % moisture, pH
PA28FV25	2/3/93	Floor vault sediment	Inside Building 231, east end	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
Building 270/271				
PA28SB67	3/8/93	Sandblast material	Inside Building 270	Metals (+Cr), Cyanide, SVOCs, % moisture, pH

TABLE 4.3-2 (continued)
IR-28 SOURCE CHARACTERIZATION SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Sample Type	Sample Location	Analyses
PA28SW66	2/3/94	Storm drain sediment	Inside Building 270	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH

Notes:
IR - Installation Restoration
Cr - Chromium VI
O&G - Total Oil & Grease
PA - Preliminary Assessment
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.3-3
IR-28 SURFACE SOIL SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Location	Analyses
Building 211/253			
PA28SS78	3/9/93	Beneath concrete inside bomb shelter	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28SS75	3/10/93	Beneath concrete inside Building 253	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28SS76	3/10/93	Beneath concrete inside Building 253	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28SS80	3/10/93	Beneath concrete inside Building 211	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 219			
PA28SS14	1/20/93	Beneath stained asphalt east of Building 219	Pest, O&G, TPH-e, TPH-p, pH
Building 258			
PA28SS81	3/9/93	Oily stain in the north-central portion of Building 258	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28SS82	3/9/93	Adjacent to the "Haz Mat" barricade in the southeast corner of Building 258	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 270/271			
PA28SS106	8/27/93	Beneath cracked, paint-stained asphalt east of Building 270	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28SS69	2/2/93	Beneath cracked, paint-stained asphalt between Buildings 270 and 271	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA28SS74	3/8/93	Beneath cracked, paint-stained asphalt east of Building 270	Metals (+Cr), Cyanide, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH

Notes:
IR - Installation Restoration
Cr - Chromium VI
O&G - Total Oil & Grease
PA - Preliminary Assessment
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.3-4
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Building 211/253								
Soil Borings								
PA28B045	1/27/93	11.5	1*	1	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28B077	3/16/93	7.0		1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28B079	3/16/93	7.5		1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
IR28B145	1/20/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B146	1/21/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B147	1/21/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B156	1/24/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B157	1/24/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B158	1/25/94	20.5		1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B148	1/27/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B153	1/27/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B159	1/27/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B118	1/31/94	35.5	1	1	1	1	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B113	2/3/94	30.5	1	1	2	1	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B112	2/17/94	22.0	1*	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B115	2/17/94	22.0	1*	1	1	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B119	2/28/94	27.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR28B120	2/28/94	27.0	1	1	1	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B121	3/1/94	32.0	2	1	1	1	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B230	3/4/94	20.0	1	1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B144	3/8/94	16.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B160	3/10/94	16.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B161	3/11/94	16.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B085	3/14/94	19.5	1*	1	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B086	3/14/94	32.0	1		2	2	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B111	3/14/94	27.0	1	1	2	2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B143	3/15/94	16.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B231	3/16/94	27.0	1	1	1	2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B232	3/17/94	42.0	1			1	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B233	3/17/94	42.0	1	1	2	2	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B114	3/21/94	22.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B223	3/21/94	20.5		3	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B110	3/22/94	22.0	1	1	1	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B222	3/22/94	20.5		1	1	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B087	3/23/94	20.0	1	2	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR28B117	3/30/94	26.5	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B235	4/1/94	21.5	1*	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B221	4/4/94	14.5		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B236	4/5/94	16.5		2	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B221	4/4/94	14.5			1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B142	4/20/94	21.5		1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B141	4/18/94	19.5		3	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B238	4/18/94	35.0	1	1	2	2	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B239	4/19/94	46.5	1	1	1		3	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B154	4/28/94	16.5		2	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B084	5/11/94	24.5		2	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B252	7/25/94	128.0					3	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B254	7/28/94	59.0			1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Monitoring Wells								
IR28MW173B	11/2/94	61.0					1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW270A	10/18/95	21.5	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW271A	10/19/95	21.5	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW309B	3/28/96	57.0	1	2	1	1	5	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Building 214								
Soil Borings								
IR28B234	3/24/94	22.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Building 219								
Soil Borings								
PA28B020	1/26/93	9.0		1				Pest, O&G, TPH-e, TPH-p, % moisture, pH
IR28B100	2/16/94	24.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B088	3/7/94	16.5	1	1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B089	3/8/94	16.5	1	1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B240	5/23/94	10.5	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B241	5/23/94	11.0	1	2	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B242	5/23/94	11.5	1	1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Building 229								
Soil Borings								
IR28B296	10/2/95	21.5	1	2	1	1	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Moisture, pH
Monitoring Wells								
IR28MW293A	9/20/95	31.5	1	1	2	2	1	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Moisture, TOC, Phys char, pH
IR28MW294A	10/2/95	21.5	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Moisture, pH
IR28MW295A	10/2/95	33	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Moisture, pH
IR28MW297A	10/18/95	21.5	1	1	0	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Building 230								
Soil Borings								
PA28B021	1/28/93	12	1	1	1	0	0	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
IR28B288	9/15/95	5.5	1	0	0	0	0	Metals, Pest, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B289	9/26/95	6	1	0	0	0	0	Metals, Pest, TRPH, TPH-e, TPH-p, % moisture, pH
Monitoring Wells								
IR28MW272A	10/19/95	12	1	1	0	0	0	VOCs, SVOCs, TPH-e, TPH-p, % moisture
IR28MW298A	1/8/96	10.5	1	1	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Building 231								
Soil Borings								
PA28B023	1/26/93	12.0	1*	1	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28B044	1/27/93	11.5	1	1	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28B047	2/18/93	11.5		2	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA28B048	2/19/93	12.0		2	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA28B049	3/12/93	4.5	1*					Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA28B053	3/15/93	11.5	1*	1				Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, Hydrazine, pH
IR28B133	1/18/94	15.0		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B138	1/18/94	15.0		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B137	1/19/94	15.0		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B130	1/20/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR28B131	1/20/94	25.0		1	2	2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B132	1/21/94	15.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B102	2/2/94	35.5		1	2	1	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B108	2/4/94	25.5	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B106	2/7/94	27.0	1*	1	2	2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B224	2/25/94	22.0	1	1	1	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B098	3/1/94	20.0		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B095	3/4/94	8.0		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B096	3/9/94	27.5		1	2	2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B091	3/14/94	21.5		2	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B093	3/15/94	15.0		2	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B097A	3/15/94	4.0		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B109	3/21/94	22.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B107	3/23/94	22.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B090	3/24/94	20.0		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B094	3/29/94	27.0	1*	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B092A	4/1/94	6.0		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B092	4/15/94	36.5		1		2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B101	4/18/94	28.0	1	1	1	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR28B134	4/19/94	16.0		1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B105	4/20/94	25.5	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B135	4/20/94	16.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B139	4/20/94	16.5		1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B104	6/20/94	21.0	1	1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B258	8/4/94	21.5			2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B263	8/8/94	11.5						Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B265	10/20/94	20.0	1*	3	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B264	10/25/94	18.0		3	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B266	11/4/94	18.0	1*	3	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B267	11/4/94	18.0	1*	3	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Monitoring Wells								
PA28MW50A	2/18/93	20.5		2	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28MW51A	2/18/93	27.0		2	2			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
PA28MW52A	2/19/93	22.0		2	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
IR28MW269A	10/18/95	21.5	1	1	2	1		VOCs, SVOCs, TPH-e, TPH-p, % moisture, pH
IR28MW308A	3/27/96	18.0	1	1	2			VOCs, Pest, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW314B	4/26/96	25.5	1	1	2	1	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Building 251								
Soil Borings								
IR28B285	9/13/95	16.5	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B284	9/14/95	16.5	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, TOC, Phys char, % moisture, pH
IR28B279	10/31/95	11	1	1	0	0	0	Metals, Pest, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B280	10/31/95	11.5	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B277	11/1/95	13	1	1	0	0	0	Metals, Pest, VOCs, TPH-e, TPH-p, % moisture, pH
IR28B278	11/01/95	15	1	2	0	0	0	Metals, Pest, VOCs, TPH-e, TPH-p, % moisture, pH
IR28B283	11/2/95	14	1	1	1	0	0	Metals, Pest, SVOCs, TPH-e, TPH-p, % moisture, pH
IR28B281	11/27/95	14	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B282	11/27/95	14	1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, % moisture, pH
IR28B301	1/30/96	12	1	1	0	0	0	VOCs, SVOCs, % moisture
IR28B302	1/30/96	11	0	1	0	0	0	VOCs, % moisture
IR28B303	1/30/96	8	1	1	0	0	0	VOCs, SVOCs, % moisture
IR28B304	1/30/96	7	0	1	0	0	0	SVOCs, % moisture
IR28B305	1/30/96	11	0	2	0	0	0	SVOCs, % moisture
IR28B306	1/30/96	7	0	1	0	0	0	VOCs, % moisture
IR28B307	2/5/96	10	1	1	0	0	0	VOCs, % moisture
Monitoring Wells								
IR28MW299B	2/5/96	21.5	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Building 258								
Soil Borings								
PA28B060	1/29/93	11	1	1	0	0	0	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
PA28B061	2/23/93	9.5	1	1	0	0	0	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA28B062	2/23/93	11	1	2	0	0	0	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA28B063	3/12/93	11.5	1	2	0	0	0	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
IR28B174	2/7/94	21	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B176	2/8/94	20	1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B178	2/22/94	21	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B179	5/6/94	20.5	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B180	2/8/94	26	1	1	2	2	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B181	4/4/94	23	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B182	2/11/94	23	1	1	2	2	11	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B183	5/27/94	146.5	0	3	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR28B184	2/28/94	15	1	0	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B257	7/1/94	21.25	1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Monitoring Wells								
IR28MW300F	2/5/96	22	1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW313F	4/3/96	26.5	1	1	0	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % moisture, pH
Building 270/271								
Soil Borings								
IR28B197	1/27/94	17	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B209	2/14/94	16.5	0	2	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR28B208	2/15/94	21	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B210	2/23/94	15.5	0	1	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B199	2/25/94	17	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B196	3/18/94	42	1	1	2	1	1	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B195	3/22/94	22	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B194	3/23/94	32	1	1	1	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B207	3/25/94	16.5	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR28B198	4/13/94	17.5	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B243	5/24/94	11.5	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B244	5/24/94	16.5	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B245	5/24/94	11.5	0	2	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B246	5/25/94	11.5	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B247	5/25/94	11.5	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B260	4/25/95		1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B260A	4/24/95	6	1	2	0	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B259	4/25/95	30	1	2	1	2	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B276	9/12/95	21.5	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Phys char, % moisture, pH
IR28B291	9/19/95	26	1	1	1	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Phys char, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR28B292	9/19/95	16.5	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Monitoring Wells								
IR28MW201F	11/17/94	36.5	0	0	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW290A	9/19/95	28	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, TOC, Phys char, % moisture, pH
IR28MW310F	4/1/96	36.5	1	1	2	1	2	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW311A	4/1/96	20	1	1	3	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, TOC, Phys char, % moisture, pH
IR28MW312F	4/2/96	19.5	1	0	0	0	0	Pest, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Building 281								
Soil Borings								
IR28B185	3/10/94	15	1	0	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B186	3/24/94	21.5	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR28B187	3/10/94	16.5	1	1	2	2	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B203	3/30/94	11	0	1	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B204	3/9/94	16	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B205	3/31/94	16	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B206	1/26/94	16	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B213	1/26/94	17	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B214	1/26/94	17	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B225	2/25/94	15	0	2	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

TABLE 4.3-4 (continued)
IR-28 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR28B226	2/25/94	15	0	3	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B227	5/2/94	17.5	0	3	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28B237	5/4/94	17.0	1*	2	2	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
PA28B071	3/4/93	4.0	0	1	0	0	0	Metals, VOCs
PA28B072	1/27/93	19.5	0	0	2	0	0	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Monitoring Wells								
IR28MW172F	11/8/94	68	0	0	0	0	1	?
IR28MW273F	10/26/95	21	1	2	1	1	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR28MW275F	10/23/95	15	1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

Notes:
1* - Sample collected at 2.25 feet bgs
IR - Installation Restoration
Cr - Chromium VI
O&G - Total Oil & Grease
PA - Preliminary Assessment
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.3-5
IR-28 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet)	Sample Depth	Sample Type	Analyses
Building 211/53					
Soil Borings					
IR28B118	1/31/94	35.5	35.5	Grab	VOCs, TPH-e, TPH-p
IR28B113	2/3/94	30.5	30.5	Grab	VOCs, TPH-e, TPH-p
IR28B085	3/14/94	19.5	19.5	Grab	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR28B223	3/21/94	20.5	20.5	Grab	VOCs, TPH-e, TPH-p
IR28B252	7/25/94	128.0	128.0	Grab	VOCs, TPH-e, TPH-p
IR28B254	7/28/94	59.0	59.0	Grab	VOCs, TPH-e, TPH-p
IR28MW173B	11/1/94	61.0	61.0	Grab	VOCs, TPH-e, TPH-p
IR28B162	1/19/94	12.5	12.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B163	1/19/94	16.0	16.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B164	1/19/94	13.0	13.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B166	1/20/94	12.0	12.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B167	1/20/94	12.0	9.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B219	2/16/94	13.0	13.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B112	2/17/94	22.0	16.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B115	2/17/94	22.0	16.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B119	2/28/94	27.0	11.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B120	2/28/94	27.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B121	3/1/94	32.0	11.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B230	3/7/94	20.0	20.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B086	3/14/94	32.0	15.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B111	3/14/94	27.0	14.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B231	3/16/94	27.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B232	3/17/94	42.0	15.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B233	3/17/94	42.0	15.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B114	3/21/94	22.0	14.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B110	3/22/94	22.0	15.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B222	3/22/94	20.5	12.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B087	3/23/94	20.0	12.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B117	3/30/94	26.5	20.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B235	4/1/94	21.5	20.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B221	4/5/94	14.5	12.0	HydroPunch	VOCs, TPH-p
IR28B236	4/5/94	16.5	14.0	HydroPunch	VOCs, TPH-e, TPH-p

TABLE 4.3-5 (continued)
IR-28 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet)	Sample Depth	Sample Type	Analyses
IR28B141	4/12/94	19.5	14.0	HydroPunch	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR28B238	4/18/94	35.0	7.4	HydroPunch	VOCs, TPH-e, TPH-p
IR28B239	4/19/94	46.5	10.9	HydroPunch	VOCs, TPH-e, TPH-p
IR28B128A	5/4/94	15.5	15.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B084	5/11/94	24.5	16.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B083	6/2/94	13.0	13.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B248	6/2/94	10.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B253	6/20/94	60.5	30.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B253	6/21/94	60.5	41.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B253	6/21/94	60.5	56.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B252	7/21/94	128.0	44.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B252	7/21/94	128.0	65.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B252	7/22/94	128.0	65.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B254	7/27/94	59.0	35.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B254	7/28/94	59.0	35.0	HydroPunch	VOCs, TPH-e, TPH-p
Building 214					
Soil Borings					
IR28B234	3/24/94	22.0	22.0	Grab	VOCs, TPH-e, TPH-p
IR28B228	6/22/94	10.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
Building 219					
Soil Borings					
IR28B088	3/7/94	16.5	16.5	Grab	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR28B089	3/8/94	16.5	16.5	Garb	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR28B100	2/16/94	24.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
Building 229					
Soil Borings					
IR28B296	10/2/95	21.5	12-15	HydroPunch	VOCs, TPH-p, TPH-e
Monitoring Wells					
IR28MW293A	9/20/95	31.5	7.5-11	HydroPunch	VOCs, TPH-p, TPH-e
IR28MW294A	10/2/95	21.5	10.5-12	HydroPunch	VOCs, TPH-p, TPH-e
IR28MW295A	10/2/95	33	10.5-11.5	HydroPunch	VOCs, TPH-p, TPH-e

TABLE 4.3-5 (continued)
IR-28 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet)	Sample Depth	Sample Type	Analyses
Building 230					
Soil Borings					
IR28B262	8/26/94	15	9.5	HydroPunch	VOCs, TPH-p, TPH-e
Building 231					
Soil Borings					
PA28B053	3/15/93	10.0	10.0	Grab	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, Hydrazine
IR28B102	2/3/94	35.5	35.5	Grab	VOCs, TPH-e, TPH-p
IR28B096	3/9/94	27.5	27.5	Grab	Metals, Pest, VOCs, TPH-e, TPH-p, TRPH, pH
IR28B098	3/1/94	20.0	20.0	Grab	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B095	3/4/94	8.0	8.0	Grab	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B091	3/14/94	21.5	21.5	Grab	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B093	3/15/94	15.0	15.0	Grab	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B097A	3/10/94	4.0	4.0	Grab	VOCs, SVOCs, TPH-e, TPH-p
IR28B133	1/18/94	15.0	12.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B137	1/19/94	22.0	9.5	HydroPunch	VOCs
IR28B108	2/4/94	25.5	13.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B106	2/7/94	27.0	14.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B224	2/25/94	22.0	11.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B109	3/21/94	22.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B107	3/23/94	22.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B090	3/24/94	20.0	8.0	HydroPunch	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B094	3/29/94	27.0	12.0	HydroPunch	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B092	4/15/94	36.5	14.0	HydroPunch	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B101	4/18/94	28.0	14.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B105	4/20/94	25.5	14.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28MW127A	5/2/94	23.0	20.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B104	6/20/94	21.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B258	8/4/94	21.5	10.5	HydroPunch	VOCs, TPH-e, TPH-p

TABLE 4.3-5 (continued)
IR-28 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet)	Sample Depth	Sample Type	Analyses
IR28B263	8/8/94	11.5	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B265	10/20/94	20.0	12.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B264	10/25/94	18.0	11.5	HydroPunch	VOCs, TPH-e, TPH-p
IR28B266	11/4/94	18.0	10.0	HydroPunch	VOCs, TPH-e, TPH-p
IR28B267	11/4/94	18.0	11.5	HydroPunch	VOCs, TPH-e, TPH-p
Building 251					
Soil Borings					
IR28B284	9/14/95	16.5	16.5	HydroPunch	VOCs, TPH-p, TPH-e
IR28B285A	9/14/95	11	11	HydroPunch	VOCs, TPH-p, TPH-e
IR28B279	10/31/95	11	7.5-11	HydroPunch	VOCs, TPH-p
IR28B280	10/31/95	11.5	11.5	Grab	VOCs, TPH-p, TPH-e
IR28B277	11/1/95	13	13	Grab	VOCs, TPH-p, TPH-e
IR28B278	11/01/95	15	15	Grab	VOCs, TPH-p, TPH-e
IR28B283	11/2/95	14	14	Grab	VOCs, TPH-p, TPH-e
IR28B281	11/27/95	14	12-14	HydroPunch	VOCs, TPH-p, TPH-e
IR28B282	11/27/95	14	11.5-14	HydroPunch	VOCs, TPH-p, TPH-e
IR28B307	2/5/96	10	10	Grab	TPH-e
Building 258					
Soil Borings					
IR28B174	2/7/94	21	21	Grab	VOCs, TPH-p, TPH-e
IR28B176	2/8/94	20	20	Grab	VOCs, TPH-p, TPH-e
IR28B178	2/22/94	21	8	HydroPunch	VOCs, TPH-p, TPH-e
IR28B179	5/6/94	20.5	15.75	HydroPunch	VOCs, TPH-p, TPH-e
IR28B180	2/8/94	26	26	Grab	VOCs, TPH-p, TPH-e
IR28B257	7/5/94	?	?	Grab	VOCs, TPH-p, TPH-e
Building 270/271					
Soil Borings					
IR28B209	2/14/94	16.5	10	HydroPunch	VOCs, TPH-p, TPH-e
IR28B208	2/15/94	21	10	HydroPunch	VOCs, TPH-p, TPH-e
IR28B210	2/23/94	15.5	15.5	Grab	VOCs, TPH-p, TPH-e
IR28B199	2/25/94	17	13	HydroPunch	VOCs, TPH-p, TPH-e
IR28B196	3/18/94	42	42	Grab	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B195	3/22/94	22	20	HydroPunch	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH

TABLE 4.3-5 (continued)
IR-28 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet)	Sample Depth	Sample Type	Analyses
IR28B194	3/23/94	32	15	HydroPunch	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, pH
IR28B207	3/25/94	16.5	14	HydroPunch	VOCs, TPH-p, TPH-e
IR28B198	4/13/94	17.5	17.5	Grab	VOCs, TPH-p, TPH-e
IR28B259	4/25/94	30	20	HydroPunch	VOCs, TPH-p, TPH-e
IR28B249	6/13/94	18.5	17	HydroPunch	VOCs, TPH-p, TPH-e
IR28B251	7/20/94	33.5	23.7/33.5	HydroPunch /Grab	VOCs, TPH-p
IR28B261	8/25/94	17	17	Grab	VOCs, TPH-p, TPH-e
IR28B260	4/26/95	?	18	HydroPunch	VOCs, TPH-p, TPH-e
IR28B291	9/9/95	26	16-19.5	HydroPunch	VOCs, TPH-p, TPH-e
Monitoring Wells					
IR28MW290A	9/19/95	28	16-19	HydroPunch	VOCs, TPH-p, TPH-e
Building 281					
Soil Borings					
IR28B226	2/25/94	15	15	Grab	VOCs, TPH-p, TPH-e
IR28B204	3/9/94	16	16	Grab	VOCs, TPH-p, TPH-e
IR29B187	3/10/94	46.5	14.5	HydroPunch	VOCs, TPH-p, TPH-e
IR28B205	3/31/94	16	16	Grab	VOCs, TPH-p, TPH-e
IR28B186	3/24/94	21.5	21.5	Grab	VOCs
IR28B237	5/4/94	17	17	Grab	VOCs, TPH-p, TPH-e
IR28B250	7/18/94	55.5	32.5/55.5	HydroPunch /Grab	VOCs, TPH-p, TPH-e
Monitoring Wells					
IR28MW275F	10/23/95	15	14-15	HydroPunch	VOCs, TPH-p, TPH-e

Notes:
IR - Installation Restoration
O&G - Total Oil & Grease
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.3-6
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
Building 211/253									
PA28P03A	12/9/92	18.5	4	4.5-18.5	1			Salinity, TDS	3/8/93
IR28MW123A	4/15/94	21.0	4	6.0-21.0	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, pH	5/18/94 6/12/95 11/20/95 3/20/96
IR28MW128A	5/3/94	17.5	4	5.5-17.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/25/94 6/13/95 12/5/95
IR28MW129A	5/3/94	21.5	4	6.0-21.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/31/94 6/27/95 11/29/95
IR28MW149A	5/5/94	21.5	4	6.0-21.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/27/94 6/13/95 11/22/95
IR28MW150A	5/11/94	21.5	4	6.0-21.5	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	6/16/94 7/11/95 8/1/95 11/21/95
IR28MW151A	6/7/94	21.5	4	6.0-21.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	6/22/94 6/29/95 12/12/95
IR28MW155A	5/24/94	21.5	4	6.0-21.5	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, Microbes, pH	5/31/94 7/25/94 6/13/95 11/29/95
IR28MW170A	6/22/94	20.5	4	5.4-20.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	7/11/94 6/29/95 12/12/95
IR28MW171A	5/27/94	21.5	4	6.0-21.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	6/3/94 6/9/95 11/20/95

TABLE 4.3-6 (continued)
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR28MW173B	11/1/94	60.0	4	49.5-59.5		3		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	11/30/94 6/23/95 12/7/95
IR28MW270A	10/18/95	21.5	4	6.0-21.0	3			VOCs, SVOCs, TPH-e, TPH-p, Anions, Salinity, TDS, pH	11/9/95 2/28/96 5/6/96
IR28MW271A	10/19/95	21.5	4	6.0-21.0	3			VOCs, SVOCs, TPH-e, TPH-p, Anions, Salinity, TDS, pH	11/9/95 2/28/96 5/3/96
IR28MW309B	3/28/96	55.0	4	39.5-54.5		2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, pH	4/18/96 5/24/96
Building 219									
IR28MW122A	4/13/94	21.5	4	6.0-21.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/18/94 6/21/95 11/21/95
Building 229									
IR28MW293A	9/20/95	21.5	4	6-21	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH, Salinity	11/17/95 2/27/96 5/1/96
IR28MW294A	10/2/95	21.5	4	6-21	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH, Salinity	11/17/95 2/27/96 5/7/96
IR28MW295A	10/2/95	21.5	4	6-21	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH, Salinity	11/20/95 2/16/96 5/9/96
IR28MW297A	10/18/95	21.5	4	6-21	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH, Salinity	11/20/95 2/27/96 5/7/96

TABLE 4.3-6 (continued)
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
Building 230									
IR28MW272A	10/19/95	12	4	6.5-11.5	3			VOCs, SVOCs, TPH-e, TPH-p, TDS, Salinity, Anions, TDS, pH	11/10/95 2/28/96 4/26/96
IR28MW298A	1/8/96	10	4	4.5-9.5	3			VOCs, SVOCs, TPH-e, TPH-p, TDS, Salinity, Anions, TDS, pH	2/2/96 4/5/96 5/6/96
Building 231									
PA28P04A	12/16/92	18.5	4	5.0-18.5	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, Microbes, pH	3/9/93 7/25/94 6/9/95 12/12/95
PA28P50AB	6/20/95	21.0	4	5.0-20.0				Water levels only	NA
PA28MW50A	2/18/93	20.0	4	5.0-20.0	3			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TRPH, TPH-e, TPH-p, Anions, TDS, pH	2/22/93 6/15/95 12/11/95
PA28MW51A	2/18/93	26.5	4	6.0-26.5	3			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TRPH, TPH-e, TPH-p, Anions, TDS, pH	2/22/93 6/15/95 12/11/95
PA28MW52A	2/19/93	21.5	4	6.0-21.0	3			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TRPH, TPH-e, TPH-p, Anions, TDS, pH	2/23/93 6/15/95 12/13/95
IR28MW124A	5/5/94	21.0	4	5.5-21.0	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/20/94 7/12/95 8/2/95 11/21/95
IR28MW125A	5/6/94	17.5	4	5.5-17.5	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/26/94 6/12/95 6/13/95 12/4/95

TABLE 4.3-6 (continued)
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR28MW126A	5/4/94	21.0	4	5.5-21.0	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/20/94 6/12/95 12/4/95 3/19/96
IR28MW127A	5/2/94	21.5	4	6.0-21.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	5/23/94 6/8/95 11/27/95
IR28MW136A	5/24/94	15.5	4	5.0-15.5	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	6/8/94 6/8/95 12/11/95
IR28MW140F	6/23/94	44.5	4	29.0-44.5			6	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	7/18/94 7/19/94 6/12/95 6/13/95 11/21/95 11/22/95
IR28MW255F	6/23/94	55.5	4	40.0-55.5			7	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	7/18/94 7/19/94 7/26/95 7/31/95 8/1/95 11/27/95 11/28/95
IR28MW269A	10/18/95	19.5	4	4.0-19.0	3			VOCs, SVOCs, TPH-e, TPH-p, Anions, Salinity, TDS, pH	11/9/95 2/28/96 5/8/96
IR28MW308A	3/27/96	16.5	4	6.0-16.0	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, pH	4/17/96 5/21/96
IR28MW314B	4/26/96	25.5	4	20.0-25.0		7		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, pH	5/3/96

TABLE 4.3-6 (continued)
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
Building 251									
IR28MW268A	10/17/95	21.5	4	6-21	3			VOCs, SVOCs, TPH-e, TPH-p, Anions, Salinity, TDS, pH	11/9/95 2/2/96 4/5/96
IR28MW286A	9/21/95	11.5	4	6-11	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, pH	11/17/95 2/2/96 4/4/96
IR28MW287A	9/21/95	10.5	4	5-10	3			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, pH	11/17/95 2/27/96 5/7/96
IR28MW299B	2/5/96	21.5	4	6-21		2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, Salinity, TDS, pH	3/4/96 5/9/96
Building 258									
IR28MW188F	6/2/94	22	4	8.5-22			4	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	6/28/94 6/19/95 12/4/95 12/5/95
IR28MW189F	6/3/94	17.5	4	7.5-17.5			6	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	6/30/94 and 7/1/94, 6/19/95 and 6/20/95 12/4/95 and 12/5/95
IR28MW190F	6/1/94	16.3	4	13-16.3			4	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	6/30/94 7/1/94 6/26/95 11/20/95

TABLE 4.3-6 (continued)
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR28MW300F	2/5/96	22	4	6-21			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	3/1/96 5/8/96 6/19/96
IR28MW313F	4/3/96	26.5	4	10.0-25.0			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	4/18/96 5/24/96 7/2/96
Building 270/271									
PA28P02A	12/11/92	21	4	6-21	1			Salinity, TDS	3/3/93
IR28MW200A	5/25/94	16	4	5.5-16	5			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	6/6/94 7/19/95 7/31/95 and 8/1/95 11/20/95
IR28MW201F	11/17/94	35.5	4	25-35			5	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	12/7/94 6/22/95 and 6/23/95 11/27/95 and 11/28/95
IR28MW290A	9/19/95	21.5	4	6-21	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	11/15/95 2/2/96 4/5/96
IR28MW310F	4/1/96	36.5	4	26-36			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	4/22/96 5/28/96 7/2/96
IR28MW311A	4/1/96	19.5	4	4-19	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	4/19/96 5/28/96 6/27/96

TABLE 4.3-6 (continued)
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR28MW312F	4/2/96	19.5	4	9-19			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	4/19/96 5/28/96 7/2/96
Building 281									
IR28MW169A	5/25/94	22	4	6-21.5	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	6/9/94 6/22/95 12/13/95
IR28MW172F	11/8/94	68	4	57-67			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	1/22/94 6/26/95 12/7/95
IR28MW211F	6/3/94	17	4	6-16.5			8	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	7/6/94 7/7/94 6/27/95 and 6/28/95 10/27/95 12/11/95 and 12/12/95 3/20/96
IR28MW216F	6/6/94	30.5	4	18-28.5			6	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	7/12/94 and 7/13/94 6/19/95 and 6/20/95 11/21/95 and 11/22/95
IR28MW217A	5/26/94	21.5	4	6-20	4			VOCs, SVOCs, TPH-e, TPH-p, Anions, Salinity, TDS, pH	6/14/94 and 6/15/94 6/19/95 12/6/95

TABLE 4.3-6 (continued)
IR-28 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet)	Well Diameter (inches)	Screened Interval (feet)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR28MW273F	10/26/95	21	4	5.5-20.5			2	VOCs, SVOCs, TPH-e, TPH-p, Anions, Salinity, TDS, pH	3/1/96 5/6/96
IR28MW275F	10/23/95	15	4	7-12			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, Salinity, TDS, pH	11/21/95 2/2/96 4/5/96

Notes:
A - A-aquifer
B - B-aquifer
bgs - below ground surface
Cr - Chromium VI
F - Bedrock Water-Bearing Zone
PA - Preliminary Assessment
IR - Installation Restoration
Pest - Pesticides and Polychlorinated biphenyls
TDS - Total Dissolved Solids
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.3-7

SUMMARY OF OTHER SEDIMENT ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA28BK41	9304X883						✓	✓	✓	✓				✓			✓		✓		✓
PA28FS15	9304X865							✓	✓								✓		✓		
PA28FS46	9304X878					✓												✓			
PA28FV25	9305X907						✓			✓				✓			✓		✓		✓
PA28SB28	9304X884				✓		✓	✓		✓				✓							
PA28SB28	9305X894			✓																	
PA28SB67	9310J360			✓	✓		✓	✓		✓				✓							

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.3-8

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	1,380	8,120	5,700	MG/KG	6.4	4	4	76,700	0	100,000	0		
	ANTIMONY	24.5	63.0	40.9	MG/KG	4.2	4	4	30.7	2	681	0	9.05	4
	ARSENIC	8.5	17.6	13.3	MG/KG	0.41	4	3	0.32	3	2.0	3	11.10	2
	BARIUM	17.1	843	384	MG/KG	0.49	4	4	5,340	0	100,000	0	314.36	2
	CADMIUM	5.9	33.8	17.9	MG/KG	0.54	4	4	9.0	3	852	0	3.14	4
	CALCIUM	1,490	19,200	10,500	MG/KG	13.2	4	4						
	CHROMIUM	114	865	439	MG/KG	0.41	4	4	211	2	1,580	0	h	4
	CHROMIUM VI	1.0	1.0	1.0	MG/KG	0.05	2	1	0.20	1	225	0		
	COBALT	3.2	66.2	35.9	MG/KG	0.99	4	4					h	3
	COPPER	2,160	8,290	4,940	MG/KG	0.21	4	4	2,850	3	63,300	0	124.31	4
	IRON	6,380	77,800	40,900	MG/KG	4.4	4	4						
	LEAD	681	3,200	1,700	MG/KG	4.0	4	4	130	4	1,000	3	8.99	4
	MAGNESIUM	1,000	8,710	5,780	MG/KG	18.6	4	4						
	MANGANESE	80.4	2,950	1,190	MG/KG	0.17	4	4	382	3	8,300	0	1431.18	1
	MERCURY	0.09	1.4	0.71	MG/KG	0.06	4	4	23.0	0	511	0	2.28	0
	MOLYBDENUM	33.8	83.4	63.8	MG/KG	0.60	4	3	383	0	8,520	0	2.68	3
	NICKEL	133	771	408	MG/KG	1.9	4	4	150	3	34,100	0	h	4
	POTASSIUM	428	924	676	MG/KG	124	4	4						
	SILVER	7.0	7.6	7.3	MG/KG	0.44	4	2	383	0	8,520	0	1.43	2
	SODIUM	365	586	463	MG/KG	21.3	4	3						
	VANADIUM	5.4	145	60.4	MG/KG	0.61	4	4	537	0	11,900	0	117.17	1
	ZINC	1,060	4,470	2,980	MG/KG	0.36	4	4	23,000	0	100,000	0	109.86	4

TABLE 4.3-8 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
CYAN	CYANIDE	0.36	1.8	1.1	MG/KG	0.09	2	2	1,300	0	13,600	0		
SVOC	4-METHYLPHENOL	0.94	0.94	0.94	MG/KG	9.2	4	1	330	0	3,400	0		
	BENZO(B)FLUORANTHENE	1.6	1.6	1.6	MG/KG	9.2	4	1	0.61	1	2.6	0		
	CHRYSENE	0.90	0.90	0.90	MG/KG	9.2	4	1	6.1	0	24	0		
	FLUORANTHENE	2.5	2.5	2.5	MG/KG	9.2	4	1	2,600	0	27,000	0		
	PHENANTHRENE	1.3	1.3	1.3	MG/KG	9.2	4	1	800	0	800	0		
	PYRENE	1.5	1.5	1.5	MG/KG	9.2	4	1	2,000	0	20,000	0		
PEST	AROCLOR-1260	800	800	800	MG/KG	3.7	2	1	0.066	1	0.34	1		
TPHPRG	TPH-GASOLINE	10	32	21	MG/KG	5.3	3	2	100	0i				
TPHEXT	TPH-DIESEL	1,800	7,700	4,800	MG/KG	310	3	2	1,000	2i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	590	590	590	MG/KG	63	1	1	1,000	0i				
HYDRAZIN	HYDRAZINE	0.070	0.070	0.070	MG/KG	0.050	1	1	0.15	0	0.64	0		

TABLE 4.3-8 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 39.667 to 175.730, 9.544 to 29.219, and 26.518 to 205.645 mg/kg respectively.

TABLE 4.3-9

SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA28SW01	9304X882						√	√	√	√				√			√		√		√
PA28SW01	9305X895			√																	
PA28SW22	9303X856				√		√			√				√			√		√		√
PA28SW66	9305X906			√			√		√	√				√			√		√		√
PA50CB300	9303X830			√	√		√	√	√	√				√			√		√	√	√
PA50CB301	9303X836			√	√		√	√	√	√				√			√		√	√	√
PA50CB302	9303X831			√	√		√	√	√	√				√			√		√	√	√
PA50CB304	9303X835			√	√		√	√	√	√				√			√		√	√	√
PA50CB305	9303X834			√	√		√	√	√	√							√		√	√	√
PA50SW303	9303X832			√	√		√	√	√	√				√			√		√	√	√
PA50SW306	9303X833			√	√		√	√	√	√				√			√		√	√	√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.3-10

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	6,060	13,100	8,640	MG/KG	7.1	10	10	76,700	0	100,000	0		
	ANTIMONY	9.6	205	55.2	MG/KG	5.0	10	7	30.7	4	681	0	9.05	7
	ARSENIC	3.7	58.5	13.8	MG/KG	0.46	10	10	0.32	10	2.0	10	11.10	3
	BARIUM	56.0	4,470	831	MG/KG	0.68	10	10	5,340	0	100,000	0	314.36	6
	BERYLLIUM	0.19	0.26	0.23	MG/KG	0.18	10	2	0.14	2	1.1	0	0.71	0
	CADMIUM	4.1	61.5	17.9	MG/KG	0.66	10	9	9.0	6	852	0	3.14	9
	CALCIUM	6,820	35,200	14,800	MG/KG	16.6	10	10						
	CHROMIUM	173	4,470	841	MG/KG	0.52	10	10	211	8	1,580	1	h	8
	COBALT	10.9	74.6	26.8	MG/KG	1.1	10	10					h	1
	COPPER	457	24,100	4,340	MG/KG	0.21	10	10	2,850	3	63,300	0	124.31	10
	IRON	16,500	53,800	39,100	MG/KG	5.4	10	10						
	LEAD	97.2	14,600	2,690	MG/KG	4.3	10	10	130	9	1,000	6	8.99	10
	MAGNESIUM	5,640	143,000	22,400	MG/KG	24.3	10	10						
	MANGANESE	197	922	483	MG/KG	0.21	10	10	382	7	8,300	0	1431.18	0
	MERCURY	0.14	19.2	3.3	MG/KG	0.07	10	10	23.0	0	511	0	2.28	2
	MOLYBDENUM	9.0	105	39.7	MG/KG	0.72	9	9	383	0	8,520	0	2.68	9
	NICKEL	83.6	1,320	314	MG/KG	2.1	10	10	150	6	34,100	0	h	3
	POTASSIUM	689	2,060	1,080	MG/KG	155	10	10						
	SELENIUM	2.0	2.0	2.0	MG/KG	0.69	7	1	383	0	8,520	0	1.95	1
	SILVER	1.6	27.3	12.8	MG/KG	0.51	10	6	383	0	8,520	0	1.43	6
	SODIUM	242	4,730	1,960	MG/KG	29.2	10	10						
	THALLIUM	0.69	0.69	0.69	MG/KG	0.56	9	1					0.81	0

TABLE 4.3-10 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	VANADIUM	20.0	202	63.8	MG/KG	0.80	10	10	537	0	11,900	0	117.17	1
	ZINC	815	11,600	2,970	MG/KG	0.43	10	10	23,000	0	100,000	0	109.86	10
CYAN	CYANIDE	0.15	0.82	0.40	MG/KG	0.31	8	3	1,300	0	13,600	0		
VOC	1,1,1-TRICHLOROETHANE	0.59	0.59	0.59	MG/KG	1.6	10	1	3,200	0	3,000	0		
	2-BUTANONE	0.098	0.098	0.098	MG/KG	0.070	10	1	8,700	0	34,000	0		
	ACETONE	4.7	4.7	4.7	MG/KG	1.6	10	1	2,000	0	8,400	0		
	CARBON DISULFIDE	0.021	0.13	0.082	MG/KG	0.033	10	3	16	0	52	0		
	CHLOROBENZENE	1.4	12	6.5	MG/KG	8.2	10	2	160	0	570	0		
	ETHYLBENZENE	0.063	3.6	1.8	MG/KG	8.2	10	2	2,900	0	3,100	0		
	METHYLENE CHLORIDE	0.71	0.71	0.71	MG/KG	1.6	10	1	11	0	25	0		
	TETRACHLOROETHENE	0.008	67,000	34,000	MG/KG	2,200	10	2	7.0	1	25	1		
	TOLUENE	0.038	0.038	0.038	MG/KG	0.070	10	1	1,900	0	2,700	0		
	XYLENE (TOTAL)	0.36	9.5	6.2	MG/KG	11	10	3	980	0	980	0		
SVOC	2-METHYLNAPHTHALENE	4.1	4.1	4.1	MG/KG	17	9	1	800	0	800	0		
	ANTHRACENE	0.49	0.49	0.49	MG/KG	27	9	1	19	0	19	0		
	BIS(2-ETHYLHEXYL)PHTHALATE	3.5	3.5	3.5	MG/KG	2.3	9	1	32	0	140	0		
	DI-N-BUTYLPHTHALATE	0.31	0.31	0.31	MG/KG	2.3	9	1	6,500	0	68,000	0		
	FLUORANTHENE	0.52	15	6.1	MG/KG	35	9	3	2,600	0	27,000	0		
	NAPHTHALENE	3.6	21	12	MG/KG	46	9	2	800	0	800	0		
	PHENANTHRENE	0.45	12	3.7	MG/KG	25	9	5	800	0	800	0		
	PHENOL	11	11	11	MG/KG	74	9	1	39,000	0	100,000	0		
	PYRENE	0.55	9.2	3.5	MG/KG	27	9	4	2,000	0	20,000	0		

TABLE 4.3-10 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	TETRAHYDROFURAN	2.4	2.4	2.4	MG/KG	0.072	1	1						
PEST	AROCLOR-1260	0.35	6.3	2.5	MG/KG	0.43	9	8	0.066	8	0.34	8		
TPHPRG	TPH-GASOLINE	21	200	83	MG/KG	14	10	4	100	1i				
	TPH-PURGEABLE UNKNOWN HYDROCA.	2,100	18,000	10,000	MG/KG	2,400	2	2	100	2i				
TPHEXT	TPH-DIESEL	160	17,000	4,800	MG/KG	380	10	9	1,000	5i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	5,500	5,500	5,500	MG/KG	830	2	1	1,000	1i				
TRPH	TRPH	110	44,000	9,000	MG/KG	620	7	7	1,000	4i				

TABLE 4.3-10 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 130.213 to 1209.720, 23.324 to 124.580, and 136.133 to 2923.933 mg/kg respectively.

TABLE 4.3-11

SUMMARY OF OTHER WATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
796 (796-803	9604V057													✓							
803 (803)	9604V019													✓							
PA28SU24	9304X877						✓		✓					✓			✓		✓		✓
PA28SU29	9304X875						✓		✓					✓			✓		✓		✓
PA28SU30	9304X873						✓		✓					✓			✓		✓		✓
PA28SU31	9304X870						✓		✓					✓			✓		✓		✓
PA28SU32	9304X869						✓		✓					✓			✓		✓		✓
PA28SU33	9304X880						✓		✓					✓			✓		✓		✓
PA28SU36	9304X876						✓		✓					✓			✓		✓		✓
PA28SU37	9304X874						✓		✓					✓			✓		✓		✓
PA28SW01	9430J327																✓		✓		✓
PA28SW66	9430J328																✓		✓		✓
PA45ST300	9316H421						✓		✓	✓				✓			✓		✓	✓	✓
PA45ST300	9316H424		✓				✓		✓	✓				✓			✓		✓	✓	✓
PA45ST300	9316H427		✓																		
PA50CB301	9430J325																✓		✓		✓
PA50SN307	9430J321														✓		✓		✓		✓
PA50SN309	9430J323														✓		✓		✓		✓
PA50SN320	9410X246						✓		✓	✓				✓	✓		✓		✓	✓	✓
PA50SN320	9410X247						✓		✓	✓				✓	✓		✓		✓	✓	✓
PA50SN321	9410X250						✓		✓	✓				✓	✓		✓		✓	✓	✓
PA50SW316	9430J326																✓		✓		✓
PA50SW319	9311J406			✓	✓		✓		✓					✓			✓		✓	✓	✓
PA50SW319	9331X013														✓						

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.3-12

STATISTICAL SUMMARY OF OTHER WATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above PRG[e]	MCL[f] Value	Above MCL[g]	NAWQC Value	Above NAWQC[h]	HGAL Value	Above HGAL[k]
METAL	ALUMINUM	161	161	161	UG/L	16.0	13	1	37,000	0						
	ANTIMONY	3.2	24.5	14.0	UG/L	7.9	13	4	15.0	2	6.0	3	500	0		
	ARSENIC	1.4	4.8	2.8	UG/L	1.4	13	6	0.04	6	50.0	0	36.0	0		
	BARIUM	7.3	197	43.4	UG/L	2.7	13	11	2,600	0	1,000	0				
	CADMIUM	3.2	42.3	16.8	UG/L	2.1	13	3	18.0	1	5.0	1	9.3	1		
	CALCIUM	25,200	254,000	124,000	UG/L	61.8	13	11								
	CHROMIUM	2.3	22.8	11.5	UG/L	1.8	13	7			50.0	0				
	COBALT	4.5	134	50.2	UG/L	3.0	13	3								
	COPPER	275	1,090	681	UG/L	0.20	13	2	1,400	0			2.4	2		
	IRON	58.0	23,800	6,090	UG/L	15.5	13	7								
	MAGNESIUM	995	865,000	235,000	UG/L	411	13	12								
	MANGANESE	9.1	3,710	796	UG/L	0.84	13	9	180	6						
	MERCURY	0.11	0.82	0.39	UG/L	0.10	13	8	11.0	0	2.0	0	0.03	8		
	MOLYBDENUM	6.8	215	87.6	UG/L	2.4	13	8	180	1						
	NICKEL	31.2	1,390	300	UG/L	4.5	13	8	730	1	100	6	8.2	8		
	POTASSIUM	7,190	275,000	105,000	UG/L	2,910	13	11								
	SELENIUM	6.1	6.1	6.1	UG/L	5.5	12	1	180	0	50.0	0	71.0	0		
	SODIUM	29,200	7,350,000	2,020,000	UG/L	2,180	13	12								
	VANADIUM	2.8	6.1	4.3	UG/L	2.9	13	3	260	0						
	ZINC	32.5	16,000	4,200	UG/L	1.3	13	8	11,000	2			81.0	5		
VOC	1,1,1-TRICHLOROETHANE	160	600	380	UG/L	10	19	2	1,300	0	200	1				
	1,1,2-TRICHLORO-1,2,2-TRIF	2	2	2	UG/L	1	6	1	59,000	0						

TABLE 4.3-12 (Continued)

STATISTICAL SUMMARY OF OTHER WATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	1,1-DICHLOROETHANE	8	120	64	UG/L	10	19	2	810	0						
	1,2-DICHLOROBENZENE	0.4	9	5	UG/L	2	6	2	370	0	600	0				
	1,3-DICHLOROBENZENE	0.3	6	3	UG/L	2	6	2								
	1,4-DICHLOROBENZENE	0.3	70	24	UG/L	1	6	3	0.5	2	5	1				
	2-BUTANONE	700	700	700	UG/L	10	19	1	1,900	0						
	2-HEXANONE	30	30	30	UG/L	10	13	1								
	4-METHYL-2-PENTANONE	20	20	20	UG/L	10	13	1	2,900	0						
	ACETONE	56	3,700	1,900	UG/L	10	13	2	610	1						
	BENZENE	1	1	1	UG/L	10	19	1	0.4	1	1	0				
	BROMODICHLOROMETHANE	2	4	3	UG/L	1	19	2	0.2	2	100	0				
	CHLOROETHANE	11	11	11	UG/L	1	19	1	710	0						
	CHLOROFORM	0.9	17	7	UG/L	6	19	4	0.2	4	100	0				
	CIS-1,2-DICHLOROETHENE	0.6	250	67	UG/L	4	6	4	61	1	6	2				
	DIBROMOCHLOROMETHANE	0.9	1	1	UG/L	1	19	2	1	0	100	0				
	TETRACHLOROETHENE	350	350	350	UG/L	10	19	1	1	1	5	1				
	TOLUENE	2	6	4	UG/L	10	19	2	720	0	150	0				
	TRANS-1,2-DICHLOROETHENE	6	6	6	UG/L	10	6	1	120	0	10	0				
	TRICHLOROETHENE	0.4	88	32	UG/L	4	19	3	2	2	5	2				
	TRICHLOROFLUOROMETHANE	2	15	9	UG/L	1	6	2	1,300	0						
	VINYL CHLORIDE	5	6	6	UG/L	2	19	2	0.02	2	0.5	2				
SVOC	1,4-DICHLOROBENZENE	3	3	3	UG/L	5	15	1	0.5	1	5	0				
	4-METHYLPHENOL	72	81	77	UG/L	100	15	2	180	0						

TABLE 4.3-12 (Continued)

STATISTICAL SUMMARY OF OTHER WATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	BIS(2-ETHYLHEXYL)PHTHALAT.	36	36	36	UG/L	20	15	1	5	1	4	1	360	0		
	PHENOL	57	89	73	UG/L	100	15	2	22,000	0						
PEST	BETA-BHC	0.05	0.05	0.05	UG/L	0.05	13	1	0.04	1						
TPHPRG	TPH-GASOLINE	28	2,000	700	UG/L	120	19	3	100	1i						
TPHEXT	TPH-DIESEL	120	40,000	8,900	UG/L	3,800	19	11	100	11i						
	TPH-MOTOR OIL	110	6,100	1,600	UG/L	330	8	4	100	4i						
ASBESTOS	TOTAL ASBESTOS STRUCT. CON	3	3	3	MS/L	2	2	1								
TMICROB	FECAL COLIFORM	20	26	23	j	2	3	2								
	TOTAL COLIFORM	20	1,600	810	j	2	4	4								

TABLE 4.3-12 (Continued)

STATISTICAL SUMMARY OF OTHER WATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
MS/L	Microstructure per liter
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

j Most probable number of organisms per 100 milliliters (mpn/100 mL)

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.3-13

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B084	9419C203						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B084	9419C204						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B084	9419C205						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B084	9419C208						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B084	9419C209						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B085	9411T060						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B085	9411T061						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B085	9411T062						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B085	9411T063						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B085	9411T064						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B086	9411N457						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B086	9411N458						✓		✓	✓				✓			✓		✓	✓	✓
IR28B086	9411N461						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B086	9411N462						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B086	9411N463						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B086	9411N464						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B087	9412P315						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B087	9412P316						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B087	9412P317						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B087	9412P319						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B087	9412P320						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B088	9410A547						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B088	9410A548						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B088	9410A549						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B088	9410A550						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B089	9410A552						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B089	9410A553						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B089	9410A554						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B089	9410B180						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B090	9412P323						✓		✓	✓				✓			✓		✓	✓	✓
IR28B090	9412P324						✓		✓	✓				✓			✓		✓	✓	✓
IR28B090	9412P325						✓		✓	✓				✓			✓		✓	✓	✓
IR28B091	9411T065						✓	✓		✓				✓			✓		✓	✓	✓
IR28B091	9411T067						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B091	9411T068						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B091	9411T070						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B091	9411T071						✓	✓	✓	✓				✓			✓		✓	✓	✓

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B092	9415C150						√	√	√	√				√			√		√	√	√
IR28B092	9415C152						√	√	√	√				√			√		√	√	√
IR28B092	9415C153						√	√	√	√				√			√		√	√	√
IR28B092A	9413N529						√	√	√	√				√			√		√	√	√
IR28B093	9411T077						√	√	√	√				√			√		√	√	√
IR28B093	9411T078						√	√	√	√				√			√		√	√	√
IR28B093	9411T079						√	√	√	√				√			√		√	√	√
IR28B094	9413A700						√	√	√	√				√			√		√	√	√
IR28B094	9413A701						√	√	√	√				√			√		√	√	√
IR28B094	9413A703						√	√	√	√				√			√		√	√	√
IR28B094	9413A704						√	√	√	√				√			√		√	√	√
IR28B094	9413A705						√	√	√	√				√			√		√	√	√
IR28B095	9409A520						√	√	√	√				√			√		√	√	√
IR28B096	9409G770						√	√	√	√				√			√		√	√	√
IR28B096	9409G771						√	√	√	√				√			√		√	√	√
IR28B096	9410A558						√	√	√	√				√			√		√	√	√
IR28B096	9410A559						√	√	√	√				√			√		√	√	√
IR28B096	9410A560						√	√	√	√				√			√		√	√	√
IR28B097A	9411T066						√	√	√	√				√			√		√	√	√
IR28B098	9409A522						√	√	√	√				√			√		√	√	√
IR28B098	9409A523						√	√	√	√				√			√		√	√	√
IR28B098	9409A524						√	√	√	√				√			√		√	√	√
IR28B100	9407N380						√	√	√	√				√			√		√	√	√
IR28B100	9407N381						√	√	√	√				√			√		√	√	√
IR28B100	9407N383						√	√	√	√				√			√		√	√	√
IR28B100	9407N384						√	√	√	√				√			√		√	√	√
IR28B100	9407N385						√	√	√	√				√			√		√	√	√
IR28B101	9416A804						√	√	√	√				√			√		√	√	√
IR28B101	9416A805						√	√	√	√				√			√		√	√	√
IR28B101	9416A806						√	√	√	√				√			√		√	√	√
IR28B101	9416A808						√	√	√	√				√			√		√	√	√
IR28B102	9405N299						√	√	√	√				√			√		√	√	√
IR28B102	9405N300						√	√	√	√				√			√		√	√	√
IR28B102	9405N303						√	√	√	√				√			√		√	√	√
IR28B102	9405N304						√	√	√	√				√			√		√	√	√
IR28B102	9405N305						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B104	9425A928						√	√	√	√				√			√		√	√	√
IR28B104	9425A929						√	√	√	√				√			√		√	√	√
IR28B104	9425A931						√	√	√	√				√			√		√	√	√
IR28B104	9425A932						√	√	√	√				√			√		√	√	√
IR28B105	9416A814						√	√	√	√				√			√		√	√	√
IR28B105	9416A815						√	√	√	√				√			√		√	√	√
IR28B105	9416A816						√	√	√	√				√			√		√	√	√
IR28B105	9416A818						√	√	√	√				√			√		√	√	√
IR28B105	9416A819						√	√	√	√				√			√		√	√	√
IR28B106	9406N323						√	√	√	√				√			√		√	√	√
IR28B106	9406N324						√	√	√	√				√			√		√	√	√
IR28B106	9406N325						√	√	√	√				√			√		√	√	√
IR28B106	9406N328						√	√	√	√				√			√		√	√	√
IR28B106	9406N329						√	√	√	√				√			√		√	√	√
IR28B106	9406N330						√	√	√	√				√			√		√	√	√
IR28B107	9412L126						√	√	√	√				√			√		√	√	√
IR28B107	9412L127						√	√	√	√				√			√		√	√	√
IR28B107	9412L129						√	√	√	√				√			√		√	√	√
IR28B107	9412L130						√	√	√	√				√			√		√	√	√
IR28B107	9412L131						√	√	√	√				√			√		√	√	√
IR28B108	9405N317						√	√	√	√				√			√		√	√	√
IR28B108	9405N318						√	√	√	√				√			√		√	√	√
IR28B108	9405N320						√	√	√	√				√			√		√	√	√
IR28B108	9405N321						√	√	√	√				√			√		√	√	√
IR28B108	9405N322						√	√	√	√				√			√		√	√	√
IR28B109	9412L100						√	√	√	√				√			√		√	√	√
IR28B109	9412L101						√	√	√	√				√			√		√	√	√
IR28B109	9412L104						√	√	√	√				√			√		√	√	√
IR28B109	9412L105						√	√	√	√				√			√		√	√	√
IR28B109	9412L106						√	√	√	√				√			√		√	√	√
IR28B110	9412L113						√	√	√	√				√			√		√	√	√
IR28B110	9412L114						√	√	√	√				√			√		√	√	√
IR28B110	9412L115						√	√	√	√				√			√		√	√	√
IR28B110	9412L117						√	√	√	√				√			√		√	√	√
IR28B111	9411N465						√	√	√	√				√			√		√	√	√
IR28B111	9411N466						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B111	9411N467						√	√	√	√				√			√		√	√	√
IR28B111	9411N470						√	√	√	√				√			√		√	√	√
IR28B111	9411N471						√	√	√	√				√			√		√	√	√
IR28B111	9411N472						√	√	√	√				√			√		√	√	√
IR28B112	9407N395						√	√	√	√				√			√		√	√	√
IR28B112	9407N396						√	√	√	√				√			√		√	√	√
IR28B112	9407N397						√	√	√	√				√			√		√	√	√
IR28B112	9407N399						√	√	√	√				√			√		√	√	√
IR28B112	9407N400						√	√	√	√				√			√		√	√	√
IR28B113	9405N306						√	√	√	√				√			√		√	√	√
IR28B113	9405N307						√	√	√	√				√			√		√	√	√
IR28B113	9405N308						√	√	√	√				√			√		√	√	√
IR28B113	9405N309						√	√	√	√				√			√		√	√	√
IR28B113	9405N313						√	√	√	√				√			√		√	√	√
IR28B113	9405N314						√	√	√	√				√			√		√	√	√
IR28B114	9412L107						√	√	√	√				√			√		√	√	√
IR28B114	9412L108						√	√	√	√				√			√		√	√	√
IR28B114	9412L109						√	√	√	√				√			√		√	√	√
IR28B114	9412L111						√	√	√	√				√			√		√	√	√
IR28B114	9412L112						√	√	√	√				√			√		√	√	√
IR28B115	9407N390						√	√	√	√				√			√		√	√	√
IR28B115	9407N391						√	√	√	√				√			√		√	√	√
IR28B115	9407N392						√	√	√	√				√			√		√	√	√
IR28B115	9407N394						√	√	√	√				√			√		√	√	√
IR28B117	9413A706						√	√	√	√				√			√		√	√	√
IR28B117	9413A707						√	√	√	√				√			√		√	√	√
IR28B117	9413A708						√	√	√	√				√			√		√	√	√
IR28B117	9413A710						√	√	√	√				√			√		√	√	√
IR28B117	9413A712						√	√	√	√				√			√		√	√	√
IR28B118	9405N287						√	√	√	√				√			√		√	√	√
IR28B118	9405N288						√	√	√	√				√			√		√	√	√
IR28B118	9405N290						√	√	√	√				√			√		√	√	√
IR28B118	9405N291						√	√	√	√				√			√		√	√	√
IR28B118	9405N292						√	√	√	√				√			√		√	√	√
IR28B119	9409N433						√	√	√	√				√			√		√	√	√
IR28B119	9409N434						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B119	9409N437						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B119	9409N438						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B119	9409N439						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B120	9409A513						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B120	9409A514						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B120	9409A516						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B120	9409A517						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B121	9409A519																				✓
IR28B121	9409N445						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B121	9409N446						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B121	9409N449						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B121	9409N450						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B121	9409N451						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B130	9403N239						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B130	9403N240						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B130	9403N241						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B131	9403N243						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B131	9403N244						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B131	9403N245						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B131	9403N246						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B131	9403N247						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B132	9403N253						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B132	9403N254						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B132	9403N255						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B133	9403N225						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B133	9403N226						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B133	9403N227						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B134	9416T116						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B134	9416T117						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B135	9416A809						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B135	9416A810						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B135	9416S808						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B137	9403N232						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B137	9403N234						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B137	9403N235						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B138	9403N229						✓	✓	✓	✓				✓			✓		✓	✓	✓

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B138	9403N230						√	√	√	√				√			√		√	√	√
IR28B138	9403N231						√	√	√	√				√			√		√	√	√
IR28B139	9416A811						√	√	√	√				√			√		√	√	√
IR28B139	9416A812						√	√	√	√				√			√		√	√	√
IR28B141	9415A780						√	√	√	√				√			√		√	√	√
IR28B141	9415A781						√	√	√	√				√			√		√	√	√
IR28B141	9415A782						√	√	√	√				√			√		√	√	√
IR28B141	9416C157						√	√	√	√				√			√		√	√	√
IR28B141	9416C158						√	√	√	√				√			√		√	√	√
IR28B142	9414T105						√	√	√	√				√			√		√	√	√
IR28B142	9416C160						√	√	√	√				√			√		√	√	√
IR28B142	9416C161						√	√	√	√				√			√		√	√	√
IR28B142	9416C162						√	√	√	√				√			√		√	√	√
IR28B143	9411T073						√	√	√	√				√			√		√	√	√
IR28B143	9411T074						√	√	√	√				√			√		√	√	√
IR28B143	9411T075						√	√	√	√				√			√		√	√	√
IR28B144	9410A555						√	√	√	√				√			√		√	√	√
IR28B144	9410A556						√	√	√	√				√			√		√	√	√
IR28B144	9410A557						√	√	√	√				√			√		√	√	√
IR28B145	9403N256						√	√	√	√				√			√		√	√	√
IR28B145	9403N257						√	√	√	√				√			√		√	√	√
IR28B145	9403N258						√	√	√	√				√			√		√	√	√
IR28B146	9403N259						√	√	√	√				√			√		√	√	√
IR28B146	9403N260						√	√	√	√				√			√		√	√	√
IR28B146	9403N261						√	√	√	√				√			√		√	√	√
IR28B147	9403N262						√	√	√	√				√			√		√	√	√
IR28B147	9403N263						√	√	√	√				√			√		√	√	√
IR28B147	9403N264						√	√	√	√				√			√		√	√	√
IR28B148	9404N281						√	√	√	√				√			√		√	√	√
IR28B148	9404N282						√	√	√	√				√			√		√	√	√
IR28B148	9404N283						√	√	√	√				√			√		√	√	√
IR28B153	9404N284						√	√	√	√				√			√		√	√	√
IR28B153	9404N285						√	√	√	√				√			√		√	√	√
IR28B153	9404N286						√	√	√	√				√			√		√	√	√
IR28B154	9417A823						√	√	√	√				√			√		√	√	√
IR28B154	9417A824						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B154	9417A825						√	√	√	√				√			√		√	√	√
IR28B156	9404N265						√	√	√	√				√			√		√	√	√
IR28B156	9404N266						√	√	√	√				√			√		√	√	√
IR28B156	9404N267						√	√	√	√				√			√		√	√	√
IR28B157	9404N268						√	√	√	√				√			√		√	√	√
IR28B157	9404N269						√	√	√	√				√			√		√	√	√
IR28B157	9404N270						√	√	√	√				√			√		√	√	√
IR28B158	9404B151						√	√	√	√				√			√		√	√	√
IR28B158	9404B152						√	√	√	√				√			√		√	√	√
IR28B158	9404B153						√	√	√	√				√			√		√	√	√
IR28B158	9404B154						√	√	√	√				√			√		√	√	√
IR28B159	9404N278						√	√	√	√				√			√		√	√	√
IR28B159	9404N279						√	√	√	√				√			√		√	√	√
IR28B159	9404N280						√	√	√	√				√			√		√	√	√
IR28B160	9410T054						√	√	√	√				√			√		√	√	√
IR28B160	9410T055						√	√	√	√				√			√		√	√	√
IR28B160	9410T056						√	√	√	√				√			√		√	√	√
IR28B161	9410T057						√	√	√	√				√			√		√	√	√
IR28B161	9410T058						√	√	√	√				√			√		√	√	√
IR28B161	9410T059						√	√	√	√				√			√		√	√	√
IR28B174	9406N331						√	√	√	√				√			√		√	√	√
IR28B174	9406N332						√	√	√	√				√			√		√	√	√
IR28B174	9406N333						√	√	√	√				√			√		√	√	√
IR28B174	9406N334						√	√	√	√				√			√		√	√	√
IR28B174	9406N335						√	√	√	√				√			√		√	√	√
IR28B176	9406N338						√	√	√	√				√			√		√	√	√
IR28B176	9406N339						√	√	√	√				√			√		√	√	√
IR28B176	9406N340						√	√	√	√				√			√		√	√	√
IR28B178	9408H555						√	√	√	√				√			√		√	√	√
IR28B178	9408H556						√	√	√	√				√			√		√	√	√
IR28B178	9408H558						√	√	√	√				√			√		√	√	√
IR28B178	9408H559						√	√	√	√				√			√		√	√	√
IR28B179	9418C193						√	√	√	√				√			√		√	√	√
IR28B179	9418C194						√	√	√	√				√			√		√	√	√
IR28B179	9418C195						√	√	√	√				√			√		√	√	√
IR28B179	9418C196						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B179	9418C198						√	√	√	√				√			√		√	√	√
IR28B180	9406N341						√	√	√	√				√			√		√	√	√
IR28B180	9406N342						√	√	√	√				√			√		√	√	√
IR28B180	9406N343						√	√	√	√				√			√		√	√	√
IR28B180	9406N344						√	√	√	√				√			√		√	√	√
IR28B180	9406N345						√	√	√	√				√			√		√	√	√
IR28B180	9406N346						√	√	√	√				√			√		√	√	√
IR28B181	9414A741						√	√	√	√				√			√		√	√	√
IR28B181	9414A742						√	√	√	√				√			√		√	√	√
IR28B181	9414A743						√	√	√	√				√			√		√	√	√
IR28B181	9414A744						√	√	√	√				√			√		√	√	√
IR28B181	9414A745						√	√	√	√				√			√		√	√	√
IR28B183	9421L515						√		√	√				√			√		√	√	√
IR28B183	9421L516						√		√	√				√			√		√	√	√
IR28B183	9421L517						√		√	√				√			√		√	√	√
IR28B183	9421L518						√		√	√				√			√		√	√	√
IR28B185	9410A561						√	√	√	√				√			√		√	√	√
IR28B186	9412A672						√		√	√				√			√		√	√	√
IR28B186	9412A673						√		√	√				√			√		√	√	√
IR28B186	9412A674						√		√	√				√			√		√	√	√
IR28B186	9412A675						√		√	√				√			√		√	√	√
IR28B187	9410A565						√	√	√	√				√			√		√	√	√
IR28B187	9410A566						√	√	√	√				√			√		√	√	√
IR28B187	9410A567						√	√	√	√				√			√		√	√	√
IR28B187	9410A570						√	√	√	√				√			√		√	√	√
IR28B187	9410A571						√	√	√	√				√			√		√	√	√
IR28B187	9410A572						√	√	√	√				√			√		√	√	√
IR28B187	9410A573						√	√	√	√				√			√		√	√	√
IR28B187	9410A574						√	√	√	√				√			√		√	√	√
IR28B194	9412L133						√	√	√	√				√			√		√	√	√
IR28B194	9412L134						√	√	√	√				√			√		√	√	√
IR28B194	9412L137						√	√	√	√				√			√		√	√	√
IR28B194	9412L138						√	√	√	√				√			√		√	√	√
IR28B195	9412L120						√	√	√	√				√			√		√	√	√
IR28B195	9412L121						√	√	√	√				√			√		√	√	√
IR28B195	9412L122						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B196	9411N513						√	√	√	√				√			√		√	√	√
IR28B196	9411N514						√	√	√	√				√			√		√	√	√
IR28B196	9411N515						√	√	√	√				√			√		√	√	√
IR28B196	9411N516						√	√	√	√				√			√		√	√	√
IR28B196	9411N517						√	√	√	√				√			√		√	√	√
IR28B196	9411N518						√	√	√	√				√			√		√	√	√
IR28B196	9411N522						√	√	√	√				√			√		√	√	√
IR28B197	9404A300						√	√	√	√				√			√		√	√	√
IR28B197	9404A301						√	√	√	√				√			√		√	√	√
IR28B197	9404A302						√	√	√	√				√			√		√	√	√
IR28B198	9415A785						√	√	√	√				√			√		√	√	√
IR28B198	9415A786						√	√	√	√				√			√		√	√	√
IR28B198	9415A788						√	√	√	√				√			√		√	√	√
IR28B199	9408A509						√	√	√	√				√			√		√	√	√
IR28B199	9408A510						√	√	√	√				√			√		√	√	√
IR28B199	9408A512						√	√	√	√				√			√		√	√	√
IR28B203	9413A713						√	√	√	√				√			√		√	√	√
IR28B204	9410T050						√	√	√	√				√			√		√	√	√
IR28B204	9410T051						√	√	√	√				√			√		√	√	√
IR28B204	9410T052						√	√	√	√				√			√		√	√	√
IR28B205	9413N524						√	√	√	√				√			√		√	√	√
IR28B205	9413N525						√	√	√	√				√			√		√	√	√
IR28B205	9413N526						√	√	√	√				√			√		√	√	√
IR28B206	9404H291						√	√	√	√				√			√		√	√	√
IR28B206	9404H292						√	√	√	√				√			√		√	√	√
IR28B206	9404H293						√	√	√	√				√			√		√	√	√
IR28B207	9412A676						√		√	√				√			√		√	√	√
IR28B207	9412A677						√		√	√				√			√		√	√	√
IR28B207	9412A679						√		√	√				√			√		√	√	√
IR28B208	9407N373						√	√	√	√				√			√		√	√	√
IR28B208	9407N376						√	√	√	√				√			√		√	√	√
IR28B208	9407N377						√	√	√	√				√			√		√	√	√
IR28B209	9407N367						√	√	√	√				√			√		√	√	√
IR28B209	9407N370						√	√	√	√				√			√		√	√	√
IR28B209	9407N371						√	√	√	√				√			√		√	√	√
IR28B210	9408G750						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B210	9408G751						√	√	√	√				√			√		√	√	√
IR28B213	9404A298						√	√	√	√				√			√		√	√	√
IR28B213	9404A299						√	√	√	√				√			√		√	√	√
IR28B213	9404H297						√	√	√	√				√			√		√	√	√
IR28B214	9404H294						√	√	√	√				√			√		√	√	√
IR28B214	9404H295						√	√	√	√				√			√		√	√	√
IR28B214	9404H296						√	√	√	√				√			√		√	√	√
IR28B221	9414T096						√	√	√	√				√			√		√	√	√
IR28B221	9414T104						√	√	√	√				√			√		√	√	√
IR28B222	9412P307						√	√	√	√				√			√		√	√	√
IR28B222	9412P309						√	√	√	√				√			√		√	√	√
IR28B222	9412P310						√	√	√	√				√			√		√	√	√
IR28B223	9412P300						√	√	√	√				√			√		√	√	√
IR28B223	9412P301						√	√	√	√				√			√		√	√	√
IR28B223	9412P302						√	√	√	√				√			√		√	√	√
IR28B223	9412P303						√	√	√	√				√			√		√	√	√
IR28B223	9412P306						√	√	√	√				√			√		√	√	√
IR28B224	9408N428						√	√	√	√				√			√		√	√	√
IR28B224	9408N429						√	√	√	√				√			√		√	√	√
IR28B224	9408N431						√	√	√	√				√			√		√	√	√
IR28B224	9408N432						√	√	√	√				√			√		√	√	√
IR28B225	9408B171						√	√	√	√				√			√		√	√	√
IR28B225	9408B172						√	√	√	√				√			√		√	√	√
IR28B225	9408B173						√	√	√	√				√			√		√	√	√
IR28B225	9408B174						√	√	√	√				√			√		√	√	√
IR28B226	9408B162						√	√	√	√				√			√		√	√	√
IR28B226	9408B163						√	√	√	√				√			√		√	√	√
IR28B226	9408B164						√	√	√	√				√			√		√	√	√
IR28B226	9408B166						√	√	√	√				√			√		√	√	√
IR28B226	9408B167						√	√	√	√				√			√		√	√	√
IR28B227	9418C180						√	√	√	√				√			√		√	√	√
IR28B227	9418C181						√	√	√	√				√			√		√	√	√
IR28B227	9418C182						√	√	√	√				√			√		√	√	√
IR28B227	9418C183						√	√	√	√				√			√		√	√	√
IR28B227	9418C184						√	√	√	√				√			√		√	√	√
IR28B230	9409A543						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B230	9409A544						√	√	√	√				√			√		√	√	√
IR28B230	9409A545						√	√	√	√				√			√		√	√	√
IR28B230	9409A546						√	√	√	√				√			√		√	√	√
IR28B231	9411N491						√	√	√	√				√			√		√	√	√
IR28B231	9411N492						√	√	√	√				√			√		√	√	√
IR28B231	9411N495						√	√	√	√				√			√		√	√	√
IR28B231	9411N496						√	√	√	√				√			√		√	√	√
IR28B231	9411N497						√	√	√	√				√			√		√	√	√
IR28B232	9411N500						√	√	√	√				√			√		√	√	√
IR28B232	9411N503						√	√	√	√				√			√		√	√	√
IR28B232	9411N504						√	√	√	√				√			√		√	√	√
IR28B233	9411N505						√	√	√	√				√			√		√	√	√
IR28B233	9411N506						√	√	√	√				√			√		√	√	√
IR28B233	9411N507						√	√	√	√				√			√		√	√	√
IR28B233	9411N509						√	√	√	√				√			√		√	√	√
IR28B233	9411N510						√	√	√	√				√			√		√	√	√
IR28B233	9411N511						√	√	√	√				√			√		√	√	√
IR28B233	9411N512						√	√	√	√				√			√		√	√	√
IR28B234	9412L139						√	√	√	√				√			√		√	√	√
IR28B234	9412L140						√	√	√	√				√			√		√	√	√
IR28B234	9412L141						√	√	√	√				√			√		√	√	√
IR28B234	9412L142						√	√	√	√				√			√		√	√	√
IR28B234	9412L143						√	√	√	√				√			√		√	√	√
IR28B235	9413A729						√	√	√	√				√			√		√	√	√
IR28B235	9413A730						√	√	√	√				√			√		√	√	√
IR28B235	9413A731						√	√	√	√				√			√		√	√	√
IR28B235	9413A732						√	√	√	√				√			√		√	√	√
IR28B235	9413A734						√	√	√	√				√			√		√	√	√
IR28B236	9414T098						√	√	√	√				√			√		√	√	√
IR28B236	9414T099						√	√	√	√				√			√		√	√	√
IR28B236	9414T103						√	√	√	√				√			√		√	√	√
IR28B237	9418C185						√	√	√	√				√			√		√	√	√
IR28B237	9418C186						√	√	√	√				√			√		√	√	√
IR28B237	9418C187						√	√	√	√				√			√		√	√	√
IR28B237	9418C188						√	√	√	√				√			√		√	√	√
IR28B237	9418C190						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B238	9416A796						√	√	√	√				√			√		√	√	√
IR28B238	9416A797						√	√	√	√				√			√		√	√	√
IR28B238	9416A798						√	√	√	√				√			√		√	√	√
IR28B238	9416A800						√	√	√	√				√			√		√	√	√
IR28B238	9416A801						√	√	√	√				√			√		√	√	√
IR28B238	9416A802						√	√	√	√				√			√		√	√	√
IR28B238	9416A803						√	√	√	√				√			√		√	√	√
IR28B239	9416T109						√	√	√	√				√			√		√	√	√
IR28B239	9416T110						√	√	√	√				√			√		√	√	√
IR28B239	9416T112						√	√	√	√				√			√		√	√	√
IR28B239	9416T113						√	√	√	√				√			√		√	√	√
IR28B239	9416T114						√	√	√	√				√			√		√	√	√
IR28B239	9416T115						√	√	√	√				√			√		√	√	√
IR28B240	9421R155						√	√	√	√				√			√		√	√	√
IR28B240	9421R156						√	√	√	√				√			√		√	√	√
IR28B240	9421R157						√	√	√	√				√			√		√	√	√
IR28B241	9421R158						√	√	√	√				√			√		√	√	√
IR28B241	9421R159						√	√	√	√				√			√		√	√	√
IR28B241	9421R160						√	√	√	√				√			√		√	√	√
IR28B241	9421R161						√	√	√	√				√			√		√	√	√
IR28B242	9421R162						√	√	√	√				√			√		√	√	√
IR28B242	9421R163						√	√	√	√				√			√		√	√	√
IR28B243	9421R164						√	√	√	√				√			√		√	√	√
IR28B243	9421R165						√	√	√	√				√			√		√	√	√
IR28B243	9421R166						√	√	√	√				√			√		√	√	√
IR28B244	9421R169						√	√	√	√				√			√		√	√	√
IR28B244	9421R170						√	√	√	√				√			√		√	√	√
IR28B244	9421R171						√	√	√	√				√			√		√	√	√
IR28B244	9421R172						√	√	√	√				√			√		√	√	√
IR28B245	9421R167						√	√	√	√				√			√		√	√	√
IR28B245	9421R168						√	√	√	√				√			√		√	√	√
IR28B246	9421R174						√	√	√	√				√			√		√	√	√
IR28B246	9421R175						√	√	√	√				√			√		√	√	√
IR28B246	9421R176						√	√	√	√				√			√		√	√	√
IR28B247	9421R177						√	√	√	√				√			√		√	√	√
IR28B247	9421R178						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B247	9421R179						√	√	√	√				√			√		√	√	√
IR28B252	9429R421						√	√	√	√				√			√		√	√	√
IR28B252	9429R437						√	√	√	√				√			√		√	√	√
IR28B252	9430R448						√	√	√	√				√			√		√	√	√
IR28B254	9430C387						√	√	√	√				√			√		√	√	√
IR28B258	9431R502						√	√	√	√				√			√		√	√	√
IR28B258	9431R503						√	√	√	√				√			√		√	√	√
IR28B259	9517A048						√	√	√	√				√			√		√	√	√
IR28B259	9517A049						√	√	√	√				√			√		√	√	√
IR28B259	9517A050						√	√	√	√				√			√		√	√	√
IR28B259	9517A051						√	√	√	√				√			√		√	√	√
IR28B259	9517A054						√	√	√	√				√			√		√	√	√
IR28B259	9517A055						√	√	√	√				√			√		√	√	√
IR28B260	9517A056						√	√	√	√				√			√		√	√	√
IR28B260	9517A057						√	√	√	√				√			√		√	√	√
IR28B260	9517A058						√	√	√	√				√			√		√	√	√
IR28B260A	9517A045						√	√	√	√				√			√		√	√	√
IR28B260A	9517A046						√	√	√	√				√			√		√	√	√
IR28B260A	9517A047						√	√	√	√				√			√		√	√	√
IR28B264	9443A168						√	√	√	√				√			√		√	√	√
IR28B264	9443A169						√	√	√	√				√			√		√	√	√
IR28B264	9443A170						√	√	√	√				√			√		√	√	√
IR28B264	9443A172						√	√	√	√				√			√		√	√	√
IR28B264	9443A173						√	√	√	√				√			√		√	√	√
IR28B265	9442N604						√	√	√	√				√			√		√	√	√
IR28B265	9442N605						√	√	√	√				√			√		√	√	√
IR28B265	9442N606						√	√	√	√				√			√		√	√	√
IR28B265	9442N607						√	√	√	√				√			√		√	√	√
IR28B265	9442N612						√	√	√	√				√			√		√	√	√
IR28B265	9442N616						√	√	√	√				√			√		√	√	√
IR28B266	9444A197						√	√	√	√				√			√		√	√	√
IR28B266	9444A198						√	√	√	√				√			√		√	√	√
IR28B266	9444A200						√	√	√	√				√			√		√	√	√
IR28B266	9444A202						√	√	√	√				√			√		√	√	√
IR28B266	9444A203						√	√	√	√				√			√		√	√	√
IR28B266	9444A204						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B267	9444A190						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B267	9444A191						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B267	9444A192						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B267	9444A194						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B267	9444A195						✓	✓		✓									✓		
IR28B267	9444A196						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B276	9537J206						✓	✓	✓	✓				✓			✓		✓	✓	
IR28B276	9537J207						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B276	9537J208						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B276	9537J209										✓										
IR28B276	9537J210						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B276	9537J211										✓										
IR28B276	9537J212						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B277	9544J554						✓	✓		✓									✓		
IR28B277	9544J555						✓	✓	✓	✓							✓		✓		✓
IR28B278	9544J551						✓	✓		✓									✓		
IR28B278	9544J552						✓	✓	✓	✓							✓		✓		✓
IR28B278	9544J553						✓	✓	✓	✓							✓		✓		✓
IR28B279	9544G105						✓	✓	✓	✓				✓			✓		✓	✓	
IR28B279	9544G106						✓	✓	✓	✓				✓			✓		✓	✓	
IR28B280	9544G100						✓	✓	✓	✓				✓			✓		✓		
IR28B280	9544G101						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B280	9544G102						✓	✓	✓	✓							✓		✓		
IR28B281	9543W112						✓	✓	✓	✓				✓			✓		✓	✓	
IR28B281	9543W113						✓	✓		✓				✓			✓		✓	✓	
IR28B281	9543W114						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B282	9544J547						✓	✓	✓	✓							✓		✓		
IR28B282	9544J548						✓	✓	✓	✓				✓			✓		✓		✓
IR28B282	9544J558						✓	✓		✓									✓		
IR28B283	9544J559						✓	✓	✓	✓							✓		✓		
IR28B283	9544J562						✓	✓	✓	✓									✓		
IR28B283	9544J563						✓	✓	✓	✓				✓			✓		✓		
IR28B284	9537J231						✓	✓	✓	✓				✓			✓		✓	✓	
IR28B284	9537J233						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B284	9537J234						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR28B284	9537J235										✓					✓					

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B284	9537J236						√	√	√	√				√			√		√	√	√
IR28B285	9537J226						√	√	√	√				√			√		√	√	
IR28B285	9537J227						√	√	√	√				√			√		√	√	√
IR28B285	9537J228						√	√	√	√				√			√		√	√	√
IR28B285	9537J230						√	√	√	√				√			√		√	√	√
IR28B288	9537J238						√	√	√	√				√			√		√	√	
IR28B289	9539J295						√	√	√	√							√		√	√	
IR28B291	9538J261						√	√	√	√				√			√		√	√	
IR28B291	9538J262						√	√	√	√				√			√		√	√	√
IR28B291	9538J268						√	√	√	√				√			√		√	√	√
IR28B291	9538J270						√	√	√	√				√			√		√	√	√
IR28B291	9538J271										√					√					
IR28B292	9538J264						√	√	√	√				√			√		√	√	
IR28B292	9538J265						√	√	√	√				√			√		√	√	√
IR28B292	9538J266						√	√	√	√				√			√		√	√	√
IR28B292	9538J267						√	√	√	√				√			√		√	√	√
IR28B296	9540J349						√	√	√	√				√			√		√	√	
IR28B296	9540J350						√	√	√	√				√			√		√	√	√
IR28B296	9540J351						√	√	√	√				√			√		√	√	√
IR28B296	9540J354						√	√	√	√				√			√		√	√	√
IR28B296	9540J355						√	√	√	√				√			√		√	√	√
IR28B301	9605J810							√						√							
IR28B301	9605J811							√													√
IR28B302	9605J812							√													√
IR28B303	9605J813							√													√
IR28B303	9605J814							√						√							√
IR28B304	9605J815							√						√							
IR28B305	9605J816							√						√							
IR28B305	9605J817							√						√							
IR28B306	9605J818							√													√
IR28B307	9606J834							√													√
IR28B307	9606J835							√													√
IR28MW173B	9444N630						√	√	√	√				√			√		√	√	√
IR28MW201F	9446A216						√	√	√	√				√			√		√	√	√
IR28MW201F	9446A217						√	√	√	√				√			√		√	√	√
IR28MW268A	9542J483							√		√				√			√		√		

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW268A	9542J484							√		√				√			√		√		√
IR28MW268A	9542J485							√		√				√			√		√		√
IR28MW268A	9542J486							√		√				√			√		√		√
IR28MW268A	9542J487							√		√				√			√		√		√
IR28MW269A	9542J488							√		√				√			√		√		√
IR28MW269A	9542J489							√		√				√			√		√		√
IR28MW269A	9542J490							√		√				√			√		√		√
IR28MW269A	9542J491							√		√				√			√		√		√
IR28MW269A	9542J492							√		√				√			√		√		√
IR28MW270A	9542J497							√						√			√		√		√
IR28MW270A	9542J498							√						√			√		√		√
IR28MW270A	9542J499							√						√			√		√		√
IR28MW270A	9542J500							√						√			√		√		√
IR28MW270A	9542J501							√						√			√		√		√
IR28MW271A	9542J502							√						√			√		√		√
IR28MW271A	9542J503							√						√			√		√		√
IR28MW271A	9542J504							√						√			√		√		√
IR28MW271A	9542J505							√						√			√		√		√
IR28MW271A	9542J506							√						√			√		√		√
IR28MW272A	9542J507							√						√			√		√		√
IR28MW272A	9542J508							√						√			√		√		√
IR28MW273F	9543W093						√	√	√	√				√			√		√	√	
IR28MW273F	9543W094						√	√		√				√			√		√	√	
IR28MW273F	9543W095						√	√	√	√				√			√		√	√	√
IR28MW273F	9543W096						√	√	√	√				√			√		√	√	√
IR28MW273F	9543W097						√	√	√	√				√			√		√	√	√
IR28MW275F	9543W048						√	√	√	√				√			√		√	√	
IR28MW275F	9543W049						√	√	√	√				√			√		√	√	√
IR28MW275F	9543W050						√	√	√	√				√			√		√		√
IR28MW290A	9538J272						√	√	√	√				√			√		√	√	
IR28MW290A	9538J273						√	√	√	√				√			√		√	√	√
IR28MW290A	9538J274						√	√	√	√				√			√		√	√	√
IR28MW290A	9538J275						√	√	√	√				√			√		√	√	√
IR28MW290A	9538J276										√					√					
IR28MW290A	9538J278						√	√	√	√				√			√		√	√	√
IR28MW293A	9538J279						√	√	√	√				√			√		√	√	

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW293A	9538J280						√	√	√	√				√			√		√		
IR28MW293A	9538J284						√	√	√	√				√			√		√	√	√
IR28MW293A	9538J285						√	√	√	√				√			√		√	√	√
IR28MW293A	9538J286						√	√	√	√				√			√		√	√	√
IR28MW293A	9538J287										√					√					
IR28MW293A	9538J288						√	√	√	√				√			√		√	√	√
IR28MW294A	9540J345						√	√	√	√				√			√		√	√	
IR28MW294A	9540J346						√	√	√	√				√			√		√	√	√
IR28MW294A	9540J347						√	√	√	√				√			√		√	√	√
IR28MW295A	9540J357						√	√	√	√							√		√	√	
IR28MW295A	9540J358						√	√	√	√				√			√		√	√	√
IR28MW295A	9540J359						√	√	√	√				√			√		√	√	√
IR28MW297A	9542J495						√	√	√	√				√			√		√	√	
IR28MW297A	9542J496						√	√	√	√				√			√		√	√	√
IR28MW298A	9602G039						√	√	√	√				√			√		√	√	√
IR28MW298A	9602G040						√	√	√	√				√			√		√	√	√
IR28MW299B	9606J836						√	√	√	√				√			√		√	√	√
IR28MW299B	9606J837						√	√	√	√				√			√		√	√	√
IR28MW299B	9606J838						√	√	√	√				√			√		√	√	√
IR28MW299B	9606J839						√	√	√	√				√			√		√	√	√
IR28MW299B	9606J840						√	√	√	√				√			√		√	√	√
IR28MW300F	9606G077						√	√	√	√				√			√		√	√	
IR28MW300F	9606G078						√	√	√	√				√			√		√	√	√
IR28MW308A	9613J974						√	√	√	√				√			√		√	√	√
IR28MW308A	9613J975						√	√	√	√				√			√		√	√	√
IR28MW308A	9613J976						√	√	√	√				√			√		√	√	√
IR28MW308A	9613J977						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J984						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J985						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J986						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J987						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J988						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J989						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J990						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J991						√	√	√	√				√			√		√	√	√
IR28MW309B	9613J992						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW309B	9613J993										√					√					
IR28MW310F	9614J001						√	√	√	√				√			√		√	√	√
IR28MW310F	9614J994						√	√	√	√				√			√		√	√	
IR28MW310F	9614J995						√	√	√	√				√			√		√	√	√
IR28MW310F	9614J996						√	√	√	√				√			√		√	√	√
IR28MW310F	9614J997						√	√	√	√				√			√		√	√	√
IR28MW310F	9614J998						√	√	√	√				√			√		√	√	√
IR28MW310F	9614J999						√	√	√	√				√			√		√	√	√
IR28MW311A	9614J002						√	√	√	√				√			√		√	√	
IR28MW311A	9614J003						√	√	√	√				√			√		√	√	√
IR28MW311A	9614J004						√	√	√	√				√			√		√	√	√
IR28MW311A	9614J005						√	√	√	√				√			√		√	√	√
IR28MW311A	9614J006										√					√					
IR28MW311A	9614J007						√	√	√	√				√			√		√	√	√
IR28MW312F	9614J008						√	√	√	√				√			√		√	√	
IR28MW314B	9617J047						√	√	√	√				√			√		√	√	√
IR28MW314B	9617J048						√	√	√	√				√			√		√	√	√
IR28MW314B	9617J049						√	√	√	√				√			√		√	√	√
IR28MW314B	9617J050						√	√	√	√				√			√		√	√	√
IR28MW314B	9617J051						√	√	√	√				√			√		√	√	√
IR28MW314B	9617J052						√	√	√	√				√			√		√	√	√
IR49B025	9412L153						√	√	√	√				√			√		√	√	√
IR49B025	9412L154						√	√	√	√				√			√		√	√	√
IR49B025	9412L155						√	√	√	√				√			√		√	√	√
IR49B025	9412L156						√	√	√	√				√			√		√	√	√
IR49B025	9412L159						√	√	√	√				√			√		√	√	√
IR49B025	9412L160						√	√	√	√				√			√		√	√	√
IR49B025	9412L161						√	√	√	√				√			√		√	√	√
IR49B026	9408H550						√	√	√	√				√			√		√	√	√
IR49B026	9408H551						√	√	√	√				√			√		√	√	√
IR49B026	9408H552						√	√	√	√				√			√		√	√	√
IR49B026	9408H553						√	√	√	√				√			√		√	√	√
IR49B026	9408H554						√	√	√	√				√			√		√	√	√
IR49B027	9407N401						√	√	√	√				√			√		√	√	√
IR49B027	9407N402						√	√	√	√				√			√		√	√	√
IR49B027	9407N403						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR49B027	9407N404						√	√	√	√				√			√		√	√	√
IR49B027	9407N405						√	√	√	√				√			√		√	√	√
IR49B027	9407N406						√	√	√	√				√			√		√	√	√
IR49TA21	9430D003						√	√	√	√				√			√		√	√	√
IR49TA21	9430D004						√		√	√				√			√		√	√	√
IR49TA22	9430D006						√		√	√				√			√		√	√	√
IR49TA22	9430D007						√		√	√				√			√		√	√	√
IR49TA22	9430D008						√		√	√				√			√		√	√	√
IR51B025	9421R192						√		√	√				√			√		√	√	√
IR51B025	9421R193						√		√	√				√			√		√	√	√
IR51B025	9421R194						√		√	√				√			√		√	√	√
IR51B025	9421R195						√		√	√				√			√		√	√	√
IR51B026	9421R189						√		√	√				√			√		√	√	√
IR51B026	9421R190						√		√	√				√			√		√	√	√
IR51B026	9421R191						√		√	√				√			√		√	√	√
IR51B027	9422C251						√	√	√	√				√			√		√	√	√
IR51B027	9422C252						√	√	√	√				√			√		√	√	√
IR51B027	9422C253						√	√	√	√				√			√		√	√	√
IR58B028	9405S357						√	√	√	√				√			√		√	√	√
IR58B028	9406A369						√	√	√	√				√			√		√	√	√
IR58B028	9406A370						√	√	√	√				√			√		√	√	√
IR58B030	9404A303						√	√	√	√				√			√		√	√	√
IR58B030	9404A304						√	√	√	√				√			√		√	√	√
IR58B030	9404A305						√	√	√	√				√			√		√	√	√
IR58MW32B	9613J978						√	√	√	√				√			√		√	√	√
IR58MW32B	9613J979						√	√	√	√				√			√		√	√	√
IR58MW32B	9613J980						√	√	√	√				√			√		√	√	√
IR58MW32B	9613J981						√	√	√	√				√			√		√	√	√
IR58MW32B	9613J982						√	√	√	√				√			√		√	√	√
IR58MW32B	9613J983						√	√	√	√				√			√		√	√	√
IR58MW33B	9614J018						√	√	√	√				√			√		√	√	
IR58MW33B	9614J019						√	√	√	√				√			√		√	√	√
IR58MW33B	9614J020						√	√	√	√				√			√		√	√	√
IR58MW33B	9614J021						√	√	√	√				√			√		√	√	√
IR58MW33B	9614J022						√	√	√	√				√			√		√	√	√
IR58MW33B	9614J023						√	√	√	√				√			√		√	√	√

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR58SS34	9621J144						√	√	√	√				√			√		√	√	
IR58SS35	9621J145						√	√	√	√				√			√		√	√	
IR58SS36	9621J146						√	√	√	√				√			√		√	√	
PA28B020	9304N079							√	√	√							√		√		
PA28B021	9304N089			√			√	√	√	√				√			√		√		√
PA28B021	9304N090						√	√	√	√				√			√		√		√
PA28B021	9304N091						√	√	√	√				√			√		√		√
PA28B023	9304N080			√			√	√	√	√				√			√		√		√
PA28B023	9304N081			√			√	√	√	√				√			√		√		√
PA28B023	9304N082						√	√	√	√				√			√		√		√
PA28B044	9304A476			√			√	√	√	√				√			√		√		√
PA28B044	9304A477			√			√	√	√	√				√			√		√		√
PA28B044	9304A478			√			√	√	√	√				√			√		√		√
PA28B045	9304A479			√			√	√	√	√				√			√		√		√
PA28B045	9304A480			√			√	√	√	√				√			√		√		√
PA28B045	9304A481			√			√	√	√	√				√			√		√		√
PA28B047	9307J287			√			√		√					√			√		√		√
PA28B047	9307J288			√			√		√					√			√		√		√
PA28B047	9307J289			√			√		√					√			√		√		√
PA28B048	9307J299			√			√		√					√			√		√		√
PA28B048	9307J300			√			√		√					√			√		√		√
PA28B048	9307J301						√		√					√			√		√		√
PA28B049	9310N156						√	√	√	√				√			√		√		√
PA28B053	9311A694					√	√		√	√				√			√		√		√
PA28B053	9311A695					√	√		√	√				√			√		√		√
PA28B060	9304A484			√			√		√	√				√			√		√		√
PA28B060	9304A485			√			√		√	√				√			√		√		√
PA28B061	9308D046			√			√		√	√				√			√		√		√
PA28B061	9308D047			√			√		√	√				√			√		√		√
PA28B062	9308D048			√	√		√		√	√				√			√		√		√
PA28B062	9308D049			√			√		√	√				√			√		√		√
PA28B062	9308D050			√			√		√	√				√			√		√		√
PA28B063	9310N157						√	√	√	√				√			√		√		√
PA28B063	9310N158						√	√	√	√				√			√		√		√
PA28B063	9310N159						√	√	√	√				√			√		√		√
PA28B071	9309A674						√							√							

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA28B072	9304A482			✓			✓	✓	✓	✓				✓			✓		✓		✓
PA28B072	9304A483			✓			✓	✓	✓	✓				✓			✓		✓		✓
PA28B077	9311N160						✓	✓	✓	✓				✓			✓		✓		✓
PA28B079	9311N161						✓	✓	✓	✓				✓			✓		✓		✓
PA28MW50A	9307J283						✓		✓					✓			✓		✓		✓
PA28MW50A	9307J284			✓			✓		✓					✓			✓		✓		✓
PA28MW50A	9307J285			✓			✓		✓					✓			✓		✓		✓
PA28MW51A	9307J291			✓			✓		✓					✓			✓		✓		✓
PA28MW51A	9307J292						✓		✓					✓			✓		✓		✓
PA28MW51A	9307J293						✓		✓					✓			✓		✓		✓
PA28MW51A	9307J294			✓			✓		✓					✓			✓		✓		✓
PA28MW52A	9307J295			✓			✓		✓					✓			✓		✓		✓
PA28MW52A	9307J296			✓			✓		✓					✓			✓		✓		✓
PA28MW52A	9307J297			✓			✓		✓					✓			✓		✓		✓
PA28P03A	9250N034							✓						✓			✓		✓		✓
PA28P03A	9250N035							✓						✓			✓		✓		✓
PA28SS106	9335X009						✓	✓	✓	✓				✓			✓		✓		✓
PA28SS14	9303H389									✓							✓		✓		
PA28SS69	9305X905			✓			✓		✓	✓				✓			✓		✓		✓
PA28SS74	9310J361			✓	✓		✓	✓	✓	✓				✓			✓		✓		✓
PA28SS75	9310J385						✓	✓	✓	✓				✓			✓		✓		✓
PA28SS76	9310J381						✓	✓	✓	✓				✓			✓		✓		✓
PA28SS78	9310J378						✓	✓	✓	✓				✓			✓		✓		✓
PA28SS80	9310J380						✓	✓	✓	✓				✓			✓		✓		✓
PA28SS81	9310J376						✓	✓	✓	✓				✓			✓		✓		✓
PA28SS82	9310J375						✓	✓	✓	✓				✓			✓		✓		✓
PA49TA09	9307H417						✓		✓	✓				✓			✓		✓	✓	✓
PA49TA10	9307H414						✓			✓				✓			✓		✓	✓	✓
PA49TA11	9307H413						✓		✓	✓				✓			✓		✓	✓	✓
PA49TA12	9307H416						✓		✓	✓				✓			✓		✓	✓	✓
PA49TA13	9307H415						✓		✓	✓				✓			✓		✓	✓	✓
PA50B012	9330H502			✓	✓		✓	✓	✓	✓				✓			✓		✓	✓	✓
PA50B013	9330H501			✓	✓		✓	✓	✓	✓				✓			✓		✓	✓	✓
PA50TA04	9327P233			✓	✓		✓	✓	✓	✓				✓			✓		✓	✓	✓
PA50TA10	9327P234			✓	✓		✓	✓	✓	✓				✓			✓		✓	✓	✓
PA51SS08	9309J358								✓												

TABLE 4.3-13 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA51SS09	9310J382								√												
PA51SS10	9310J383								√												
PA51SS11	9309J355								√												
PA51SS12	9309J356								√												
PA51SS13	9309J357								√												
PA51SS14	9310J377								√												
PA51SS15	9309J359								√												
PA51SS16	9309J360								√												
PA51SS18	9310J366								√												
PA58SS09	9310J364						√	√	√	√				√			√		√		√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.3-14

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	147	56,600	13,300	MG/KG	5.2	711	710	76,700	0	100,000	0		
	ANTIMONY	0.23	30.6	4.3	MG/KG	0.56	637	341	30.7	0	681	0	9.05	48
	ARSENIC	0.31	707	8.6	MG/KG	0.47	711	486	0.32	484	2.0	407	11.10	55
	BARIUM	0.63	4,320	213	MG/KG	0.85	711	705	5,340	0	100,000	0	314.36	121
	BERYLLIUM	0.03	3.0	0.41	MG/KG	0.05	711	196	0.14	175	1.1	5	0.71	13
	CADMIUM	0.03	31.5	0.94	MG/KG	0.10	711	240	9.0	1	852	0	3.14	2
	CALCIUM	85.5	172,000	11,400	MG/KG	14.1	711	684						
	CHROMIUM	2.1	3,220	391	MG/KG	0.35	711	710	211	317	1,580	8	h	58
	CHROMIUM VI	2.8	2.8	2.8	MG/KG	0.05	36	1	0.20	1	225	0		
	COBALT	2.0	266	45.0	MG/KG	0.40	711	709					h	70
	COPPER	1.2	6,090	90.3	MG/KG	0.21	711	688	2,850	3	63,300	0	124.31	80
	IRON	121	162,000	35,400	MG/KG	3.4	711	711						
	LEAD	0.33	4,640	51.1	MG/KG	0.58	711	606	130	40	1,000	4	8.99	257
	MAGNESIUM	245	483,000	78,000	MG/KG	29.4	711	711						
	MANGANESE	2.1	30,200	1,330	MG/KG	0.18	711	711	382	589	8,300	16	1431.18	139
	MERCURY	0.01	135	2.6	MG/KG	0.08	695	434	23.0	8	511	0	2.28	67
	MOLYBDENUM	0.15	79.6	2.3	MG/KG	0.34	711	96	383	0	8,520	0	2.68	12
	NICKEL	3.1	5,410	660	MG/KG	0.95	711	710	150	412	34,100	0	h	46
	POTASSIUM	13.0	6,980	1,320	MG/KG	48.2	711	519						
	SELENIUM	0.18	6.9	1.1	MG/KG	0.48	687	34	383	0	8,520	0	1.95	4
	SILVER	0.10	110	4.3	MG/KG	0.37	711	32	383	0	8,520	0	1.43	8
	SODIUM	20.3	10,700	1,580	MG/KG	28.1	711	521						

TABLE 4.3-14 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	THALLIUM	0.26	24.7	7.1	MG/KG	0.41	711	23					0.81	20
	VANADIUM	0.63	245	58.4	MG/KG	0.42	711	710	537	0	11,900	0	117.17	55
	ZINC	13.8	2,130	102	MG/KG	0.37	711	687	23,000	0	100,000	0	109.86	133
CYAN	CYANIDE	0.16	0.29	0.23	MG/KG	0.09	6	2	1,300	0	13,600	0		
VOC	1,1,1-TRICHLOROETHANE	0.008	0.008	0.008	MG/KG	0.020	702	1	3,200	0	3,000	0		
	1,1,2-TRICHLOROETHANE	0.009	0.009	0.009	MG/KG	0.010	702	1	1.4	0	3.3	0		
	1,1-DICHLOROETHENE	0.0004	0.11	0.027	MG/KG	0.026	702	4	0.038	1	0.082	1		
	1,2-DICHLOROETHANE	0.009	0.11	0.044	MG/KG	0.013	702	4	0.44	0	0.98	0		
	1,2-DICHLOROETHENE (TOTAL)	0.0008	0.78	0.072	MG/KG	0.013	702	83	75	0	270	0		
	2-BUTANONE	0.011	1.0	0.26	MG/KG	0.012	702	5	8,700	0	34,000	0		
	2-HEXANONE	0.012	0.012	0.012	MG/KG	0.010	702	1						
	4-METHYL-2-PENTANONE	0.003	0.021	0.011	MG/KG	0.010	702	12	5,200	0	55,000	0		
	ACETONE	0.004	3.0	0.14	MG/KG	0.015	702	64	2,000	0	8,400	0		
	BENZENE	0.0005	0.011	0.004	MG/KG	0.011	702	11	1.4	0	3.2	0		
	CARBON DISULFIDE	0.001	0.13	0.019	MG/KG	0.012	702	108	16	0	52	0		
	CARBON TETRACHLORIDE	0.003	0.009	0.006	MG/KG	0.011	702	4	0.47	0	1.1	0		
	CHLOROBENZENE	0.004	0.25	0.072	MG/KG	0.026	702	4	160	0	570	0		
	CHLOROFORM	0.003	0.050	0.017	MG/KG	0.013	702	7	0.53	0	1.1	0		
	ETHYLBENZENE	0.001	0.050	0.025	MG/KG	0.020	702	5	2,900	0	3,100	0		
	METHYLENE CHLORIDE	0.002	0.61	0.042	MG/KG	0.013	702	25	11	0	25	0		
	STYRENE	0.006	0.006	0.006	MG/KG	0.010	702	1	2,200	0	2,200	0		
	TETRACHLOROETHENE	0.001	1.6	0.047	MG/KG	0.014	702	58	7.0	0	25	0		

TABLE 4.3-14 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	TOLUENE	0.0006	0.019	0.005	MG/KG	0.015	702	14	1,900	0	2,700	0		
	TRICHLOROETHENE	0.001	1.5	0.065	MG/KG	0.014	702	110	7.1	0	17	0		
	VINYL CHLORIDE	0.001	0.058	0.017	MG/KG	0.012	702	18	0.005	14	0.011	11		
	XYLENE (TOTAL)	0.0007	4.6	0.15	MG/KG	0.015	702	36	980	0	980	0		
SVOC	1,2,4-TRICHLOROBENZENE	0.074	0.48	0.27	MG/KG	0.41	726	3	620	0	5,900	0		
	1,2-DICHLOROBENZENE	0.26	21	8.3	MG/KG	1.8	726	3	2,300	0	2,300	0		
	1,3-DICHLOROBENZENE	0.90	5.9	3.4	MG/KG	2.5	726	2	2,800	0	2,800	0		
	1,4-DICHLOROBENZENE	1.1	6.2	3.7	MG/KG	2.5	726	2	7.4	0	20	0		
	2,4-DIMETHYLPHENOL	0.18	0.24	0.22	MG/KG	0.42	717	3	1,300	0	14,000	0		
	2-METHYLNAPHTHALENE	0.012	12	0.67	MG/KG	0.75	727	27	800	0	800	0		
	4-METHYLPHENOL	0.19	1.3	0.59	MG/KG	0.70	717	4	330	0	3,400	0		
	ACENAPHTHENE	0.021	27	2.2	MG/KG	2.1	727	15	360	0	360	0		
	ACENAPHTHYLENE	0.019	0.40	0.15	MG/KG	0.48	726	11	360	0	360	0		
	ANTHRACENE	0.013	95	1.9	MG/KG	0.78	727	65	19	1	19	1		
	BENZO(A)ANTHRACENE	0.017	27	0.92	MG/KG	0.68	725	106	0.61	21	2.6	5		
	BENZO(A)PYRENE	0.021	33	0.93	MG/KG	0.73	719	112	0.061	87	0.26	33		
	BENZO(B)FLUORANTHENE	0.022	32	0.92	MG/KG	0.75	720	97	0.61	19	2.6	6		
	BENZO(G,H,I)PERYLENE	0.028	10	0.74	MG/KG	0.78	719	63	800	0	800	0		
	BENZO(K)FLUORANTHENE	0.019	30	0.93	MG/KG	0.77	719	81	0.61	16	26	1		
	BIS(2-ETHYLHEXYL)PHTHALATE	0.048	4.3	0.79	MG/KG	0.42	725	21	32	0	140	0		
	BUTYLBENZYLPHTHALATE	0.34	0.34	0.34	MG/KG	0.34	723	1	13,000	0	100,000	0		
	CARBAZOLE	0.020	79	7.6	MG/KG	1.5	726	11	22	1	95	0		

TABLE 4.3-14 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	CHRYSENE	0.023	28	1.0	MG/KG	0.72	725	122	6.1	4	24	2		
	DIBENZ(A,H)ANTHRACENE	0.027	8.0	0.78	MG/KG	1.2	717	15	0.061	13	0.26	5		
	DIBENZOFURAN	0.011	41	3.4	MG/KG	0.99	726	13	260	0	2,700	0		
	FLUORANTHENE	0.016	28	1.2	MG/KG	0.68	727	137	2,600	0	27,000	0		
	FLUORENE	0.022	75	4.1	MG/KG	0.85	726	20	300	0	300	0		
	INDENO(1,2,3-CD)PYRENE	0.020	14	0.77	MG/KG	0.77	718	61	0.61	10	2.6	5		
	N-NITROSO-DI-N-PROPYLAMINE	0.46	0.46	0.46	MG/KG	0.47	726	1	0.063	1	0.27	1		
	N-NITROSODIPHENYLAMINE	0.067	0.11	0.089	MG/KG	0.39	726	2						
	NAPHTHALENE	0.020	22	1.6	MG/KG	1.5	727	26	800	0	800	0		
	PENTACHLOROPHENOL	0.16	0.16	0.16	MG/KG	0.96	717	1	2.5	0	7.9	0		
	PHENANTHRENE	0.022	100	1.7	MG/KG	0.78	727	117	800	0	800	0		
	PHENOL	0.098	1.1	0.43	MG/KG	0.40	717	3	39,000	0	100,000	0		
	PYRENE	0.010	52	1.5	MG/KG	0.68	725	161	2,000	0	20,000	0		
	TETRAHYDROFURAN	1.4	1.9	1.7	MG/KG	0.049	2	2						
PEST	4,4'-DDD	0.0001	0.034	0.007	MG/KG	0.004	700	9	1.9	0	7.9	0		
	4,4'-DDE	0.0001	1.7	0.17	MG/KG	0.041	699	11	1.3	1	5.6	0		
	4,4'-DDT	0.0002	0.034	0.012	MG/KG	0.006	700	24	1.3	0	5.6	0		
	ALDRIN	0.001	0.017	0.006	MG/KG	0.002	699	4	0.026	0	0.11	0		
	ALPHA-CHLORDANE	0.0001	0.45	0.031	MG/KG	0.014	699	17	0.34	1	1.5	0		
	BETA-BHC	0.00006	0.003	0.002	MG/KG	0.003	699	2	0.25	0	1.1	0		
	DELTA-BHC	0.0001	0.0002	0.0001	MG/KG	0.002	699	2	0.25	0	1.1	0		
	DIELDRIN	0.009	0.010	0.010	MG/KG	0.018	699	3	0.028	0	0.12	0		

TABLE 4.3-14 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	ENDOSULFAN I	0.001	0.054	0.006	MG/KG	0.002	701	26	3.3	0	34	0		
	ENDOSULFAN II	0.002	0.009	0.006	MG/KG	0.004	699	3	3.3	0	34	0		
	ENDOSULFAN SULFATE	0.0003	0.002	0.001	MG/KG	0.004	700	4	3.3	0	34	0		
	ENDRIN	0.005	0.016	0.010	MG/KG	0.019	699	4	20	0	200	0		
	ENDRIN ALDEHYDE	0.002	0.014	0.006	MG/KG	0.004	699	7	20	0	200	0		
	ENDRIN KETONE	0.00009	0.018	0.006	MG/KG	0.006	699	8	20	0	200	0		
	GAMMA-BHC (LINDANE)	0.001	0.001	0.001	MG/KG	0.002	699	1	0.34	0	1.5	0		
	GAMMA-CHLORDANE	0.0002	0.001	0.0009	MG/KG	0.002	699	3	0.34	0	1.5	0		
	HEPTACHLOR	0.0003	0.002	0.001	MG/KG	0.002	699	2	0.099	0	0.42	0		
	HEPTACHLOR EPOXIDE	0.0007	0.003	0.002	MG/KG	0.002	700	2	0.049	0	0.21	0		
	METHOXYCHLOR	0.004	0.004	0.004	MG/KG	0.019	699	1	330	0	3,400	0		
	AROCLOR-1242	0.059	0.47	0.26	MG/KG	0.035	709	2						
	AROCLOR-1248	0.079	0.15	0.11	MG/KG	0.035	709	2						
	AROCLOR-1254	0.049	0.33	0.15	MG/KG	0.056	709	4	1.4	0	19	0		
	AROCLOR-1260	0.021	270	9.9	MG/KG	1.0	710	44	0.066	32	0.34	12		
TPHPRG	TPH-GASOLINE	0.16	5,500	210	MG/KG	28	736	44	100	5i				
	TPH-PURGEABLE UNKNOWN HYDROCA.	1.9	2.0	2.0	MG/KG	0.50	96	2	100	0i				
TPHEXT	TPH-DIESEL	5.8	4,400	460	MG/KG	78	731	91	1,000	12i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	22	1,300	320	MG/KG	6.1	42	11	1,000	2i				
	TPH-MOTOR OIL	5.5	19,000	480	MG/KG	89	679	335	1,000	29i				
TRPH	TRPH	3.1	180,000	2,000	MG/KG	920	639	411	1,000	47i				
PHYS	DRY BULK DENSITY	81	120	100	%	0	8	8						

TABLE 4.3-14 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	GRAIN SIZE ANALYSIS-%CLAY	2.6	78	25	%	0	8	8						
	GRAIN SIZE ANALYSIS-%COBBLES	0	0	0	%	0	8	8						
	GRAIN SIZE ANALYSIS-%GRAVEL	0	31	8.5	%	0	8	8						
	GRAIN SIZE ANALYSIS-%SAND	6.2	72	48	%	0	8	8						
	GRAIN SIZE ANALYSIS-%SILT	3.0	35	18	%	0	8	8						
	MOISTURE CONTENT	18	41	25	%	0	8	8						
	POROSITY	34	54	41	%	0	8	8						
	WET BULK DENSITY	110	140	130	%	0	8	8						
TOC	TOTAL ORGANIC CARBON	1,300	14,000	4,600	MG/KG	100	6	4						

TABLE 4.3-14 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 17.893 to 2800.926, 5.246 to 234.156, and 8.866 to 9281.585 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.3-15

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW122A	9420J300						√		√	√				√			√		√	√	√
IR28MW122A	9525X722	√					√		√	√			√	√			√		√	√	√
IR28MW122A	9525X723	√					√		√	√			√	√			√		√	√	√
IR28MW122A	9547B109						√		√	√				√			√		√	√	√
IR28MW123A	9420J302						√		√	√				√			√		√	√	√
IR28MW123A	9420J303						√		√	√				√			√		√	√	√
IR28MW123A	9524A076	√					√		√	√			√	√			√		√	√	√
IR28MW123A	9547B104						√		√	√				√			√		√	√	√
IR28MW123A	9612W176	√					√		√	√		√	√	√			√		√	√	√
IR28MW124A	9420J305						√		√	√				√			√		√	√	√
IR28MW124A	9420J306						√		√	√				√			√		√	√	√
IR28MW124A	9528X793						√														
IR28MW124A	9531X917	√							√	√			√	√			√		√	√	√
IR28MW124A	9531X918	√							√	√			√	√			√		√	√	√
IR28MW124A	9547B106						√		√	√				√			√		√	√	√
IR28MW124A	9547B107						√		√	√				√			√		√	√	√
IR28MW125A	9421X337						√		√	√				√			√		√	√	√
IR28MW125A	9421X338						√		√	√				√			√		√	√	√
IR28MW125A	9524A074																		√		√
IR28MW125A	9524X681	√					√		√	√			√	√			√			√	
IR28MW125A	9549B144						√		√	√				√			√		√	√	√
IR28MW126A	9420J307						√		√	√				√			√		√	√	√
IR28MW126A	9524A072	√					√		√	√			√	√			√		√	√	√
IR28MW126A	9524A073	√					√		√	√			√	√			√		√	√	√
IR28MW126A	9549B145						√		√	√				√			√		√	√	√
IR28MW126A	9549B146						√		√	√				√			√		√	√	√
IR28MW126A	9612W171	√					√		√	√		√	√	√			√		√	√	√
IR28MW127A	9421X329						√		√	√				√			√		√	√	√
IR28MW127A	9421X330						√		√	√				√			√		√	√	√
IR28MW127A	9523X678	√					√		√	√			√	√			√		√	√	√
IR28MW127A	9548B120						√		√	√				√			√		√	√	√
IR28MW127A	9548B121						√		√	√				√			√		√	√	√
IR28MW128A	9421X332						√		√	√				√			√		√	√	√
IR28MW128A	9421X333						√		√	√				√			√		√	√	√
IR28MW128A	9524X684	√					√		√	√			√	√			√		√	√	√
IR28MW128A	9549B154						√		√	√				√			√		√	√	√
IR28MW128A	9549B155						√		√	√				√			√		√	√	√

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW129A	9422M548						√		√	√				√			√		√	√	√
IR28MW129A	9526X745	√					√		√	√			√	√			√		√	√	√
IR28MW129A	9548B141						√		√	√				√			√		√	√	√
IR28MW136A	9423E007						√		√	√				√			√		√	√	√
IR28MW136A	9423E009						√		√	√				√			√		√	√	√
IR28MW136A	9523X679	√					√		√	√			√	√			√		√	√	√
IR28MW136A	9550B173						√		√	√				√			√		√	√	√
IR28MW140F	9429E073																		√		√
IR28MW140F	9429E078						√		√	√				√			√			√	
IR28MW140F	9524A075																		√		√
IR28MW140F	9524X682	√					√		√	√			√	√			√			√	
IR28MW140F	9547B108																		√		√
IR28MW140F	9547B114						√		√	√				√			√			√	
IR28MW149A	9421X342						√			√				√			√		√	√	√
IR28MW149A	9421X343						√		√	√				√			√		√	√	√
IR28MW149A	9524X683	√					√		√	√			√	√			√		√	√	√
IR28MW149A	9547B116						√		√	√				√			√		√	√	√
IR28MW149A	9547B117						√		√	√				√			√		√	√	√
IR28MW150A	9424E018						√		√	√				√			√		√	√	√
IR28MW150A	9424E019						√		√	√							√		√	√	√
IR28MW150A	9528X783						√														
IR28MW150A	9531X914	√							√	√			√	√			√		√	√	√
IR28MW150A	9547B111						√		√	√				√			√		√	√	√
IR28MW151A	9425J363						√		√	√				√			√		√	√	√
IR28MW151A	9425J364						√		√	√				√			√		√	√	√
IR28MW151A	9526X754	√					√		√	√			√	√			√		√	√	√
IR28MW151A	9550B179						√		√	√				√			√		√	√	√
IR28MW155A	9422X347						√		√	√				√			√		√	√	√
IR28MW155A	9422X348						√		√	√				√			√		√	√	√
IR28MW155A	9430J322														√		√		√		√
IR28MW155A	9524X685	√					√		√	√			√	√			√		√	√	√
IR28MW155A	9548B138						√		√	√				√			√		√	√	√
IR28MW155A	9548B139						√		√	√				√			√		√	√	√
IR28MW169A	9423X369						√		√	√				√			√		√	√	√
IR28MW169A	9423X370						√		√	√				√			√		√	√	√
IR28MW169A	9525X730	√					√		√	√			√	√			√		√	√	√

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW169A	9525X731	√					√		√	√			√	√			√		√	√	√
IR28MW169A	9550B184						√		√	√				√			√		√	√	√
IR28MW169A	9550B185						√		√	√				√			√		√	√	√
IR28MW170A	9428E054						√		√	√				√			√		√	√	√
IR28MW170A	9526X752	√					√		√	√			√	√			√		√	√	√
IR28MW170A	9526X753	√					√		√	√			√	√			√		√	√	√
IR28MW170A	9550B177						√		√	√				√			√		√	√	√
IR28MW170A	9550B178						√		√	√				√			√		√	√	√
IR28MW171A	9422X364						√		√	√				√			√		√	√	√
IR28MW171A	9523A068	√					√		√	√			√	√			√		√	√	√
IR28MW171A	9523A069	√					√		√	√			√	√			√		√	√	√
IR28MW171A	9547B103						√		√	√				√			√		√	√	√
IR28MW172F	9447X573						√		√	√				√			√		√	√	√
IR28MW172F	9447X574						√		√	√				√			√		√	√	√
IR28MW172F	9526X742	√					√		√	√			√	√			√		√	√	√
IR28MW172F	9526X743	√					√		√	√			√	√			√		√	√	√
IR28MW172F	9549B166						√		√	√				√			√		√	√	√
IR28MW172F	9549B167						√		√	√				√			√		√	√	√
IR28MW173B	9448X583						√		√	√				√			√		√	√	√
IR28MW173B	9448X584						√		√	√				√			√		√	√	√
IR28MW173B	9525X735	√					√		√	√			√	√			√		√	√	√
IR28MW173B	9525X736	√					√		√	√			√	√			√		√	√	√
IR28MW173B	9549B168						√		√	√				√			√		√	√	√
IR28MW188F	9426M562						√		√	√				√			√		√	√	√
IR28MW188F	9525X704	√					√		√	√			√	√			√		√	√	√
IR28MW188F	9549B147																		√		√
IR28MW188F	9549B151						√		√	√				√			√			√	
IR28MW189F	9426E037																		√		√
IR28MW189F	9426E038																		√		√
IR28MW189F	9426E041						√		√	√				√			√			√	
IR28MW189F	9426E042						√		√	√				√			√			√	
IR28MW189F	9525X705																		√		√
IR28MW189F	9525X711	√					√		√	√			√	√			√			√	
IR28MW189F	9549B148																		√		√
IR28MW189F	9549B152						√		√	√				√			√			√	
IR28MW190F	9426E033																		√		√

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW190F	9426E044						√		√	√				√			√			√	
IR28MW190F	9526X741	√					√		√	√			√	√			√		√	√	√
IR28MW190F	9547B100						√		√	√				√			√		√	√	√
IR28MW200A	9423E001						√		√	√				√			√		√	√	√
IR28MW200A	9423E002						√		√	√				√			√		√	√	√
IR28MW200A	9529X834						√														
IR28MW200A	9529X835						√														
IR28MW200A	9531X907																		√		√
IR28MW200A	9531X912	√							√	√			√	√			√			√	
IR28MW200A	9547B101						√		√	√				√			√		√	√	√
IR28MW200A	9547B102						√	-	√	√				√			√		√	√	√
IR28MW201F	9449X593						√		√	√				√			√		√	√	√
IR28MW201F	9449X594						√		√	√				√			√		√	√	√
IR28MW201F	9525X732																		√		√
IR28MW201F	9525X738	√					√		√	√			√	√			√			√	
IR28MW201F	9548B124																		√		√
IR28MW201F	9548B128						√		√	√				√			√			√	
IR28MW211F	9427E046																		√		√
IR28MW211F	9427E047																		√		√
IR28MW211F	9427E050						√		√	√				√			√			√	
IR28MW211F	9427E051						√		√	√				√			√			√	
IR28MW211F	9526X746																		√		√
IR28MW211F	9526X747																		√		√
IR28MW211F	9526X750	√					√		√	√			√	√			√			√	
IR28MW211F	9526X751	√					√		√	√			√	√			√			√	
IR28MW211F	9543H755																				√
IR28MW211F	9543H756																				√
IR28MW211F	9543H757																				√
IR28MW211F	9543H758																				√
IR28MW211F	9550B170																		√		√
IR28MW211F	9550B176						√		√	√				√			√			√	
IR28MW211F	9612W175	√					√		√	√		√	√	√			√		√	√	√
IR28MW216F	9428E059																		√		√
IR28MW216F	9428E060																		√		√
IR28MW216F	9428E062						√		√	√				√			√			√	
IR28MW216F	9428E063						√		√	√				√			√			√	

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW216F	9525X708																		√		√
IR28MW216F	9525X712	√					√		√	√			√	√			√			√	
IR28MW216F	9547B112																		√		√
IR28MW216F	9547B115						√		√	√				√			√			√	
IR28MW217A	9424X376																		√		√
IR28MW217A	9424X377																		√		√
IR28MW217A	9424X379						√		√	√				√			√			√	
IR28MW217A	9424X380						√		√	√				√			√			√	
IR28MW217A	9525X709	√					√		√	√			√	√			√		√	√	√
IR28MW217A	9549B157						√		√	√				√			√		√	√	√
IR28MW217A	9549B158						√		√	√				√			√		√	√	√
IR28MW255F	9429E072																		√		√
IR28MW255F	9429E077						√		√	√				√			√			√	
IR28MW255F	9530X873						√														
IR28MW255F	9531X908																		√		√
IR28MW255F	9531X913	√							√	√			√	√			√			√	
IR28MW255F	9548B122																		√		√
IR28MW255F	9548B127						√		√	√				√			√			√	
IR28MW268A	9545W163									√				√			√		√		√
IR28MW268A	9605J833									√				√			√		√		√
IR28MW268A	9614Z035	√								√		√	√	√			√		√		√
IR28MW269A	9545W161									√				√			√		√		√
IR28MW269A	9609J893									√				√			√		√		√
IR28MW269A	9609J894									√				√			√		√		√
IR28MW269A	9619J097	√								√		√	√	√			√		√		√
IR28MW270A	9545W162									√				√			√		√		√
IR28MW270A	9609J895									√				√			√		√		√
IR28MW270A	9619J088	√								√		√	√	√			√		√		√
IR28MW271A	9545W164									√				√			√		√		√
IR28MW271A	9609W126									√				√			√		√		√
IR28MW271A	9618J080	√								√		√	√	√			√		√		√
IR28MW272A	9545W166									√				√			√		√		√
IR28MW272A	9609W127									√				√			√		√		√
IR28MW272A	9617J059	√								√		√	√	√			√		√		√
IR28MW273F	9609W130									√				√			√		√		√
IR28MW273F	9619J086	√								√		√	√	√			√		√		√

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW273F	9619J087	√								√		√	√	√			√		√		√
IR28MW273F	9625J298	√					√		√	√		√	√	√			√		√	√	√
IR28MW275F	9547W193						√		√	√				√			√		√	√	√
IR28MW275F	9605J832						√		√	√				√			√		√	√	√
IR28MW275F	9614Z032	√					√		√	√		√	√	√			√		√	√	√
IR28MW275F	9614Z033	√					√		√	√		√	√	√			√		√	√	√
IR28MW286A	9546J599						√		√	√				√			√		√	√	√
IR28MW286A	9546J600						√		√	√				√			√		√	√	√
IR28MW286A	9605J831						√		√	√				√			√		√	√	√
IR28MW286A	9614Z027	√					√		√	√		√	√	√			√		√	√	√
IR28MW287A	9546W188						√		√	√				√			√		√	√	√
IR28MW287A	9609J890						√		√	√				√			√		√	√	√
IR28MW287A	9619J091	√					√		√	√		√	√	√			√		√	√	√
IR28MW290A	9546J598						√		√	√				√			√		√	√	√
IR28MW290A	9605J830						√		√	√				√			√		√	√	√
IR28MW290A	9614Z030	√					√		√	√		√	√	√			√		√	√	√
IR28MW293A	9546J601						√		√	√				√			√		√	√	√
IR28MW293A	9609J888						√		√	√				√			√		√	√	√
IR28MW293A	9618J070	√					√		√	√		√	√	√			√		√	√	√
IR28MW293A	9618J071	√					√		√	√		√	√	√			√		√	√	√
IR28MW294A	9546J602						√		√	√				√			√		√	√	√
IR28MW294A	9609J889						√		√	√				√			√		√	√	√
IR28MW294A	9619J092	√					√		√	√		√	√	√			√		√	√	√
IR28MW295A	9547W191						√		√	√				√			√		√	√	√
IR28MW295A	9607J878						√			√				√			√		√	√	√
IR28MW295A	9619J100	√					√		√	√		√	√	√			√		√	√	√
IR28MW297A	9547J603						√		√	√				√			√		√	√	√
IR28MW297A	9547J604						√		√	√				√			√		√	√	√
IR28MW297A	9609J887						√		√	√				√			√		√	√	√
IR28MW297A	9619J093	√					√		√	√		√	√	√			√		√	√	√
IR28MW298A	9605W062									√				√			√		√		√
IR28MW298A	9614Z034	√								√		√	√	√			√		√		√
IR28MW298A	9619J089	√								√		√	√	√			√		√		√
IR28MW299B	9610W134						√		√	√				√			√		√	√	√
IR28MW299B	9619J098	√					√		√	√		√	√	√			√		√	√	√
IR28MW299B	9625J295	√					√		√	√		√	√	√			√		√	√	√

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW299B	9625J296	√					√		√	√		√	√	√			√		√	√	√
IR28MW300F	9609W129						√		√	√				√			√		√	√	√
IR28MW300F	9619J095	√					√		√	√		√	√	√			√		√	√	√
IR28MW300F	9625Z047	√					√		√	√		√	√	√			√		√	√	√
IR28MW308A	9616J025	√					√		√	√		√	√	√			√		√	√	√
IR28MW308A	9621J140	√					√		√	√		√	√	√			√		√	√	√
IR28MW308A	9626J323	√					√		√	√		√	√	√			√		√	√	√
IR28MW309B	9616J029	√					√		√	√		√	√	√			√		√	√	√
IR28MW309B	9616J030	√					√		√	√		√	√	√			√		√	√	√
IR28MW309B	9621J157	√					√		√	√		√	√	√			√		√	√	√
IR28MW309B	9627J356	√					√		√	√		√	√	√			√		√	√	√
IR28MW310F	9617J036	√					√		√	√		√	√	√			√		√	√	√
IR28MW310F	9622J159	√					√		√	√		√	√	√			√		√	√	√
IR28MW310F	9627J352	√					√		√	√		√	√	√			√		√	√	√
IR28MW311A	9616J034	√					√		√	√		√	√	√			√		√	√	√
IR28MW311A	9622J160	√					√		√	√		√	√	√			√		√	√	√
IR28MW311A	9626J339	√					√		√	√		√	√	√			√		√	√	√
IR28MW311A	9626J341	√					√		√	√		√	√	√			√		√	√	√
IR28MW312F	9616J033	√					√		√	√		√	√	√			√		√	√	√
IR28MW312F	9622J161	√					√		√	√		√	√	√			√		√	√	√
IR28MW312F	9627J354	√					√		√	√		√	√	√			√		√	√	√
IR28MW314B	9618J083	√					√		√	√		√	√	√			√		√	√	√
IR28MW314B	9623J178	√					√		√	√		√	√	√			√		√	√	√
IR28MW314B	9627J357	√					√		√	√		√	√	√			√		√	√	√
IR58MW31A	9426E034																		√		√
IR58MW31A	9426E040						√		√	√				√			√			√	
IR58MW31A	9525X717																		√		√
IR58MW31A	9525X721	√					√		√	√			√	√			√			√	
IR58MW31A	9548B135																		√		√
IR58MW31A	9548B137						√		√	√				√			√			√	
IR58MW32B	9616J026	√					√		√	√		√	√	√			√		√	√	√
IR58MW32B	9621J147	√					√		√	√		√	√	√			√		√	√	√
IR58MW32B	9626J321	√					√		√	√		√	√	√			√		√	√	√
IR58MW33B	9616J027	√					√		√	√		√	√	√			√		√	√	√
IR58MW33B	9621J152	√					√		√	√		√	√	√			√		√	√	√
IR58MW33B	9626J322	√					√		√	√		√	√	√			√		√	√	√

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA28MW50A	9308J304			√			√		√					√			√		√		√
PA28MW50A	9308J305			√			√		√					√			√		√		√
PA28MW50A	9524X696	√					√		√	√			√	√			√		√	√	√
PA28MW50A	9550B175						√		√	√				√			√		√	√	√
PA28MW51A	9308J306			√			√		√					√			√		√		√
PA28MW51A	9524X694	√					√		√	√			√	√			√		√	√	√
PA28MW51A	9524X695	√					√		√	√			√	√			√		√	√	√
PA28MW51A	9550B171						√		√	√				√			√		√	√	√
PA28MW51A	9550B172						√		√	√				√			√		√	√	√
PA28MW52A	9308J310			√			√		√					√			√		√		√
PA28MW52A	9308J311			√			√		√					√			√		√		√
PA28MW52A	9524X693	√					√		√	√			√	√			√		√	√	√
PA28MW52A	9550B188						√		√	√				√			√		√	√	√
PA28P02A	9310H434											√	√								
PA28P03A	9310H422											√	√								
PA28P03A	9310H423											√	√								
PA28P04A	9310H431											√	√								
PA28P04A	9430J320														√		√		√		√
PA28P04A	9523A070	√					√		√	√			√	√			√		√	√	√
PA28P04A	9550B180						√		√	√				√			√		√	√	√
PA50MW03A	9311J404			√	√		√		√					√			√		√	√	√
PA50MW03A	9311J405			√	√		√		√					√			√		√	√	√
PA50MW03A	9331X012														√						
PA50MW03A	9428X395						√		√	√				√	√		√		√	√	√
PA50MW03A	9428X396						√		√	√				√	√		√		√	√	√
PA50MW03A	9613J972	√		√	√		√		√	√		√	√	√			√		√	√	√

TABLE 4.3-15 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.3-16A

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	15.2	26,300	2,460	UG/L	26.4	100	12	37,000	0						
	ANTIMONY	2.8	3.6	3.2	UG/L	1.9	100	2	15.0	0	6.0	0	500	0	43.3	0
	ARSENIC	1.2	27.6	6.8	UG/L	2.0	99	35	0.04	35	50.0	0	36.0	0	27.3	1
	BARIUM	17.5	446	93.9	UG/L	1.1	100	96	2,600	0	1,000	0			504	0
	BERYLLIUM	0.73	0.73	0.73	UG/L	0.10	100	1	0.02	1	4.0	0			1.4	0
	CADMIUM	0.18	5.8	2.0	UG/L	0.78	100	8	18.0	0	5.0	1	9.3	0	5.1	1
	CALCIUM	2,590	384,000	117,000	UG/L	28.3	97	85								
	CHROMIUM	0.74	281	47.9	UG/L	1.0	100	25			50.0	5			15.7	9
	COBALT	0.43	32.6	3.1	UG/L	0.55	100	52							20.8	1
	COPPER	1.7	36.8	12.3	UG/L	1.1	100	17	1,400	0			2.4	14	28.0	3
	IRON	15.0	34,300	2,910	UG/L	44.1	100	16							2,380	4
	LEAD	0.89	15.2	5.9	UG/L	1.2	100	8	4.0	4	50.0	0	8.1	3	14.4	1
	MAGNESIUM	12,800	1,100,000	401,000	UG/L	154	100	100							1,440,000	0
	MANGANESE	1.9	10,500	614	UG/L	0.39	100	84	180	43					8,140	1
	MERCURY	0.09	2.5	0.45	UG/L	0.10	100	16	11.0	0	2.0	1	0.03	16	0.60	3
	MOLYBDENUM	0.65	8.7	5.3	UG/L	2.0	100	19	180	0					61.9	0
	NICKEL	1.5	384	22.1	UG/L	2.7	100	60	730	0	100	2	8.2	34	96.5	2
	POTASSIUM	2,440	587,000	129,000	UG/L	1,840	100	100							448,000	3
	SELENIUM	1.9	40.6	10.4	UG/L	7.1	100	11	180	0	50.0	0	71.0	0	14.5	3
	SILVER	0.40	2.1	0.88	UG/L	1.1	100	5	180	0			0.92	1	7.4	0
	SODIUM	57,400	9,620,000	2,880,000	UG/L	1,040	100	100							9,240,000	2
	THALLIUM	1.5	13.9	5.1	UG/L	2.7	95	18			2.0	15			13.0	1

TABLE 4.3-16A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	VANADIUM	0.38	71.6	4.4	UG/L	0.85	100	57	260	0					26.6	1
	ZINC	5.0	206	49.5	UG/L	3.5	100	18	11,000	0			81.0	2	75.7	3
CYAN	CYANIDE	1.2	1.2	1.2	UG/L	1.0	2	1	730	0	200	0				
VOC	1,1,2,2-TETRACHLOROETHANE	6	6	6	UG/L	10	119	1	0.06	1						
	1,1-DICHLOROETHANE	5	5	5	UG/L	10	120	1	810	0						
	1,1-DICHLOROETHENE	0.2	7	4	UG/L	5	120	2	0.05	2	6	1				
	1,2-DICHLOROETHENE (TOTAL.	0.3	7,500	550	UG/L	33	118	39	55	18						
	BENZENE	0.3	37	10	UG/L	10	120	16	0.4	15	1	12				
	BROMODICHLOROMETHANE	0.3	0.9	0.6	UG/L	0.5	120	2	0.2	2	100	0				
	CARBON DISULFIDE	0.3	14	5	UG/L	7	118	9	21	0						
	CHLOROBENZENE	5	250	77	UG/L	48	119	5	39	2	70	2				
	CHLOROFORM	0.1	53	7	UG/L	2	120	27	0.2	26	100	0				
	CIS-1,2-DICHLOROETHENE	1	1	1	UG/L	1	2	1	61	0	6	0				
	ETHYLBENZENE	0.9	77	19	UG/L	7	119	6	1,300	0	700	0				
	TETRACHLOROETHENE	0.1	330	40	UG/L	9	119	22	1	16	5	9				
	TOLUENE	0.5	9	4	UG/L	5	119	4	720	0	150	0				
	TRANS-1,2-DICHLOROETHENE	0.4	0.4	0.4	UG/L	1	2	1	120	0	10	0				
	TRICHLOROETHENE	0.2	700	45	UG/L	10	120	40	2	30	5	24				
	VINYL CHLORIDE	0.3	580	220	UG/L	34	120	19	0.02	19	0.5	16				
	XYLENE (TOTAL)	7	100	33	UG/L	5	119	4	1,400	0	1,800	0				
SVOC	1,2,4-TRICHLOROBENZENE	7	29	16	UG/L	10	118	3	190	0	70	0				
	1,2-DICHLOROBENZENE	8	1,700	480	UG/L	16	118	6	370	3	600	2				

TABLE 4.3-16A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	1,3-DICHLOROBENZENE	1	31	13	UG/L	7	118	5								
	1,4-DICHLOROBENZENE	4	320	110	UG/L	15	118	6	0.5	6	5	5				
	2,4-DIMETHYLPHENOL	1	1	1	UG/L	11	118	1	730	0						
	2-CHLORONAPHTHALENE	1	1	1	UG/L	10	118	1	2,900	0						
	2-METHYLNAPHTHALENE	2	16	6	UG/L	10	118	4	240	0						
	ACENAPHTHENE	0.5	3	2	UG/L	20	118	3	370	0						
	ANTHRACENE	0.8	2	1	UG/L	10	118	5	1,800	0						
	BENZO(A)ANTHRACENE	2	4	3	UG/L	11	118	2	0.09	2						
	BENZO(A)PYRENE	2	3	3	UG/L	11	117	2	0.002	2	0.2	2				
	BENZO(B)FLUORANTHENE	2	4	3	UG/L	11	117	2	0.09	2						
	BENZO(K)FLUORANTHENE	1	1	1	UG/L	11	117	2	0.9	2						
	BIS(2-ETHYLHEXYL)PHTHALAT.	49	77	59	UG/L	5	118	3	5	3	4	3	360	0		
	CARBAZOLE	1	4	3	UG/L	11	118	2	3	1						
	CHRYSENE	3	4	3	UG/L	11	118	2	9	0						
	DI-N-BUTYLPHTHALATE	1	1	1	UG/L	11	118	1	3,700	0						
	FLUORANTHENE	0.6	8	4	UG/L	10	118	4	1,500	0						
	FLUORENE	1	2	2	UG/L	11	118	2	240	0						
	NAPHTHALENE	0.9	54	16	UG/L	10	118	12	240	0						
	PENTACHLOROPHENOL	0.5	0.5	0.5	UG/L	25	117	1	0.6	0	1	0	8	0		
	PHENANTHRENE	0.5	10	4	UG/L	10	118	8	240	0			5	4		
	PHENOL	2	2	2	UG/L	10	118	1	22,000	0						
	PYRENE	1	10	5	UG/L	10	118	7	1,100	0						

TABLE 4.3-16A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
PEST	ALDRIN	0.03	0.07	0.05	UG/L	0.05	98	2	0.004	2						
	ENDRIN ALDEHYDE	0.1	0.1	0.1	UG/L	0.1	98	1	11	0						
	HEPTACHLOR EPOXIDE	0.02	0.02	0.02	UG/L	0.01	98	1	0.007	1	0.01	1				
	AROCLOR-1260	0.4	23	6	UG/L	2	98	6	0.009	6						
TPHPRG	TPH-GASOLINE	26	12,000	840	UG/L	100	120	39	100	23i						
	TPH-PURGEABLE UNKNOWN HYDR	17	65	41	UG/L	50	8	2	100	0i						
TPHEXT	TPH-DIESEL	52	10,000	780	UG/L	170	120	40	100	24i						
	TPH-EXTRACTABLE UNKNOWN HY	220	310	260	UG/L	52	8	2	100	2i						
	TPH-MOTOR OIL	50	12,000	640	UG/L	160	116	79	100	62i						
TRPH	TRPH	310	27,000	4,300	UG/L	2,100	97	14	100	14i						
ANION	CHLORIDE	58,500	17,400,000	5,570,000	UG/L	111,000	46	46								
	FLUORIDE	200	850	538	UG/L	100	23	23			1,400	0				
	NITRATE	19.0	63,600	3,940	UG/L	223	46	30	58,000	1						
	ORTHOPHOSPHATE	78.0	4,800	1,040	UG/L	214	46	7								
	SULFATE	16,100	6,580,000	769,000	UG/L	4,280	46	46								
SOLIDS	TOTAL DISSOLVED SOLIDS	293,000	26,000,000	10,100,000	UG/L	34,100	49	49								
SALIN	SALINITY	0.18	28.0	9.4	PPT	0.005	26	26								
TMICROB	TOTAL COLIFORM	6	280	140	j	2	3	2								

TABLE 4.3-16A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

j Most probable number of organisms per 100 milliliters (mpn/100 mL)

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.3-16B

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER B-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	24.2	98.2	61.2	UG/L	20.4	18	2	37,000	0						
	ANTIMONY	2.0	2.0	2.0	UG/L	1.1	18	1	15.0	0	6.0	0	500	0		
	ARSENIC	1.9	8.7	5.0	UG/L	2.8	18	4	0.04	4	50.0	0	36.0	0		
	BARIUM	23.1	657	224	UG/L	1.0	18	18	2,600	0	1,000	0				
	CADMIUM	0.37	0.63	0.50	UG/L	0.30	18	2	18.0	0	5.0	0	9.3	0		
	CALCIUM	32,900	582,000	155,000	UG/L	15.0	18	18								
	CHROMIUM	0.73	14.6	7.4	UG/L	0.67	18	6			50.0	0				
	COBALT	0.53	5.1	1.6	UG/L	0.66	18	14								
	COPPER	1.3	4.0	2.6	UG/L	0.80	18	4	1,400	0			2.4	2		
	IRON	62.4	89.4	75.9	UG/L	11.3	18	2								
	MAGNESIUM	44,600	1,520,000	502,000	UG/L	65.6	18	18								
	MANGANESE	31.8	1,230	628	UG/L	0.25	18	18	180	15						
	MOLYBDENUM	1.4	1.7	1.6	UG/L	2.1	18	2	180	0						
	NICKEL	6.4	64.6	25.8	UG/L	1.3	18	17	730	0	100	0	8.2	15		
	POTASSIUM	878	118,000	32,000	UG/L	1,270	18	18								
	SELENIUM	2.4	4.6	3.4	UG/L	4.6	18	5	180	0	50.0	0	71.0	0		
	SILVER	24.1	24.1	24.1	UG/L	0.40	18	1	180	0			0.92	1		
	SODIUM	135,000	3,490,000	1,680,000	UG/L	107	18	18								
	THALLIUM	1.3	1.3	1.3	UG/L	1.7	18	1			2.0	0				
	VANADIUM	0.72	9.7	3.9	UG/L	0.85	18	16	260	0						
	ZINC	21.0	84.7	54.4	UG/L	0.80	18	3	11,000	0			81.0	1		
VOC	1,1,1-TRICHLOROETHANE	4	4	4	UG/L	2	18	1	1,300	0	200	0				

TABLE 4.3-16B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER B-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	1,1,2-TRICHLOROETHANE	2	2	2	UG/L	2	18	1	0.2	1	5	0				
	1,1-DICHLOROETHANE	7	7	7	UG/L	2	18	1	810	0						
	1,1-DICHLOROETHENE	0.9	4	2	UG/L	2	18	2	0.05	2	6	0				
	1,2-DICHLOROETHENE (TOTAL.	0.3	1,400	360	UG/L	7	18	10	55	5						
	1,2-DICHLOROPROPANE	6	6	6	UG/L	2	18	1	0.2	1	5	1				
	BENZENE	0.2	6	1	UG/L	1	18	7	0.4	4	1	1				
	BROMODICHLOROMETHANE	5	5	5	UG/L	2	18	1	0.2	1	100	0				
	BROMOFORM	1	1	1	UG/L	2	18	1	9	0	100	0				
	BROMOMETHANE	5	5	5	UG/L	2	18	1	9	0						
	CARBON DISULFIDE	3	3	3	UG/L	2	18	1	21	0						
	CARBON TETRACHLORIDE	0.1	3	2	UG/L	1	18	2	0.2	1	0.5	1				
	CHLOROBENZENE	5	48	21	UG/L	1	18	5	39	1	70	0				
	CHLOROETHANE	0.7	5	3	UG/L	1	18	2	710	0						
	CHLOROFORM	0.4	7	2	UG/L	0.9	18	8	0.2	8	100	0				
	CHLOROMETHANE	3	3	3	UG/L	2	18	1	2	1						
	CIS-1,3-DICHLOROPROPENE	4	4	4	UG/L	2	18	1								
	DIBROMOCHLOROMETHANE	3	3	3	UG/L	2	18	1	1	1	100	0				
	ETHYLBENZENE	0.1	5	3	UG/L	1	18	2	1,300	0	700	0				
	STYRENE	4	4	4	UG/L	2	18	1	1,600	0	100	0				
	TETRACHLOROETHENE	0.5	28	8	UG/L	0.9	18	12	1	6	5	5				
	TOLUENE	0.5	6	3	UG/L	1	18	2	720	0	150	0				
	TRANS-1,3-DICHLOROPROPENE	3	3	3	UG/L	2	18	1								

TABLE 4.3-16B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER B-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	TRICHLOROETHENE	0.9	15	5	UG/L	0.9	18	12	2	9	5	5				
	VINYL CHLORIDE	1	91	41	UG/L	1	18	8	0.02	8	0.5	8				
	XYLENE (TOTAL)	0.2	17	9	UG/L	1	18	2	1,400	0	1,800	0				
SVOC	1,2,4-TRICHLOROBENZENE	4	5	4	UG/L	10	18	3	190	0	70	0				
	1,2-DICHLOROBENZENE	120	150	140	UG/L	25	18	3	370	0	600	0				
	1,3-DICHLOROBENZENE	6	6	6	UG/L	5	18	1								
	1,4-DICHLOROBENZENE	40	46	43	UG/L	5	18	3	0.5	3	5	3				
	FLUORANTHENE	1	1	1	UG/L	10	18	1	1,500	0						
	PHENANTHRENE	0.8	0.8	0.8	UG/L	10	18	1	240	0			5	0		
	PYRENE	1	1	1	UG/L	10	18	1	1,100	0						
PEST	4,4'-DDD	0.06	0.06	0.06	UG/L	0.1	18	1	0.3	0						
	BETA-BHC	0.04	0.04	0.04	UG/L	0.05	18	1	0.04	1						
TPHPRG	TPH-GASOLINE	27	1,200	360	UG/L	61	18	9	100	5i						
TPHEXT	TPH-DIESEL	84	220	160	UG/L	100	18	6	100	5i						
	TPH-MOTOR OIL	52	2,500	460	UG/L	110	18	9	100	6i						
TRPH	TRPH	500	2,700	1,800	UG/L	1,000	18	3	100	3i						
ANION	CHLORIDE	267,000	19,000,000	6,120,000	UG/L	112,000	15	15								
	FLUORIDE	135	480	299	UG/L	100	14	6			1,400	0				
	NITRATE	3,300	18,500	9,840	UG/L	253	15	8	58,000	0						
	ORTHOPHOSPHATE	6,200	26,700	16,500	UG/L	2,750	15	2								
	SULFATE	117,000	1,270,000	427,000	UG/L	3,230	15	15								
SOLIDS	TOTAL DISSOLVED SOLIDS	1,290,000	15,600,000	7,250,000	UG/L	54,000	15	15								

TABLE 4.3-16B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER B-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
SALIN	SALINITY	1.1	13.8	6.4	PPT	0.005	14	14								

TABLE 4.3-16B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER B-AQUIFER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.3-16C

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	37.0	456	138	UG/L	26.4	41	5	37,000	0						
	ANTIMONY	2.0	5.3	3.7	UG/L	2.4	41	3	15.0	0	6.0	0	500	0		
	ARSENIC	1.2	6.5	3.4	UG/L	2.1	41	14	0.04	14	50.0	0	36.0	0		
	BARIUM	7.3	732	113	UG/L	1.2	41	38	2,600	0	1,000	0				
	CADMIUM	0.91	0.91	0.91	UG/L	0.20	41	1	18.0	0	5.0	0	9.3	0		
	CALCIUM	6,110	285,000	73,100	UG/L	31.0	41	37								
	CHROMIUM	2.2	21.9	9.9	UG/L	0.61	41	20			50.0	0				
	COBALT	0.42	5.4	1.7	UG/L	0.54	41	14								
	COPPER	1.2	12.1	6.8	UG/L	0.73	41	4	1,400	0			2.4	3		
	IRON	15.7	381	90.6	UG/L	13.5	41	6								
	LEAD	2.0	2.0	2.0	UG/L	1.2	41	1	4.0	0	50.0	0	8.1	0		
	MAGNESIUM	4,870	969,000	223,000	UG/L	31.1	41	41								
	MANGANESE	2.1	1,670	341	UG/L	0.32	41	26	180	6						
	MERCURY	0.13	0.16	0.15	UG/L	0.10	41	2	11.0	0	2.0	0	0.03	2		
	MOLYBDENUM	1.8	6.9	5.0	UG/L	0.83	41	7	180	0						
	NICKEL	1.0	47.3	11.2	UG/L	1.6	41	19	730	0	100	0	8.2	8		
	POTASSIUM	870	488,000	65,300	UG/L	463	41	35								
	SELENIUM	1.7	5.0	3.3	UG/L	2.7	41	7	180	0	50.0	0	71.0	0		
	SODIUM	44,500	8,790,000	1,480,000	UG/L	114	41	39								
	THALLIUM	1.7	3.0	2.2	UG/L	1.9	41	4			2.0	3				
	VANADIUM	0.69	22.2	8.4	UG/L	0.72	41	36	260	0						
	ZINC	11.6	62.0	30.2	UG/L	0.66	41	5	11,000	0			81.0	0		

TABLE 4.3-16C (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
VOC	1,1,2-TRICHLOROETHANE	39	39	39	UG/L	25	45	1	0.2	1	5	1				
	1,2-DICHLOROETHENE (TOTAL.	0.6	15	4	UG/L	3	45	9	55	0						
	CARBON DISULFIDE	12	24	18	UG/L	0.5	45	2	21	1						
	CARBON TETRACHLORIDE	0.2	38	11	UG/L	5	45	18	0.2	18	0.5	15				
	CHLOROFORM	0.6	260	19	UG/L	3	45	18	0.2	18	100	1				
	TETRACHLOROETHENE	0.2	30	11	UG/L	5	45	6	1	3	5	2				
	TRICHLOROETHENE	7	51,000	6,400	UG/L	510	45	26	2	26	5	26				
	VINYL CHLORIDE	0.3	0.3	0.3	UG/L	0.5	45	1	0.02	1	0.5	0				
SVOC	2,4,6-TRICHLOROPHENOL	26	26	26	UG/L	10	43	1	6	1						
PEST	ALPHA-BHC	0.08	0.08	0.08	UG/L	0.05	41	1	0.01	1						
TPHPRG	TPH-GASOLINE	27	15,000	2,200	UG/L	270	43	15	100	4i						
TPHEXT	TPH-DIESEL	51	160	92	UG/L	100	43	13	100	3i						
	TPH-MOTOR OIL	53	900	280	UG/L	100	43	31	100	21i						
TRPH	TRPH	700	700	700	UG/L	1,000	41	1	100	1i						
ANION	CHLORIDE	14,400	14,000,000	1,690,000	UG/L	24,200	21	21								
	FLUORIDE	110	520	282	UG/L	100	12	12			1,400	0				
	NITRATE	985	12,400	3,950	UG/L	37.8	21	18	58,000	0						
	ORTHOPHOSPHATE	64.0	1,500	554	UG/L	54.0	21	10								
	SULFATE	27,000	1,760,000	219,000	UG/L	1,280	21	21								
SOLIDS	TOTAL DISSOLVED SOLIDS	292,000	26,400,000	3,500,000	UG/L	12,900	21	21								
SALIN	SALINITY	0.13	0.99	0.37	PPT	0.005	12	12								

TABLE 4.3-16C (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
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Analyte:	Similar Analyte:
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Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.3-17

SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B083	9422A859																√		√		√
IR28B084	9419C206																√		√		√
IR28B086	9411N459																√		√		√
IR28B087	9412P318																√		√		√
IR28B090	9412P322						√		√	√				√			√		√	√	√
IR28B092	9415C151						√		√	√				√			√		√	√	√
IR28B094	9413A702						√		√	√				√			√		√	√	√
IR28B100	9407N382																√		√		√
IR28B101	9416A807																√		√		√
IR28B104	9425A930																√		√		√
IR28B105	9416A817																√		√		√
IR28B106	9406N326																√		√		√
IR28B107	9412L128																√		√		√
IR28B108	9405N319																√		√		√
IR28B109	9412L102																√		√		√
IR28B110	9412L116																√		√		√
IR28B111	9411N468																√		√		√
IR28B112	9407N398																√		√		√
IR28B114	9412L110																√		√		√
IR28B115	9407N393																√		√		√
IR28B117	9413A711																√		√		√
IR28B119	9409N435																√		√		√
IR28B120	9409A515																√		√		√
IR28B121	9409N447																√		√		√
IR28B128A	9418A836																√		√		√
IR28B133	9403N228																√		√		√
IR28B137	9403N233																				√
IR28B141	9415A784						√		√	√				√			√		√	√	√
IR28B162	9403N236																√		√		√
IR28B163	9403N237																√		√		√
IR28B164	9403N238																√		√		√
IR28B165	9407N378																√		√		√
IR28B166	9403N251																√		√		√
IR28B167	9403N250																√		√		√
IR28B178	9408H557																√		√		√
IR28B179	9418C197																√		√		√
IR28B194	9412L135																√		√		√

TABLE 4.3-17 (Continued)

SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B194	9412L136						✓		✓	✓				✓						✓	
IR28B195	9412L123						✓		✓	✓				✓						✓	
IR28B195	9412L124																✓		✓		✓
IR28B199	9408A511																✓		✓		✓
IR28B207	9412A678																✓		✓		✓
IR28B208	9407N374																✓		✓		✓
IR28B209	9407N368																✓		✓		✓
IR28B219	9407N379																✓		✓		✓
IR28B221	9414T097																		✓		✓
IR28B222	9412P308																✓		✓		✓
IR28B224	9408N430																✓		✓		✓
IR28B228	9425A939																✓		✓		✓
IR28B230	9410N454																✓		✓		✓
IR28B231	9411N493																✓		✓		✓
IR28B232	9411N501																✓		✓		✓
IR28B233	9411N508																✓		✓		✓
IR28B235	9413A733																✓		✓		✓
IR28B236	9414T100																✓		✓		✓
IR28B238	9416A799																✓		✓		✓
IR28B239	9416T111																✓		✓		✓
IR28B248	9422A858																✓		✓		✓
IR28B249	9424R272																✓		✓		✓
IR28B250	9429C372																✓		✓		✓
IR28B250	9429C376																✓		✓		✓
IR28B250	9429C379																✓		✓		✓
IR28B251	9429R413																		✓		✓
IR28B252	9429R428																✓		✓		✓
IR28B252	9429R432																		✓		✓
IR28B252	9429R433																✓				
IR28B253	9425A934																✓		✓		✓
IR28B253	9425A935																✓		✓		✓
IR28B253	9425A936																✓		✓		✓
IR28B254	9430C397																		✓		✓
IR28B254	9430C398																✓				
IR28B258	9431R501																✓		✓		✓
IR28B259	9517A052																✓		✓		✓

TABLE 4.3-17 (Continued)

SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B260	9517A059																✓		✓		✓
IR28B262	9434A046																✓		✓		✓
IR28B263	9432C440																✓		✓		✓
IR28B264	9443A171																✓		✓		✓
IR28B265	9442N608																✓		✓		✓
IR28B266	9444A201																✓		✓		✓
IR28B267	9444A193																✓		✓		✓
IR28B279	9544G107																		✓		✓
IR28B281	9543W107																✓		✓		✓
IR28B282	9544J549																✓		✓		✓
IR28B284	9537J237																✓		✓		✓
IR28B285A	9537J229																✓		✓		✓
IR28B291	9538J263																✓		✓		✓
IR28B296	9540J352																✓		✓		✓
IR28B296	9540J353																✓		✓		✓
IR28MW127A	9418A834																✓		✓		✓
IR28MW275F	9543W051																✓		✓		✓
IR28MW290A	9538J277																✓		✓		✓
IR28MW293A	9538J281																✓		✓		✓
IR28MW293A	9538J282																✓		✓		✓
IR28MW294A	9540J348																✓		✓		✓
IR28MW295A	9540J360																✓		✓		✓
IR29B086	9439A092																✓		✓		✓
IR49B025	9412L157						✓		✓	✓				✓			✓		✓	✓	✓
IR58B028	9405S358																		✓		✓
IR58B028	9406A368																✓				
IR58MW31A	9419T120																✓		✓		✓

TABLE 4.3-17 (Continued)

SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.3-18

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	39.7	51.7	45.7	UG/L	34.1	7	2	37,000	0						
	ANTIMONY	6.4	12.9	9.0	UG/L	1.2	7	5	15.0	0	6.0	5	500	0		
	ARSENIC	2.4	7.1	4.7	UG/L	1.4	7	2	0.04	2	50.0	0	36.0	0		
	BARIUM	22.8	1,340	273	UG/L	5.1	7	7	2,600	0	1,000	1				
	CADMIUM	0.39	2.6	1.3	UG/L	0.30	7	3	18.0	0	5.0	0	9.3	0		
	CALCIUM	2,700	222,000	104,000	UG/L	86.5	7	7								
	CHROMIUM	2.4	2.4	2.4	UG/L	0.90	7	1			50.0	0				
	COBALT	2.1	11.7	6.9	UG/L	0.60	7	2								
	COPPER	4.4	5.9	4.9	UG/L	0.43	7	3	1,400	0			2.4	3		
	IRON	37.6	192	115	UG/L	25.2	7	2								
	MAGNESIUM	260,000	1,460,000	526,000	UG/L	171	7	7								
	MANGANESE	33.6	1,360	564	UG/L	0.53	7	6	180	4						
	MERCURY	0.05	0.05	0.05	UG/L	0.10	7	1	11.0	0	2.0	0	0.03	1		
	MOLYBDENUM	2.9	16.2	8.5	UG/L	0.70	7	4	180	0						
	NICKEL	3.1	45.8	17.8	UG/L	1.2	7	4	730	0	100	0	8.2	2		
	POTASSIUM	44,700	223,000	140,000	UG/L	373	7	7								
	SELENIUM	3.2	3.2	3.2	UG/L	3.0	7	1	180	0	50.0	0	71.0	0		
	SODIUM	589,000	6,080,000	2,660,000	UG/L	1,250	7	7								
	THALLIUM	3.5	3.5	3.5	UG/L	2.0	7	1			2.0	1				
	VANADIUM	2.8	5.1	3.6	UG/L	0.97	7	3	260	0						
	ZINC	5.5	9.4	7.5	UG/L	0.90	7	2	11,000	0			81.0	0		
VOC	1,1,1-TRICHLOROETHANE	0.6	0.6	0.6	UG/L	1	93	1	1,300	0	200	0				

TABLE 4.3-18 (Continued)

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above PRG[e]	MCL[f] Value	Above MCL[g]	NAWQC Value	Above NAWQC[h]	HGAL Value	Above HGAL[i]
	1,1-DICHLOROETHANE	5	9	7	UG/L	6	93	2	810	0						
	1,1-DICHLOROETHENE	0.4	0.4	0.4	UG/L	1	93	1	0.05	1	6	0				
	1,2-DICHLOROBENZENE	0.4	1,200	230	UG/L	12	89	7	370	1	600	1				
	1,2-DICHLOROETHENE (TOTAL.	11	1,200	550	UG/L	40	4	3	55	2						
	1,3-DICHLOROBENZENE	2	560	190	UG/L	24	89	3								
	1,4-DICHLOROBENZENE	0.7	3,800	570	UG/L	12	89	7	0.5	7	5	4				
	2-BUTANONE	3	1,300	160	UG/L	16	93	13	1,900	0						
	BENZENE	0.6	190	25	UG/L	8	93	9	0.4	9	1	6				
	CARBON TETRACHLORIDE	6	6	6	UG/L	1	93	1	0.2	1	0.5	1				
	CHLOROBENZENE	0.9	2,500	740	UG/L	18	93	4	39	2	70	2				
	CHLOROETHANE	0.5	10	4	UG/L	1	93	3	710	0						
	CHLOROFORM	0.9	9	5	UG/L	0.8	93	6	0.2	6	100	0				
	CIS-1,2-DICHLOROETHENE	0.4	5,500	340	UG/L	15	89	36	61	12	6	24				
	ETHYLBENZENE	0.4	50	18	UG/L	4	93	3	1,300	0	700	0				
	METHYLENE CHLORIDE	6	7	7	UG/L	10	93	2	4	2	5	2				
	TETRACHLOROETHENE	0.4	70	14	UG/L	8	93	18	1	14	5	8				
	TOLUENE	0.3	28	11	UG/L	20	93	3	720	0	150	0				
	TRANS-1,2-DICHLOROETHENE	0.4	210	19	UG/L	7	89	18	120	1	10	3				
	TRICHLOROETHENE	0.3	240	28	UG/L	11	93	27	2	20	5	12				
	TRICHLOROFLUOROMETHANE	1	28	10	UG/L	4	89	3	1,300	0						
	VINYL CHLORIDE	0.6	760	140	UG/L	25	93	24	0.02	24	0.5	24				
	XYLENE (TOTAL)	0.8	1,000	160	UG/L	23	93	7	1,400	0	1,800	0				

TABLE 4.3-18 (Continued)

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	NGAL Value	Above[k] NGAL
SVOC	BENZO(A)ANTHRACENE	0.9	0.9	0.9	UG/L	10	7	1	0.09	1						
	BENZO(A)PYRENE	1	1	1	UG/L	10	7	1	0.002	1	0.2	1				
	BENZO(B)FLUORANTHENE	0.9	0.9	0.9	UG/L	10	7	1	0.09	1						
	BENZO(G,H,I)PERYLENE	1	1	1	UG/L	10	7	1	240	0						
	BENZO(K)FLUORANTHENE	0.8	0.8	0.8	UG/L	10	7	1	0.9	0						
	BIS(2-ETHYLHEXYL)PHTHALAT.	4	4	4	UG/L	10	7	1	5	0	4	0	360	0		
	CHRYSENE	1	1	1	UG/L	10	7	1	9	0						
	FLUORANTHENE	1	1	1	UG/L	10	7	1	1,500	0						
	INDENO(1,2,3-CD)PYRENE	0.7	0.7	0.7	UG/L	10	7	1	0.09	1						
	PHENANTHRENE	0.5	0.5	0.5	UG/L	10	7	1	240	0			5	0		
	PYRENE	2	2	2	UG/L	10	7	1	1,100	0						
TPHPRG	TPH-GASOLINE	26	40,000	1,300	UG/L	680	92	41	100	20i						
	TPH-PURGEABLE UNKNOWN HYDR	590	590	590	UG/L	50	3	1	100	1i						
TPHEXT	TPH-DIESEL	53	340,000	6,500	UG/L	580	89	59	100	41i						
	TPH-MOTOR OIL	56	83,000	2,500	UG/L	630	89	64	100	48i						
TRPH	TRPH	1,200	8,100	4,700	UG/L	340	7	2	100	2i						

TABLE 4.3-18 (Continued)

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.3-19

SUMMARY OF GRAB GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B085	9411T076						✓		✓	✓				✓			✓		✓	✓	✓
IR28B088	9410A551																		✓		✓
IR28B088	9410B178						✓		✓	✓				✓			✓			✓	
IR28B089	9410B179						✓		✓	✓				✓			✓		✓	✓	✓
IR28B091	9411T069						✓		✓	✓				✓			✓		✓	✓	✓
IR28B093	9411T080						✓		✓	✓				✓			✓		✓	✓	✓
IR28B095	9409A541						✓		✓	✓				✓			✓		✓	✓	✓
IR28B096	9409B175																✓		✓		✓
IR28B096	9409B176						✓		✓	✓										✓	✓
IR28B097A	9411T072													✓			✓		✓		✓
IR28B098	9409A521						✓		✓	✓				✓			✓		✓	✓	✓
IR28B102	9405N301																✓		✓		✓
IR28B113	9405N310																✓		✓		✓
IR28B118	9405N289																✓		✓		✓
IR28B174	9406N336																✓		✓		✓
IR28B176	9406N349																✓		✓		✓
IR28B180	9406N347																✓		✓		✓
IR28B186	9412A680																				✓
IR28B187	9410A568																		✓		✓
IR28B187	9410A569																✓				
IR28B196	9411N519																✓		✓		✓
IR28B196	9411N520						✓		✓	✓				✓						✓	
IR28B198	9415A787																✓		✓		✓
IR28B204	9410T053																✓		✓		✓
IR28B205	9412N530																✓		✓		✓
IR28B210	9408G752																✓		✓		✓
IR28B218	9407N386																✓		✓		✓
IR28B223	9412P304																✓		✓		✓
IR28B226	9408B168																✓		✓		✓
IR28B234	9412L152																✓		✓		✓
IR28B237	9418C189																✓		✓		✓
IR28B250	9429C383																✓		✓		✓
IR28B251	9429R416																		✓		✓
IR28B252	9429R436																✓		✓		✓
IR28B252	9429R445																✓		✓		✓
IR28B254	9430C388																✓		✓		✓
IR28B254	9430C404																✓		✓		✓

TABLE 4.3-19 (Continued)

SUMMARY OF GRAB GROUNDWATER ANALYTICAL TESTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B261	9435A047																√		√		√
IR28B277	9544J557																√		√		√
IR28B278	9544J556																√		√		√
IR28B280	9544G103																√		√		√
IR28B283	9544J560																		√		√
IR28B283	9544W148																√				
IR28B307	9606G088																√				
IR28MW173B	9444X556																√		√		√
PA28B053	9311X935					√	√		√					√			√		√		√
PA28B053	9311X936					√	√		√					√			√		√		√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.3-20

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ANTIMONY	6.5	17.8	12.5	UG/L	1.6	10	7	15.0	2	6.0	7	500	0		
	ARSENIC	1.6	14.3	5.8	UG/L	1.6	9	4	0.04	4	50.0	0	36.0	0		
	BARIUM	24.8	1,050	166	UG/L	4.1	10	10	2,600	0	1,000	1				
	CADMIUM	1.0	1.0	1.0	UG/L	0.30	10	1	18.0	0	5.0	0	9.3	0		
	CALCIUM	4,080	471,000	120,000	UG/L	86.6	10	10								
	COPPER	5.0	5.0	5.0	UG/L	0.50	10	1	1,400	0			2.4	1		
	IRON	31.3	31.3	31.3	UG/L	6.2	10	1								
	LEAD	1.6	1.6	1.6	UG/L	1.2	9	1	4.0	0	50.0	0	8.1	0		
	MAGNESIUM	67,300	890,000	455,000	UG/L	871	10	10								
	MANGANESE	12.9	3,470	662	UG/L	0.94	10	7	180	2						
	MOLYBDENUM	5.3	9.4	7.4	UG/L	0.70	10	2	180	0						
	NICKEL	9.2	150	41.2	UG/L	7.4	10	6	730	0	100	1	8.2	6		
	POTASSIUM	12,800	260,000	93,400	UG/L	5,620	10	10								
	SELENIUM	5.1	8.1	7.0	UG/L	4.7	9	3	180	0	50.0	0	71.0	0		
	SILVER	1.0	1.0	1.0	UG/L	0.80	10	1	180	0			0.92	1		
	SODIUM	839,000	7,310,000	2,830,000	UG/L	1,070	10	10								
	THALLIUM	5.4	5.4	5.4	UG/L	2.0	7	1			2.0	1				
	VANADIUM	1.8	1.8	1.8	UG/L	2.4	10	1	260	0						
VOC	1,1,2-TRICHLORO-1,2,2-TRIF	4	4	4	UG/L	1	32	1	59,000	0						
	1,1-DICHLOROETHANE	1	1	1	UG/L	10	41	1	810	0						
	1,2-DICHLOROBENZENE	100	100	100	UG/L	25	32	1	370	0	600	0				
	1,2-DICHLOROETHANE	0.9	0.9	0.9	UG/L	1	41	1	0.1	1	0.5	1				

TABLE 4.3-20 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	1,2-DICHLOROETHENE (TOTAL.	1	1,000	450	UG/L	30	9	6	55	3						
	1,3-DICHLOROBENZENE	220	220	220	UG/L	25	32	1								
	1,4-DICHLOROBENZENE	0.8	410	210	UG/L	13	32	2	0.5	2	5	1				
	2-BUTANONE	7	210	110	UG/L	5	41	2	1,900	0						
	ACETONE	1	1	1	UG/L	10	9	1	610	0						
	BENZENE	1	36	17	UG/L	22	41	4	0.4	4	1	3				
	CARBON TETRACHLORIDE	0.9	30	16	UG/L	1	41	4	0.2	4	0.5	4				
	CHLOROBENZENE	1,100	1,100	1,100	UG/L	25	41	1	39	1	70	1				
	CHLOROFORM	2	11	7	UG/L	0.8	41	2	0.2	2	100	0				
	CHLOROMETHANE	0.9	0.9	0.9	UG/L	1	41	1	2	0						
	CIS-1,2-DICHLOROETHENE	0.5	7,700	1,100	UG/L	71	32	8	61	3	6	4				
	METHYLENE CHLORIDE	2,700	2,700	2,700	UG/L	2,000	41	1	4	1	5	1				
	TETRACHLOROETHENE	0.4	1,800	360	UG/L	100	41	5	1	3	5	2				
	TOLUENE	7	7	7	UG/L	1	41	1	720	0	150	0				
	TRANS-1,2-DICHLOROETHENE	16	16	16	UG/L	10	32	1	120	0	10	1				
	TRICHLOROETHENE	0.3	44,000	2,800	UG/L	150	41	18	2	14	5	13				
	TRICHLOROFLUOROMETHANE	0.5	12	5	UG/L	0.9	32	5	1,300	0						
	VINYL CHLORIDE	0.4	600	180	UG/L	80	41	9	0.02	9	0.5	8				
	XYLENE (TOTAL)	0.9	0.9	0.9	UG/L	1	41	1	1,400	0	1,800	0				
SVOC	1,4-DICHLOROBENZENE	1	1	1	UG/L	10	9	1	0.5	1	5	0				
	2-METHYLNAPHTHALENE	1	8	5	UG/L	10	10	2	240	0						
	ACENAPHTHENE	2	2	2	UG/L	25	10	1	370	0						

TABLE 4.3-20 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	BENZO(A)ANTHRACENE	1	1	1	UG/L	10	10	1	0.09	1						
	BENZO(B)FLUORANTHENE	1	1	1	UG/L	10	10	1	0.09	1						
	CHRYSENE	1	1	1	UG/L	10	10	2	9	0						
	FLUORANTHENE	1	2	2	UG/L	10	10	2	1,500	0						
	NAPHTHALENE	1	20	11	UG/L	10	10	2	240	0						
	PHENANTHRENE	1	2	2	UG/L	10	10	2	240	0			5	0		
	PYRENE	2	2	2	UG/L	10	10	2	1,100	0						
TPHPRG	TPH-GASOLINE	25	20,000	2,200	UG/L	350	39	19	100	7i						
TPHEXT	TPH-DIESEL	66	170,000	13,000	UG/L	1,100	39	20	100	14i						
	TPH-MOTOR OIL	57	81,000	6,500	UG/L	870	38	30	100	29i						
TRPH	TRPH	670	270,000	69,000	UG/L	26,000	9	4	100	4i						

TABLE 4.3-20 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-28
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.4-1
IR-29 RI FIELD ACTIVITIES SUMMARY
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	Hydro-Punch	Grab	
Soil Borings	39	NA	118	NA	4	9	A, F
Monitoring Wells	8	NA	8	25	NA	2	A, F
Soil Gas Wells	1	2	NA	NA	NA	NA	F
Surface Soil Samples	9	NA	9	NA	NA	NA	NA
Trench Soil Samples	2	NA	4	NA	NA	NA	NA
Storm Drain Samples	4	4	NA	NA	NA	NA	NA
Sandblast Samples	2	2	NA	NA	NA	NA	NA
Floor Vault Samples	4	4	NA	NA	NA	NA	NA
Aquifer Tests	6	6	NA	NA	NA	NA	A, B, F

Notes:

NA = Not applicable
Sampling stations include samples collected for each site investigation, and do not reflect the sample reassociation that was done for the calculation of human health risk.

A - A-aquifer
B - B-aquifer
F - Bedrock water-bearing zone

TABLE 4.4-2
IR-29 SOURCE CHARACTERIZATION SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Sample Type	Sample Location	Analyses
Building 217				
PA29FV05	2/24/93	Floor vault sediment	Inside Building 217	Metals (+Cr), Pest, SVOCs, O&G, TPH-e, TPH-p, pH
PA29FV11	1/29/93	Floor vault sediment	Inside Building 217	Metals (+Cr), Pest, SVOCs, O&G, TPH-e, TPH-p, pH
PA29SB10	2/24/93	Sandblast material	East of Building 217	Metals (+Cr), SVOCs, Cyanide, pH
PA29SW09	2/2/93	Storm drain sediment	East of Building 217	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
Building 275				
PA29SW18	1/29/93	Storm drain sediment	South of Building 275	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, Cyanide, pH
Building 279				
PA29FV20	3/1/93	Floor vault sediment	Inside Building 279	Metals (+Cr), Pest, VOCs, SVOCs, TPH-e, TPH-p, pH
PA29SW21	1/28/93	Storm drain sediment	West of Building 279	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 280				
PA29FV28	2/24/93	Floor vault sediment	Inside Building 280	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, pH
PA29SW29	1/28/93	Storm drain sediment	West of Building 280	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 282				
PA29SB33	1/29/93	Sandblast material	Inside Building 282	Metal (+Cr), Cyanide, SVOCs, pH

NOTES:

+Cr - Hexavelent Chromium
IR - Installation Restoration
O&G - Oil and Grease
PA - Preliminary Assessment
Pest - Pesticides and PCBs (Polychlorinated Biphenyls)
SVOCs - Semivolatile Organic Compounds
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
VOCs - Volatile Organic Compounds

TABLE 4.4-3
IR-29 SURFACE SOIL SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Location	Analyses
Building 203			
PA29SS37	3/8/93	Stained area of the floor inside the kiln building	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p
Building 217			
PA29SS07	3/9/93	Near paint residue in the paint booth	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA29SS08	3/9/93	In the welding room	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 275			
PA29SS15	3/9/93	Large crack in the concrete floor containing fine oxide powder	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 279			
PA29SS24	1/28/93	Stained area near several empty drums	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 280			
PA29SS26	1/28/93	Near salt-like residue inside building	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
PA29SS27	1/29/93	Stained area west of building	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
Building 282			
PA29SS34	2/24/93	Northeast of building beneath cracked, paint stained asphalt	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA29SS35	2/24/93	Northeast of building beneath cracked, paint stained asphalt	Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH

NOTES:

+Cr - Hexavelent Chromium
IR - Installation Restoration
O&G - Oil and Grease
PA - Preliminary Assessment
Pest - Pesticides and PCBs (Polychlorinated Biphenyls)
SVOCs - Semivolatile Organic Compounds
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
VOCs - Volatile Organic Compounds

TABLE 4.4-4
IR-29 (BUILDING 203) TEST PIT SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Trench Name	Date Sampled	Depths Sampled (feet bgs)	Location	Analyses
IR29TA49	1/25/94	8.25	NE of UST Site 6	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29TA52	1/26/94	3.25, 6.25, 9.75	E of UST Site 6	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p

NOTES:

bgs - below ground surface
E - East
IR - Installation Restoration
NE - Northeast
Pest - Pesticides and PCBs (Polychlorinated Biphenyls)
SVOC - Semivolatile Organic Compounds
TRPH - Total Recoverable Petroleum Hydrocarbons
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
UST - Underground Storage Tank
VOC - Volatile Organic Compounds

TABLE 4.4-5
IR-29 SOIL SAMPLES FROM BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Samples	T.D.	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Building 203								
Soil Borings								
PA29B017	1/28/93	12.0	1*	1	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e , TPH-p
PA29B003	2/3/93	10.5	1*	1	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e , TPH-p
PA29B036	3/10/93	5.5	1	1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e , TPH-p
IR29B068	2/9/94	14.5		1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B053	2/22/94	18.5		1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B054	2/22/94	10.0		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B070	2/22/94	12.0		1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B071	2/23/94	15.0			1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B060	4/28/94	15.0		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B063	4/28/94	15.0		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B064A	4/28/94	8.0		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B073	6/13/94	7.5	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B074	6/13/94	10.0		2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B072	6/14/94	8.0	1	1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B084	8/23/94	15.0	1					Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B085	8/23/94	18.0	1*	1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B064	8/24/94	11.5	1*	1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p
IR29B075	8/25/94	8.5	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p

TABLE 4.4-5 (continued)
IR-29 SOIL SAMPLES FROM BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Samples	T.D.	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Monitoring Wells								
IR29MW84A	10/19/95	11.5		1	1			VOCs, SVOCs, TRPH, TPH-e, % moisture
Building 217								
Monitoring Wells								
IR29MW85F	4/2/96	22.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Building 275								
Soil Borings								
PA29B016	1/28/93	12.0	1	1	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
IR29B047	6/14/94	13.5	1	1	2			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR29B046	6/15/94	11.5	1*	1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR29B082	6/30/94	20.5		3		1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR29B083	6/30/94	20.5	1	1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
Building 279								
Soil Borings								
PA29B022	2/1/93	11.0	1*	1	1			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA29B030	2/2/93	7.0	1*	1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
IR29B040	1/12/94	71.5	1*	1	1	2	9	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR29B039	1/25/94	41.0	1*	1	1	2	2	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR29B038	1/28/94	88.5	1*	1	1	2	5	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR29B076	6/15/94	10.5		1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR29B077	6/15/94	10.0	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR29B078	6/15/94	11.5	1*	2				Metals, Pest, VOCs, SVOCs, TRPH,

TABLE 4.4-5 (continued)
IR-29 SOIL SAMPLES FROM BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Samples	T.D.	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
								TPH-e, TPH-p, pH
Building 280								
Soil Borings								
PA29B031	2/1/93	7.0	1	1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, % moisture, pH
IR29B041	1/21/94	116.5	1	1	2	2	8	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, % moisture, pH
IR29B080	6/22/94	10.5	1	1				Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, % moisture, pH
IR29B079	6/23/94	4.0	1	1				Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, % moisture, pH
IR29B081	6/23/94	8.5	1	2				Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, % moisture, pH

Notes:

bgs - below ground surface
1* = Sample at 2.25 feet bgs
+Cr - Hexavalent Chromium
IR - Installation Restoration
PA - Preliminary Assessment
Pest - Pesticides and PCBs (Polychlorinated Biphenyls)
SVOCs - Semivolatile Organic Compounds
T.D. - Total Depth
TRPH - Total Recoverable Petroleum Hydrocarbons
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
UST - Underground Storage Tank
VOCs - Volatile Organic Compounds

TABLE 4.4-6
IR-29 (BUILDING 280) SOIL-VAPOR WELL SAMPLES
HUNTERS POINT SHIPYARD, PARCEL REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet bgs)	Number of Samples			Analyses	Dates Sampled
			Aquifer				
			A	B	F		
IR29SG72F	7/14/94	123			2	VOCs, SVOCs	7/26/94 7/27/94

Notes:

bgs - below ground surface
IR - Installation Restoration
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.4-7
IR-29 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (ft bgs)	Sample Depth (ft bgs)	Sample Type	Analyses
Building 203					
Soil Borings					
IR29B053	2/22/94	18.5	18.5	Grab	VOCs, TPH-e, TPH-p
IR29B070	2/22/94	12.0	12.0	Grab	VOCs, TPH-e, TPH-p
IR29B063	7/7/94	15.0	15.0	Grab	VOCs, SVOCs, TPH-e, TPH-p
IR29B062	7/22/94	9.5	9.5	Grab	VOCs, TPH-e, TPH-p
IR29B064	8/24/94	11.5	11.5	Grab	VOCs, TPH-e, TPH-p
IR29B071	2/23/94	15.0	10.5	HydroPunch	VOCs, TPH-e, TPH-p
IR29B085	8/24/94	16.0	11.0	HydroPunch	VOCs, TPH-e, TPH-p
IR29B086	9/26/94	11.0	10.5	HydroPunch	VOCs, TPH-e, TPH-p
Monitoring Wells					
IR29MW56F	7/19/94	15.5	15.5	Grab	VOCs, TPH-e, TPH-p
Building 275					
Soil Borings					
IR29B046	6/15/94	11.5	11.5	Grab	Metals, Pest, VOCs, TRPH, TPH-e, TPH-p, pH
IR29B082	6/30/94	20.5	20.5	Grab	Metals, VOCs, SVOCs, TPH-e, TPH-p
IR29B083	6/30/94	20.5	20.5	Grab	Metals, VOCs, SVOCs, TPH-e, TPH-p
IR29B047	6/14/94	13.5	12.0	HydroPunch	Metals, Pest, VOCs, TRPH, TPH-e, TPH-p, pH
Building 279					
Soil Borings					
IR29B040	1/12/94	71.5	71.5	Grab	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH

TABLE 4.4-7 (continued)
IR-29 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (ft bgs)	Sample Depth (ft bgs)	Sample Type	Analyses
Building 280					
Monitoring Wells					
IR29MW72F	7/12/94	26.5	26.5	Grab	VOCs, TPH-e, TPH-p

NOTES:

bgs - below ground surface
ft - feet
IR - Installation Restoration
Pest - Pesticides and PCBs (Polychlorinated biphenyls)
TOG - Total Oil & Grease
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.4-8
IR-29 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (ft bgs)	Well Diameter (in)	Screened Interval (ft bgs)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
Building 203									
IR29MW48A	5/9/94	10.0	4	4.5-10.0	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH	6/6/94 7/14/95 8/2/95 11/27/95
IR29MW57A	5/10/94	11.0	4	5.0-11.0	4			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH	6/28/94 6/22/95 6/23/95 12/13/95
IR29MW56F	7/19/94	15.0	4	4.0-15.0			6	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	8/10/94 8/11/94 6/21/95 6/22/95 11/27/95 11/28/95
IR29MW59F	10/28/94	25.5	4	15.0-25.0			3	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	11/14/94 6/21/95 12/6/95
IR29MW58F	11/10/94	19.0	4	15.0-19.0			5	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	11/28/94 11/29/94 6/19/95 6/20/95 11/29/95
IR29MW84A	10/19/95	11.5	4	6.0-11.0	3			VOCs, SVOCs, TPH-e, TPH-p, Anions, Salinity, pH	11/10/95 2/28/96 4/26/96
Building 217									
IR29MW85F	4/2/96	22.0	4	6.5-21.5			2	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, Salinity, pH	4/22/96 4/23/96 5/24/96 7/8/96

TABLE 4.4-8 (continued)
IR-29 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (ft bgs)	Well Diameter (in)	Screened Interval (ft bgs)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
Building 280									
IR29MW72F	7/12/94	26.5	4	6.0-24.0			5	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, Anions, TDS, pH	7/25/94 6/21/95 6/22/95 12/6/95 12/7/95

NOTES:

bgs - below ground surface
ft - feet
in - inches
IR - Installation Restoration
Pest - Pesticides and PCBs (Polychlorinated biphenyls)
SVOCs - Semivolatile Organic Compounds
TDS - Total Dissolved Solids
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
VOCs - Volatile Organic Compounds

TABLE 4.4-9

SUMMARY OF OTHER SEDIMENT ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA29FV05	9308A613						√		√	√				√			√		√		√
PA29FV11	9304X892			√			√		√	√				√			√		√		√
PA29FV20	9309A633			√			√		√	√				√			√		√		√
PA29FV28	9308A614						√			√				√			√		√		√
PA29SB10	9308A615			√	√		√			√				√							
PA29SB33	9304X891				√		√			√				√							
PA29SB33	9305X904			√																	

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-10

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	6,490	77,500	30,900	MG/KG	8.1	6	6	76,700	1	100,000	0		
	ANTIMONY	9.9	438	286	MG/KG	6.9	6	3	30.7	2	681	0	9.05	3
	ARSENIC	2.2	38.5	13.5	MG/KG	1.3	6	6	0.32	6	2.0	6	11.10	3
	BARIUM	57.4	1,350	420	MG/KG	0.18	6	6	5,340	0	100,000	0	314.36	2
	CADMIUM	5.4	86.6	32.4	MG/KG	0.85	6	5	9.0	2	852	0	3.14	5
	CALCIUM	2,280	19,300	10,200	MG/KG	12.2	6	6						
	CHROMIUM	93.9	2,750	960	MG/KG	0.60	6	6	211	5	1,580	1	h	5
	COBALT	6.0	53.0	33.9	MG/KG	1.9	6	6					h	4
	COPPER	195	3,930	2,000	MG/KG	0.58	6	6	2,850	3	63,300	0	124.31	6
	IRON	9,860	364,000	156,000	MG/KG	7.1	6	6						
	LEAD	21.9	4,280	1,870	MG/KG	5.5	6	6	130	5	1,000	3	8.99	6
	MAGNESIUM	3,460	14,100	7,080	MG/KG	10.8	6	6						
	MANGANESE	218	2,660	1,250	MG/KG	0.21	6	6	382	5	8,300	0	1431.18	2
	MERCURY	0.18	16.0	3.6	MG/KG	0.18	6	5	23.0	0	511	0	2.28	1
	MOLYBDENUM	11.1	203	90.8	MG/KG	0.72	6	5	383	0	8,520	0	2.68	5
	NICKEL	70.3	2,780	1,180	MG/KG	6.4	6	6	150	5	34,100	0	h	5
	POTASSIUM	539	1,110	788	MG/KG	140	6	3						
	SILVER	0.78	17.5	8.8	MG/KG	0.45	6	4	383	0	8,520	0	1.43	2
	SODIUM	164	10,700	3,090	MG/KG	15.2	6	6						
	VANADIUM	16.4	47.5	29.8	MG/KG	0.48	6	6	537	0	11,900	0	117.17	0
	ZINC	115	33,700	9,870	MG/KG	0.69	6	6	23,000	1	100,000	0	109.86	6
VOC	4-METHYL-2-PENTANONE	0.005	0.005	0.005	MG/KG	0.010	4	1	5,200	0	55,000	0		

TABLE 4.4-10 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	TOLUENE	0.005	0.005	0.005	MG/KG	0.010	4	1	1,900	0	2,700	0		
	TRICHLOROETHENE	0.001	0.001	0.001	MG/KG	0.010	4	1	7.1	0	17	0		
SVOC	ACENAPHTHENE	0.20	0.20	0.20	MG/KG	1.3	6	1	360	0	360	0		
	ANTHRACENE	0.73	0.73	0.73	MG/KG	1.3	6	1	19	0	19	0		
	BENZO(A)ANTHRACENE	0.24	0.83	0.54	MG/KG	1.4	6	2	0.61	1	2.6	0		
	BENZO(A)PYRENE	0.19	0.83	0.51	MG/KG	1.9	6	3	0.061	3	0.26	2		
	BENZO(B)FLUORANTHENE	0.40	0.42	0.41	MG/KG	2.3	6	2	0.61	0	2.6	0		
	BENZO(G,H,I)PERYLENE	0.42	0.42	0.42	MG/KG	1.3	6	1	800	0	800	0		
	BENZO(K)FLUORANTHENE	0.69	0.69	0.69	MG/KG	1.3	6	1	0.61	1	26	0		
	BUTYLBENZYLPHTHALATE	0.17	0.17	0.17	MG/KG	1.4	6	1	13,000	0	100,000	0		
	CARBAZOLE	0.29	0.29	0.29	MG/KG	1.3	6	1	22	0	95	0		
	CHRYSENE	0.24	1.0	0.61	MG/KG	2.1	6	5	6.1	0	24	0		
	DIBENZ(A,H)ANTHRACENE	0.13	0.13	0.13	MG/KG	1.3	6	1	0.061	1	0.26	0		
	DIBENZOFURAN	0.13	0.13	0.13	MG/KG	1.3	6	1	260	0	2,700	0		
	FLUORANTHENE	0.40	2.1	1.1	MG/KG	2.0	6	3	2,600	0	27,000	0		
	FLUORENE	0.17	0.17	0.17	MG/KG	1.3	6	1	300	0	300	0		
	INDENO(1,2,3-CD)PYRENE	0.49	0.49	0.49	MG/KG	1.3	6	1	0.61	0	2.6	0		
	PHENANTHRENE	0.47	1.7	1.1	MG/KG	1.4	6	2	800	0	800	0		
	PYRENE	0.22	1.7	0.79	MG/KG	1.5	6	3	2,000	0	20,000	0		
PEST	4,4'-DDD	0.072	0.072	0.072	MG/KG	0.046	3	1	1.9	0	7.9	0		
	4,4'-DDE	0.069	0.069	0.069	MG/KG	0.046	3	1	1.3	0	5.6	0		
	4,4'-DDT	0.19	0.19	0.19	MG/KG	0.046	3	1	1.3	0	5.6	0		

TABLE 4.4-10 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	AROCLOR-1260	0.063	1.4	0.54	MG/KG	0.28	3	3	0.066	2	0.34	1		
TPHEXT	TPH-EXTRACTABLE UNKNOWN HYDRO.	120	800	470	MG/KG	37	4	4	1,000	0i				

TABLE 4.4-10 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 93.019 to 244.920, 18.113 to 37.502, and 85.691 to 324.726 mg/kg respectively.

TABLE 4.4-11

SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA29SW09	9305X900			√			√		√	√				√			√		√		√
PA29SW18	9304X890				√		√		√	√				√			√		√		√
PA29SW18	9305X903			√																	
PA29SW21	9304X885						√	√	√	√				√			√		√		√
PA29SW21	9305X901			√																	
PA29SW29	9304X887						√	√	√	√				√			√		√		√
PA29SW29	9305X902			√																	
PA50CB310	9303X829			√	√		√	√	√	√				√			√		√	√	√
PA50SW308	9303X827			√	√		√	√	√	√				√			√		√	√	√
PA50SW309	9303X828			√	√		√	√	√	√				√			√		√	√	√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-12

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	5,900	54,900	15,900	MG/KG	7.6	7	7	76,700	0	100,000	0		
	ANTIMONY	3.5	14.3	9.8	MG/KG	5.3	5	4	30.7	0	681	0	9.05	3
	ARSENIC	6.2	28.6	11.2	MG/KG	0.46	7	7	0.32	7	2.0	7	11.10	1
	BARIUM	137	1,430	532	MG/KG	0.63	7	7	5,340	0	100,000	0	314.36	4
	BERYLLIUM	0.16	0.31	0.23	MG/KG	0.18	7	3	0.14	3	1.1	0	0.71	0
	CADMIUM	2.8	28.8	9.8	MG/KG	0.72	7	5	9.0	1	852	0	3.14	3
	CALCIUM	5,870	29,600	12,900	MG/KG	16.5	7	7						
	CHROMIUM	101	410	227	MG/KG	0.51	7	7	211	4	1,580	0	h	3
	COBALT	17.6	52.7	31.0	MG/KG	1.2	7	7					h	1
	COPPER	553	4,210	1,550	MG/KG	0.24	7	7	2,850	1	63,300	0	124.31	7
	IRON	38,800	74,800	50,500	MG/KG	5.4	7	7						
	LEAD	320	1,430	799	MG/KG	4.8	7	7	130	7	1,000	2	8.99	7
	MAGNESIUM	8,230	91,400	28,800	MG/KG	23.5	7	7						
	MANGANESE	358	735	594	MG/KG	0.21	7	7	382	6	8,300	0	1431.18	0
	MERCURY	0.10	0.50	0.35	MG/KG	0.07	7	7	23.0	0	511	0	2.28	0
	MOLYBDENUM	14.6	201	80.7	MG/KG	0.72	7	7	383	0	8,520	0	2.68	7
	NICKEL	76.3	4,750	1,220	MG/KG	2.3	7	7	150	6	34,100	0	h	3
	POTASSIUM	494	2,210	1,030	MG/KG	155	7	7						
	SILVER	1.2	2.8	1.9	MG/KG	0.52	7	7	383	0	8,520	0	1.43	5
	SODIUM	234	7,650	1,480	MG/KG	28.0	7	7						
	VANADIUM	24.0	41.8	36.1	MG/KG	0.77	7	7	537	0	11,900	0	117.17	0
	ZINC	571	9,250	2,430	MG/KG	0.44	7	7	23,000	0	100,000	0	109.86	7

TABLE 4.4-12 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
VOC	2-HEXANONE	0.009	0.009	0.009	MG/KG	0.012	7	1						
	4-METHYL-2-PENTANONE	0.005	0.050	0.027	MG/KG	0.012	7	2	5,200	0	55,000	0		
	ETHYLBENZENE	0.14	0.14	0.14	MG/KG	0.062	7	1	2,900	0	3,100	0		
	TOLUENE	0.002	0.032	0.017	MG/KG	0.039	7	2	1,900	0	2,700	0		
	TRICHLOROETHENE	0.005	0.005	0.005	MG/KG	0.012	7	1	7.1	0	17	0		
	XYLENE (TOTAL)	0.004	1.7	0.70	MG/KG	0.85	7	3	980	0	980	0		
SVOC	2,4,5-TRICHLOROPHENOL	34	34	34	MG/KG	34	6	1	6,500	0	68,000	0		
	2,4-DINITROPHENOL	34	34	34	MG/KG	34	6	1	130	0	1,400	0		
	2-CHLOROPHENOL	9.7	36	23	MG/KG	13	7	2	330	0	3,400	0		
	2-NITROANILINE	34	34	34	MG/KG	34	6	1	3.9	1	41	0		
	3-NITROANILINE	34	34	34	MG/KG	34	7	1						
	4,6-DINITRO-2-METHYLPHENOL	34	34	34	MG/KG	34	6	1						
	4-CHLORO-3-METHYLPHENOL	6.6	24	16	MG/KG	13	7	2						
	4-NITROANILINE	34	34	34	MG/KG	34	7	1						
	4-NITROPHENOL	34	34	34	MG/KG	34	6	1						
	BENZO(A)ANTHRACENE	0.21	0.63	0.42	MG/KG	2.7	7	2	0.61	1	2.6	0		
	BENZO(A)PYRENE	0.22	0.56	0.39	MG/KG	2.7	7	2	0.061	2	0.26	1		
	BENZO(B)FLUORANTHENE	0.52	1.2	0.86	MG/KG	2.7	7	2	0.61	1	2.6	0		
	BENZO(G,H,I)PERYLENE	0.44	0.44	0.44	MG/KG	3.3	7	1	800	0	800	0		
	BENZO(K)FLUORANTHENE	0.19	0.19	0.19	MG/KG	2.0	7	1	0.61	0	26	0		
	CHRYSENE	0.39	0.71	0.55	MG/KG	2.7	7	2	6.1	0	24	0		
	FLUORANTHENE	0.59	1.5	1.0	MG/KG	2.7	7	2	2,600	0	27,000	0		

TABLE 4.4-12 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	INDENO(1,2,3-CD)PYRENE	0.20	0.43	0.32	MG/KG	2.7	7	2	0.61	0	2.6	0		
	PENTACHLOROPHENOL	34	34	34	MG/KG	34	6	1	2.5	1	7.9	1		
	PHENANTHRENE	0.49	0.81	0.65	MG/KG	2.7	7	2	800	0	800	0		
	PHENOL	14	31	23	MG/KG	13	7	2	39,000	0	100,000	0		
	PYRENE	0.62	0.86	0.74	MG/KG	2.7	7	2	2,000	0	20,000	0		
PEST	4,4'-DDE	0.003	0.003	0.003	MG/KG	0.004	7	1	1.3	0	5.6	0		
	4,4'-DDT	0.011	0.011	0.011	MG/KG	0.004	7	1	1.3	0	5.6	0		
	DIELDRIN	0.002	0.002	0.002	MG/KG	0.004	7	1	0.028	0	0.12	0		
	GAMMA-CHLORDANE	0.001	0.001	0.001	MG/KG	0.002	7	1	0.34	0	1.5	0		
	AROCLOR-1254	0.12	0.12	0.12	MG/KG	0.041	7	1	1.4	0	19	0		
	AROCLOR-1260	0.20	1.2	0.61	MG/KG	0.19	7	4	0.066	4	0.34	3		
TPHPRG	TPH-GASOLINE	14	130	72	MG/KG	15	7	2	100	1i				
TPHEXT	TPH-DIESEL	330	6,300	2,600	MG/KG	180	7	5	1,000	3i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	81	910	500	MG/KG	29	2	2	1,000	0i				
TRPH	TRPH	860	2,800	1,800	MG/KG	430	3	3	1,000	2i				

TABLE 4.4-12 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 169.060 to 888.645, 28.382 to 98.801, and 194.982 to 1912.745 mg/kg respectively.

TABLE 4.4-13

SUMMARY OF OTHER WATER ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
740 (740-742	9604V016								√					√							
742 (742-740	9604V017								√					√							
PA50SN322	9410X251						√		√	√				√	√		√		√	√	√
PA50SN322	9410X252						√		√	√				√	√		√		√	√	√
PA50SN323	9410X248						√		√	√				√	√		√		√	√	√
PA50SN325	9410X249						√		√	√				√	√		√		√	√	√
PA50SN326	9410X254						√		√	√				√	√		√		√	√	√
PA50SN327	9410X255						√		√	√				√			√		√	√	√
PA50SN327	9411M501																√		√	√	√
PA50SN336	9311J410			√	√		√		√	√				√			√		√	√	√
PA50SN336	9331X015														√						
PA50SW312	9430J329																√		√		√
TC2 (2-738)	9604V023													√							

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-14

STATISTICAL SUMMARY OF OTHER WATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	308	407	358	UG/L	12.6	6	2	37,000	0						
	ANTIMONY	2.9	35.2	12.8	UG/L	1.0	6	5	15.0	1	6.0	4	500	0		
	ARSENIC	9.3	9.3	9.3	UG/L	0.90	6	1	0.04	1	50.0	0	36.0	0		
	BARIUM	24.5	59.9	38.2	UG/L	2.0	6	6	2,600	0	1,000	0				
	CALCIUM	33,300	481,000	158,000	UG/L	42.1	6	6								
	CHROMIUM	9.7	9.7	9.7	UG/L	0.40	6	1			50.0	0				
	COBALT	5.8	5.8	5.8	UG/L	0.60	6	1								
	COPPER	7.2	7.2	7.2	UG/L	0.40	6	1	1,400	0			2.4	1		
	IRON	26.6	3,790	1,910	UG/L	8.0	6	2								
	MAGNESIUM	55,400	574,000	234,000	UG/L	138	6	6								
	MANGANESE	8.6	5,280	1,350	UG/L	0.75	6	4	180	1						
	MOLYBDENUM	30.7	30.7	30.7	UG/L	0.70	6	1	180	0						
	NICKEL	4.3	138	49.2	UG/L	0.60	6	3	730	0	100	1	8.2	1		
	POTASSIUM	10,900	212,000	108,000	UG/L	976	6	6								
	SELENIUM	1.3	3.8	2.1	UG/L	1.9	6	3	180	0	50.0	0	71.0	0		
	SODIUM	161,000	5,340,000	1,890,000	UG/L	1,790	6	6								
	VANADIUM	5.0	6.4	5.7	UG/L	0.70	6	2	260	0						
	ZINC	204	204	204	UG/L	0.90	6	1	11,000	0			81.0	1		
VOC	1,1,2-TRICHLORO-1,2,2-TRIF	28	28	28	UG/L	2	1	1	59,000	0						
	1,2-DICHLOROETHENE (TOTAL.	1	50	15	UG/L	12	7	6	55	0						
	ACETONE	92	92	92	UG/L	10	7	1	610	0						
	BENZENE	2	2	2	UG/L	10	8	1	0.4	1	1	1				

TABLE 4.4-14 (Continued)

STATISTICAL SUMMARY OF OTHER WATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	BROMODICHLOROMETHANE	3	3	3	UG/L	10	8	2	0.2	2	100	0				
	CHLOROBENZENE	12	260	86	UG/L	12	8	5	39	3	70	2				
	CHLOROFORM	1	26	13	UG/L	10	8	4	0.2	4	100	0				
	CIS-1,2-DICHLOROETHENE	0.6	0.6	0.6	UG/L	2	1	1	61	0	6	0				
	TOLUENE	0.8	2	1	UG/L	10	8	3	720	0	150	0				
	TRICHLOROETHENE	2	76	25	UG/L	10	8	7	2	7	5	6				
	TRICHLOROFLUOROMETHANE	57	57	57	UG/L	2	1	1	1,300	0						
	VINYL CHLORIDE	10	10	10	UG/L	20	8	1	0.02	1	0.5	1				
SVOC	1,2-DICHLOROBENZENE	89	89	89	UG/L	10	9	1	370	0	600	0				
	1,3-DICHLOROBENZENE	81	81	81	UG/L	10	9	1								
	1,4-DICHLOROBENZENE	6	98	41	UG/L	7	9	6	0.5	6	5	6				
	4-METHYLPHENOL	0.6	1	0.8	UG/L	10	9	2	180	0						
	BIS(2-ETHYLHEXYL)PHTHALAT.	120	120	120	UG/L	8	9	1	5	1	4	1	360	0		
PEST	ENDOSULFAN I	0.03	0.03	0.03	UG/L	0.05	8	1	2	0						
TPHPRG	TPH-GASOLINE	34	430	190	UG/L	50	8	6	100	4i						
TPHEXT	TPH-DIESEL	1,000	11,000	4,600	UG/L	260	8	3	100	3i						
	TPH-MOTOR OIL	2,200	13,000	7,600	UG/L	6,000	7	2	100	2i						
TRPH	TRPH	490	62,000	13,000	UG/L	370	7	5	100	5i						
TMICROB	FECAL COLIFORM	4	1,600	420	j	2	5	5								
	TOTAL COLIFORM	30	1,600	1,200	j	2	4	4								

TABLE 4.4-14 (Continued)

STATISTICAL SUMMARY OF OTHER WATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

j Most probable number of organisms per 100 milliliters (mpn/100 mL)

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.4-15

SUMMARY OF SOIL ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B182	9406B155						√	√	√	√				√			√		√	√	√
IR28B182	9406B158						√	√	√	√				√			√		√	√	√
IR28B182	9406B160													√			√		√		√
IR28B182	9406N350						√	√	√	√				√			√		√	√	√
IR28B182	9406N351						√	√	√	√				√			√		√	√	√
IR28B182	9406N352						√	√	√	√				√			√		√	√	√
IR28B182	9406N353						√	√	√	√				√			√		√	√	√
IR28B182	9406N354						√	√	√	√				√			√		√	√	√
IR28B182	9406N356						√	√	√	√				√			√		√	√	√
IR28B182	9406N358						√	√	√	√				√			√		√	√	√
IR28B182	9406N360						√	√	√	√				√			√		√	√	√
IR28B182	9406N361						√	√	√	√				√			√		√	√	√
IR28B182	9406N362						√	√	√	√				√			√		√	√	√
IR28B182	9406N365						√	√	√	√				√			√		√	√	√
IR28B184	9409N440						√	√	√	√				√			√		√	√	√
IR28B184	9409N442						√	√	√	√				√			√		√	√	√
IR28B184	9409N443						√	√	√	√				√			√		√	√	√
IR28B184	9409N444						√	√	√	√				√			√		√	√	√
IR29B039	9404A291						√	√	√	√				√			√		√	√	√
IR29B039	9404A292						√	√	√	√				√			√		√	√	√
IR29B039	9404A293						√	√	√	√				√			√		√	√	√
IR29B039	9404A294						√	√	√	√				√			√		√	√	√
IR29B039	9404A295						√	√	√	√				√			√		√	√	√
IR29B039	9404A296						√	√	√	√				√			√		√	√	√
IR29B039	9404A297						√	√	√	√				√			√		√	√	√
IR29B040	9402N213						√	√	√	√				√			√		√	√	√
IR29B040	9402N214						√	√	√	√				√			√		√	√	√
IR29B040	9402N216						√	√	√	√				√			√		√	√	√
IR29B040	9402N219						√	√	√	√				√			√		√	√	√
IR29B040	9402N220						√	√	√	√				√			√		√	√	√
IR29B040	9402N221						√	√	√	√				√			√		√	√	√
IR29B040	9402N222						√	√	√	√				√			√		√	√	√
IR29B040	9402N223						√	√	√	√				√			√		√	√	√
IR29B040	9403A240						√	√	√	√				√			√		√	√	√
IR29B040	9403A241						√	√	√	√				√			√		√	√	√
IR29B040	9403A242						√	√	√	√				√			√		√	√	√
IR29B040	9403A243						√	√	√	√				√			√		√	√	√

TABLE 4.4-15 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29B040	9403A244						√	√	√	√				√			√		√	√	√
IR29B040	9403A245						√	√	√	√				√			√		√	√	√
IR29B041	9403A267						√	√	√	√				√			√		√	√	√
IR29B041	9403A268						√	√	√	√				√			√		√	√	√
IR29B041	9403A269						√	√	√	√				√			√		√	√	√
IR29B041	9403A270						√	√	√	√				√			√		√	√	√
IR29B041	9403A271						√	√	√	√				√			√		√	√	√
IR29B041	9403A272						√	√	√	√				√			√		√	√	√
IR29B041	9403A273						√	√	√	√				√			√		√	√	√
IR29B041	9403A275						√	√	√	√				√			√		√	√	√
IR29B041	9403A278						√	√	√	√				√			√		√	√	√
IR29B041	9403A280						√	√	√	√				√			√		√	√	√
IR29B041	9404A283						√	√	√	√				√			√		√	√	√
IR29B041	9404A285						√	√	√	√				√			√		√	√	√
IR29B041	9404A288						√	√	√	√				√			√		√	√	√
IR29B041	9404A290						√	√	√	√				√			√		√	√	√
IR29B046	9424C277						√	√	√	√				√			√		√	√	√
IR29B046	9424C278						√	√	√	√				√			√		√	√	√
IR29B046	9424C279						√	√	√	√				√			√		√	√	√
IR29B047	9424C272						√	√	√	√				√			√		√	√	√
IR29B047	9424C273						√	√	√	√				√			√		√	√	√
IR29B047	9424C274						√	√	√	√				√			√		√	√	√
IR29B047	9424C276						√	√	√	√				√			√		√	√	√
IR29B053	9408A480						√	√	√	√				√			√		√	√	√
IR29B053	9408A481						√	√	√	√				√			√		√	√	√
IR29B053	9408A482						√	√	√	√				√			√		√	√	√
IR29B054	9408A483						√	√	√	√				√			√		√	√	√
IR29B060	9417A826						√	√	√	√				√			√		√	√	√
IR29B063	9417A827						√	√	√	√				√			√		√	√	√
IR29B064	9434Y034						√	√	√	√				√			√		√	√	√
IR29B064	9434Y035						√	√	√	√				√			√		√	√	√
IR29B064A	9417A828						√	√	√	√				√			√		√	√	√
IR29B068	9406A387						√	√	√	√				√			√		√	√	√
IR29B068	9406A388						√	√	√	√				√			√		√	√	√
IR29B070	9408A486						√	√	√	√				√			√		√	√	√
IR29B070	9408A487						√	√	√	√				√			√		√	√	√

TABLE 4.4-15 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29B071	9408A489						√	√	√	√				√			√		√	√	√
IR29B072	9424R278						√	√	√	√				√			√		√	√	√
IR29B072	9424R279						√	√	√	√				√			√		√	√	√
IR29B073	9424R275						√	√	√	√				√			√		√	√	√
IR29B073	9424R276						√	√	√	√				√			√		√	√	√
IR29B073	9424R277						√	√	√	√				√			√		√	√	√
IR29B074	9424R273						√	√	√	√				√			√		√	√	√
IR29B074	9424R274						√	√	√	√				√			√		√	√	√
IR29B075	9434C488						√	√	√	√				√			√		√	√	√
IR29B075	9434C489						√	√	√	√				√			√		√	√	√
IR29B075	9434C490						√	√	√	√				√			√		√	√	√
IR29B076	9424R288						√	√	√	√				√			√		√	√	
IR29B077	9424R289						√	√	√	√				√			√		√	√	
IR29B077	9424R290						√	√	√	√				√			√		√	√	
IR29B077	9424R291						√	√	√	√				√			√		√	√	√
IR29B078	9424R292						√	√	√	√				√			√		√	√	√
IR29B078	9424R293						√	√	√	√				√			√		√	√	√
IR29B078	9424R294						√	√	√	√				√			√		√	√	√
IR29B079	9425N543						√	√	√	√				√			√		√		√
IR29B079	9425N544						√	√	√	√				√			√		√		√
IR29B080	9425N541						√	√	√	√				√			√		√	√	√
IR29B080	9425N542						√	√	√	√				√			√		√	√	√
IR29B081	9425N545						√	√	√	√				√			√		√		√
IR29B081	9425N546						√	√	√	√				√			√		√		√
IR29B081	9425N547						√	√	√	√				√			√		√		√
IR29B082	9426R357						√	√	√	√				√			√		√	√	√
IR29B082	9426R358						√	√	√	√				√			√		√	√	√
IR29B082	9426R359						√	√	√	√				√			√		√	√	√
IR29B082	9426R360						√	√	√	√				√			√		√	√	√
IR29B083	9426R361						√	√	√	√				√			√		√	√	√
IR29B083	9426R362						√	√	√	√				√			√		√	√	√
IR29B083	9426R363						√	√	√	√				√			√		√	√	√
IR29B084	9434A037						√	√	√	√				√			√		√	√	√
IR29B085	9434A035						√	√	√	√				√			√		√	√	√
IR29B085	9434A036						√	√	√	√				√			√		√	√	√
IR29MW84A	9542J509							√						√			√		√		√

TABLE 4.4-15 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29MW84A	9542J510							✓						✓			✓		✓		✓
IR29MW85F	9614J009						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR29MW85F	9614J010						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR29MW85F	9614J011						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR29MW85F	9614J012						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR29MW85F	9614J013										✓										
IR29MW85F	9614J014						✓	✓	✓	✓				✓		✓	✓		✓	✓	✓
IR29TA49	9404N275						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR29TA52	9404N271						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR29TA52	9404N272						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR29TA52	9404N276						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B014	9412L144						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B014	9412L145						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B014	9412L146						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B014	9412L150						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B014	9412L151						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B015	9413A689						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B015	9413A690						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B015	9413A691						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B015	9413A692						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B015	9413A694						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B015	9413A695						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B016A	9412A681						✓		✓	✓				✓			✓		✓	✓	✓
IR49B016A	9412A682						✓		✓	✓				✓			✓		✓	✓	✓
IR49B016A	9412A683						✓		✓	✓				✓			✓		✓	✓	✓
IR49B016A	9412A685						✓		✓	✓				✓			✓		✓	✓	✓
IR49B017A	9417A829						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B017A	9417A830						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49B017A	9417A831						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49TA20	9430D001						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR49TA20	9430D002						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR50B017A	9413A696						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR50B017A	9413A697						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR50B017A	9413A698						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR51B028	9424R297						✓	✓	✓	✓				✓			✓		✓	✓	✓
IR51B030	9424R298						✓	✓	✓	✓				✓			✓		✓	✓	✓

TABLE 4.4-15 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR51B031	9424R299						√	√	√	√				√			√		√	√	√
IR51B031	9424R300						√	√	√	√				√			√		√	√	√
IR51B031	9424R301						√	√	√	√				√			√		√	√	√
PA29B003	9305N105			√			√		√	√				√			√		√		√
PA29B003	9305N106			√			√		√	√				√			√		√		√
PA29B003	9305N107						√		√	√				√			√		√		√
PA29B016	9304N083			√			√	√	√	√				√			√		√		√
PA29B016	9304N084			√			√	√	√	√				√			√		√		√
PA29B016	9304N085			√			√	√	√	√				√			√		√		√
PA29B017	9304N086			√			√	√	√	√				√			√		√		√
PA29B017	9304N087			√			√	√	√	√				√			√		√		√
PA29B017	9304N088			√			√	√	√	√				√			√		√		√
PA29B022	9305N090			√			√		√	√				√			√		√		√
PA29B022	9305N091			√			√		√	√				√			√		√		√
PA29B022	9305N092			√			√		√	√				√			√		√		√
PA29B030	9305N095			√			√		√	√				√			√		√		√
PA29B030	9305N096			√			√		√	√				√			√		√		√
PA29B031	9305N093			√			√		√	√				√			√		√		√
PA29B031	9305N094						√		√	√				√			√		√		√
PA29B036	9310A687			√			√	√	√	√				√			√		√		√
PA29B036	9310A688			√			√	√	√	√				√			√		√		√
PA29SS07	9310J373			√			√	√	√	√				√			√		√		√
PA29SS08	9310J374			√			√	√	√	√				√			√		√		√
PA29SS15	9310J372						√	√	√	√				√			√		√		√
PA29SS24	9304X886						√	√	√	√				√			√		√		√
PA29SS26	9304X888						√	√	√	√				√			√		√		√
PA29SS27	9304X889						√		√	√				√			√		√		√
PA29SS34	9308A617			√			√		√	√				√			√		√		√
PA29SS35	9308A616			√			√			√				√			√		√		√
PA29SS37	9310J362						√	√	√	√				√			√		√		√
PA49TA01	9307H411						√		√	√				√			√		√	√	√
PA49TA04	9307H408						√		√	√				√			√		√	√	√
PA49TA05	9307H409						√		√	√				√			√		√	√	√
PA49TA05	9307H410						√			√				√			√		√	√	√
PA50TA03	9324A056			√	√		√		√	√				√			√		√	√	√
PA51SS17	9310J365								√												

TABLE 4.4-15 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-16

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	970	54,700	25,800	MG/KG	4.6	176	176	76,700	0	100,000	0		
	ANTIMONY	0.38	8.0	2.4	MG/KG	0.72	135	45	30.7	0	681	0	9.05	0
	ARSENIC	0.40	60.2	7.2	MG/KG	0.43	169	136	0.32	136	2.0	110	11.10	24
	BARIUM	9.5	1,860	220	MG/KG	0.90	176	176	5,340	0	100,000	0	314.36	26
	BERYLLIUM	0.15	1.2	0.47	MG/KG	0.05	176	78	0.14	78	1.1	1	0.71	6
	CADMIUM	0.10	8.2	1.6	MG/KG	0.12	176	40	9.0	0	852	0	3.14	6
	CALCIUM	737	53,300	15,900	MG/KG	17.5	176	166						
	CHROMIUM	4.3	1,380	185	MG/KG	0.35	176	176	211	54	1,580	0	h	4
	COBALT	2.3	154	31.3	MG/KG	0.53	176	176					h	3
	COPPER	4.9	8,390	164	MG/KG	0.25	176	175	2,850	2	63,300	0	124.31	17
	IRON	3,350	125,000	38,500	MG/KG	3.3	176	176						
	LEAD	0.82	1,730	44.6	MG/KG	0.44	176	152	130	7	1,000	2	8.99	58
	MAGNESIUM	521	152,000	40,600	MG/KG	13.5	176	174						
	MANGANESE	90.6	17,400	1,270	MG/KG	0.19	176	176	382	164	8,300	3	1431.18	31
	MERCURY	0.05	32.0	0.52	MG/KG	0.06	176	139	23.0	1	511	0	2.28	3
	MOLYBDENUM	0.73	146	16.9	MG/KG	0.26	176	13	383	0	8,520	0	2.68	4
	NICKEL	12.4	1,710	288	MG/KG	1.3	176	175	150	91	34,100	0	h	2
	POTASSIUM	104	3,280	1,130	MG/KG	58.3	176	151						
	SELENIUM	0.27	65.1	24.2	MG/KG	3.7	137	20	383	0	8,520	0	1.95	15
	SILVER	0.14	2.9	1.3	MG/KG	0.51	176	8	383	0	8,520	0	1.43	3
	SODIUM	88.4	47,200	1,610	MG/KG	20.9	176	106						
	THALLIUM	0.50	13.8	3.2	MG/KG	0.44	171	12					0.81	7

TABLE 4.4-16 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	VANADIUM	3.0	636	79.3	MG/KG	0.44	176	176	537	1	11,900	0	117.17	17
	ZINC	25.2	2,530	134	MG/KG	0.45	176	175	23,000	0	100,000	0	109.86	33
CYAN	CYANIDE	0.06	0.06	0.06	MG/KG	0.06	1	1	1,300	0	13,600	0		
VOC	1,1,2-TRICHLORO-1,2,2-TRIFLUO.	0.007	0.007	0.007	MG/KG	0.005	3	1	3,600	0	3,600	0		
	1,2-DICHLOROBENZENE	0.002	0.002	0.002	MG/KG	0.001	2	1	2,300	0	2,300	0		
	1,2-DICHLOROETHANE	0.002	0.002	0.002	MG/KG	0.011	176	1	0.44	0	0.98	0		
	2-BUTANONE	0.004	0.010	0.007	MG/KG	0.010	176	2	8,700	0	34,000	0		
	4-METHYL-2-PENTANONE	0.017	0.024	0.021	MG/KG	0.020	166	2	5,200	0	55,000	0		
	ACETONE	0.013	0.12	0.039	MG/KG	0.013	175	13	2,000	0	8,400	0		
	BENZENE	0.004	0.53	0.17	MG/KG	0.017	176	45	1.4	0	3.2	0		
	ETHYLBENZENE	0.003	0.020	0.008	MG/KG	0.010	173	4	2,900	0	3,100	0		
	METHYLENE CHLORIDE	0.006	0.015	0.009	MG/KG	0.010	176	7	11	0	25	0		
	TETRACHLOROETHENE	0.001	0.089	0.024	MG/KG	0.010	173	4	7.0	0	25	0		
	TOLUENE	0.001	0.14	0.041	MG/KG	0.017	176	41	1,900	0	2,700	0		
	TRICHLOROETHENE	0.001	0.012	0.004	MG/KG	0.011	176	7	7.1	0	17	0		
	XYLENE (TOTAL)	0.002	0.16	0.013	MG/KG	0.015	176	40	980	0	980	0		
SVOC	1,2,4-TRICHLOROBENZENE	0.11	59	20	MG/KG	0.81	179	3	620	0	5,900	0		
	1,4-DICHLOROBENZENE	0.10	0.10	0.10	MG/KG	0.34	176	1	7.4	0	20	0		
	2-CHLOROPHENOL	0.17	16	8.2	MG/KG	5.8	178	2	330	0	3,400	0		
	2-METHYLNAPHTHALENE	0.024	3.6	0.23	MG/KG	0.72	179	46	800	0	800	0		
	2-METHYLPHENOL	0.075	0.080	0.077	MG/KG	0.70	177	3	3,300	0	34,000	0		
	4-CHLORO-3-METHYLPHENOL	0.18	13	6.6	MG/KG	5.8	178	2						

TABLE 4.4-16 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	ACENAPHTHENE	0.046	0.65	0.35	MG/KG	1.2	179	5	360	0	360	0		
	ACENAPHTHYLENE	0.020	0.020	0.020	MG/KG	0.35	179	1	360	0	360	0		
	ANTHRACENE	0.020	11	1.8	MG/KG	12	179	8	19	0	19	0		
	BENZO(A)ANTHRACENE	0.025	7.7	0.84	MG/KG	0.60	179	18	0.61	5	2.6	1		
	BENZO(A)PYRENE	0.022	4.7	0.60	MG/KG	0.75	178	19	0.061	13	0.26	7		
	BENZO(B)FLUORANTHENE	0.024	6.7	0.78	MG/KG	0.60	179	18	0.61	4	2.6	2		
	BENZO(G,H,I)PERYLENE	0.037	2.6	0.51	MG/KG	0.73	178	9	800	0	800	0		
	BENZO(K)FLUORANTHENE	0.025	2.7	0.48	MG/KG	0.61	178	13	0.61	3	26	0		
	BIS(2-ETHYLHEXYL)PHTHALATE	0.058	2.1	0.39	MG/KG	0.36	179	11	32	0	140	0		
	CARBAZOLE	0.030	0.24	0.12	MG/KG	0.63	179	3	22	0	95	0		
	CHRYSENE	0.018	13	1.1	MG/KG	3.8	179	28	6.1	2	24	0		
	DI-N-BUTYLPHTHALATE	0.056	0.14	0.090	MG/KG	0.35	179	4	6,500	0	68,000	0		
	DIBENZ(A,H)ANTHRACENE	0.071	0.94	0.34	MG/KG	1.0	178	5	0.061	5	0.26	3		
	DIBENZOFURAN	0.029	0.32	0.079	MG/KG	0.61	179	19	260	0	2,700	0		
	FLUORANTHENE	0.017	12	0.81	MG/KG	0.53	179	26	2,600	0	27,000	0		
	FLUORENE	0.019	14	1.4	MG/KG	8.8	179	11	300	0	300	0		
	INDENO(1,2,3-CD)PYRENE	0.031	1.1	0.32	MG/KG	0.46	178	7	0.61	1	2.6	0		
	N-NITROSO-DI-N-PROPYLAMINE	0.11	0.11	0.11	MG/KG	0.34	179	1	0.063	1	0.27	0		
	NAPHTHALENE	0.016	1.3	0.15	MG/KG	0.67	179	44	800	0	800	0		
	PENTACHLOROPHENOL	0.10	0.10	0.10	MG/KG	0.83	177	1	2.5	0	7.9	0		
	PHENANTHRENE	0.012	25	0.75	MG/KG	2.1	179	62	800	0	800	0		
	PHENOL	0.037	20	6.8	MG/KG	4.0	178	3	39,000	0	100,000	0		

TABLE 4.4-16 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	PYRENE	0.018	19	1.2	MG/KG	3.2	179	34	2,000	0	20,000	0		
PEST	4,4'-DDD	0.0007	0.033	0.014	MG/KG	0.013	173	5	1.9	0	7.9	0		
	4,4'-DDE	0.002	0.21	0.037	MG/KG	0.004	172	7	1.3	0	5.6	0		
	4,4'-DDT	0.004	0.041	0.018	MG/KG	0.013	173	5	1.3	0	5.6	0		
	ALDRIN	0.0007	0.001	0.0009	MG/KG	0.002	172	4	0.026	0	0.11	0		
	ALPHA-CHLORDANE	0.024	0.024	0.024	MG/KG	0.009	172	1	0.34	0	1.5	0		
	DIELDRIN	0.002	0.002	0.002	MG/KG	0.004	172	2	0.028	0	0.12	0		
	ENDOSULFAN SULFATE	0.002	0.002	0.002	MG/KG	0.004	172	1	3.3	0	34	0		
	ENDRIN	0.002	1.3	0.23	MG/KG	0.004	172	6	20	0	200	0		
	GAMMA-CHLORDANE	0.019	0.077	0.039	MG/KG	0.010	172	3	0.34	0	1.5	0		
	HEPTACHLOR EPOXIDE	0.0009	0.0009	0.0009	MG/KG	0.002	173	1	0.049	0	0.21	0		
	AROCLOR-1254	1.4	1.4	1.4	MG/KG	0.17	173	1	1.4	1	19	0		
	AROCLOR-1260	0.015	39	2.9	MG/KG	0.077	173	17	0.066	13	0.34	7		
TPHPRG	TPH-GASOLINE	0.27	50	5.4	MG/KG	1.7	179	17	100	0i				
	TPH-PURGEABLE UNKNOWN HYDROCA.	200	1,600	900	MG/KG	42	32	2	100	2i				
TPHEXT	TPH-DIESEL	5.2	1,600	140	MG/KG	61	179	30	1,000	1i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	13	210,000	14,000	MG/KG	1,300	19	15	1,000	1i				
	TPH-MOTOR OIL	5.4	5,500	310	MG/KG	59	148	106	1,000	10i				
TRPH	TRPH	3.2	80,000	1,100	MG/KG	260	144	106	1,000	12i				
PHYS	DRY BULK DENSITY	130	130	130	%	0	1	1						
	GRAIN SIZE ANALYSIS-%CLAY	5.5	5.5	5.5	%	0	1	1						
	GRAIN SIZE ANALYSIS-%COBBLES	0	0	0	%	0	1	1						

TABLE 4.4-16 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	GRAIN SIZE ANALYSIS-%GRAVEL	14	14	14	%	0	1	1						
	GRAIN SIZE ANALYSIS-%SAND	56	56	56	%	0	1	1						
	GRAIN SIZE ANALYSIS-%SILT	24	24	24	%	0	1	1						
	MOISTURE CONTENT	7.6	7.6	7.6	%	0	1	1						
	POROSITY	23	23	23	%	0	1	1						
	WET BULK DENSITY	130	130	130	%	0	1	1						
TOC	TOTAL ORGANIC CARBON	3,200	3,200	3,200	MG/KG	100	1	1						

TABLE 4.4-16 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 25.247 to 1260.904, 6.796 to 128.522, and 28.915 to 3095.491 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.4-17

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29MW48A	9423E004						√		√	√				√			√		√	√	√
IR29MW48A	9528X797						√														
IR29MW48A	9531X916	√							√	√			√	√			√		√	√	√
IR29MW48A	9548B125						√		√	√				√			√		√	√	√
IR29MW56F	9432E107																		√		√
IR29MW56F	9432E108																		√		√
IR29MW56F	9432E111						√		√	√				√			√			√	
IR29MW56F	9432E112						√		√	√				√			√			√	
IR29MW56F	9525X725																		√		√
IR29MW56F	9525X729	√					√		√	√			√	√			√			√	
IR29MW56F	9548B126																		√		√
IR29MW56F	9548B129						√		√	√				√			√			√	
IR29MW57A	9426M560						√		√	√				√			√		√	√	√
IR29MW57A	9426M561						√		√	√				√			√		√	√	√
IR29MW57A	9525X733																		√		√
IR29MW57A	9525X739	√					√		√	√			√	√			√			√	
IR29MW57A	9550B186						√		√	√				√			√		√	√	√
IR29MW58F	9448X578																		√		√
IR29MW58F	9448X579																		√		√
IR29MW58F	9448X581						√		√	√				√			√			√	
IR29MW58F	9448X582						√		√	√				√			√			√	
IR29MW58F	9525X706																		√		√
IR29MW58F	9525X707																		√		√
IR29MW58F	9525X713	√					√		√	√			√	√			√			√	
IR29MW58F	9525X714	√					√		√	√			√	√			√			√	
IR29MW58F	9548B143						√		√	√				√			√		√	√	√
IR29MW59F	9446X565						√		√	√				√			√		√	√	√
IR29MW59F	9446X566						√		√	√				√			√		√	√	√
IR29MW59F	9525X726	√					√		√	√			√	√			√		√	√	√
IR29MW59F	9549B160						√		√	√				√			√		√	√	√
IR29MW72F	9430M564																		√		√
IR29MW72F	9430M565																		√		√
IR29MW72F	9430M566						√		√	√				√			√			√	
IR29MW72F	9430M567						√		√	√				√			√			√	
IR29MW72F	9525X724																		√		√
IR29MW72F	9525X728	√					√		√	√			√	√			√			√	
IR29MW72F	9549B159																		√		√

TABLE 4.4-17 (Continued)

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29MW72F	9549B165						√		√	√				√			√			√	
IR29MW84A	9545W167									√				√			√		√		√
IR29MW84A	9609W125									√				√			√		√		√
IR29MW84A	9617J058	√								√		√	√	√			√		√		√
IR29MW85F	9617J038	√								√		√	√				√		√	√	√
IR29MW85F	9617J039						√		√					√							
IR29MW85F	9621J153								√	√							√		√	√	√
IR29MW85F	9621J156	√					√					√	√	√							
IR29MW85F	9628J360	√					√		√	√		√	√	√			√		√	√	√
IR50MW13F	9436X458						√		√	√				√	√		√		√	√	√
IR50MW13F	9524X702	√					√		√	√			√	√			√		√	√	√
IR50MW13F	9549B164						√		√	√				√			√		√	√	√
PA50MW04A	9311J408			√	√		√		√	√				√			√		√	√	√
PA50MW04A	9311J409			√	√		√		√	√				√			√		√	√	√
PA50MW04A	9331X014														√						
PA50MW04A	9423X366						√		√	√				√	√		√		√	√	√
PA50MW04A	9423X367						√		√	√				√	√		√		√	√	√
PA50MW04A	9613W196	√		√	√		√		√	√		√	√	√			√		√	√	√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-18A

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	153	153	153	UG/L	16.3	9	1	37,000	0						
	ANTIMONY	3.3	3.7	3.5	UG/L	1.6	9	2	15.0	0	6.0	0	500	0	43.3	0
	ARSENIC	1.7	2.8	2.3	UG/L	1.7	9	2	0.04	2	50.0	0	36.0	0	27.3	0
	BARIUM	34.8	129	62.0	UG/L	1.2	9	9	2,600	0	1,000	0			504	0
	BERYLLIUM	0.89	0.89	0.89	UG/L	0.10	9	1	0.02	1	4.0	0			1.4	0
	CADMIUM	0.37	0.75	0.56	UG/L	0.20	9	2	18.0	0	5.0	0	9.3	0	5.1	0
	CALCIUM	31,300	356,000	221,000	UG/L	45.9	9	9								
	CHROMIUM	0.82	1.9	1.4	UG/L	0.45	9	2			50.0	0			15.7	0
	COBALT	0.41	2.0	1.1	UG/L	0.53	9	4							20.8	0
	COPPER	3.0	10.1	6.0	UG/L	1.1	9	4	1,400	0			2.4	4	28.0	0
	IRON	48.6	48.6	48.6	UG/L	6.2	9	1							2,380	0
	MAGNESIUM	18,600	1,060,000	410,000	UG/L	145	9	9							1,440,000	0
	MANGANESE	21.8	742	351	UG/L	0.39	9	7	180	4					8,140	0
	MOLYBDENUM	4.7	8.6	6.9	UG/L	0.73	9	4	180	0					61.9	0
	NICKEL	1.4	7.1	4.1	UG/L	1.5	9	4	730	0	100	0	8.2	0	96.5	0
	POTASSIUM	7,740	485,000	147,000	UG/L	1,500	9	9							448,000	1
	SELENIUM	3.8	3.8	3.8	UG/L	2.3	9	1	180	0	50.0	0	71.0	0	14.5	0
	SODIUM	45,000	8,770,000	3,130,000	UG/L	2,660	9	9							9,240,000	0
	VANADIUM	0.78	5.0	2.1	UG/L	0.84	9	8	260	0					26.6	0
	ZINC	14.2	69.5	41.8	UG/L	1.3	9	2	11,000	0			81.0	0	75.7	0
VOC	CARBON DISULFIDE	3	3	3	UG/L	10	12	1	21	0						
	CHLOROFORM	0.3	13	6	UG/L	5	12	2	0.2	2	100	0				

TABLE 4.4-18A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
	TRICHLOROETHENE	2	2	2	UG/L	0.5	12	1	2	1	5	0				
SVOC	2-METHYLNAPHTHALENE	8	8	8	UG/L	10	11	1	240	0						
	ACENAPHTHENE	2	2	2	UG/L	25	11	1	370	0						
	BIS(2-ETHYLHEXYL)PHTHALAT.	36	36	36	UG/L	4	11	1	5	1	4	1	360	0		
	FLUORENE	0.7	0.7	0.7	UG/L	10	11	1	240	0						
	NAPHTHALENE	5	5	5	UG/L	10	11	1	240	0						
PEST	4,4'-DDE	0.2	0.2	0.2	UG/L	0.1	9	1	0.2	0						
	ALDRIN	0.08	0.08	0.08	UG/L	0.05	9	1	0.004	1						
	ALPHA-CHLORDANE	1	1	1	UG/L	0.05	9	1	0.05	1						
	ENDOSULFAN II	0.07	0.07	0.07	UG/L	0.1	9	1	2	0						
	GAMMA-CHLORDANE	1	1	1	UG/L	0.05	9	1	0.05	1						
	AROCLOR-1248	2	2	2	UG/L	1	9	1								
TPHPRG	TPH-GASOLINE	160	160	160	UG/L	50	12	1	100	1i						
TPHEXT	TPH-DIESEL	510	1,700	1,200	UG/L	100	12	3	100	3i						
	TPH-MOTOR OIL	70	1,100	380	UG/L	100	11	8	100	5i						
TRPH	TRPH	260	1,400	1,000	UG/L	570	9	3	100	3i						
ANION	CHLORIDE	37,500	12,400,000	6,590,000	UG/L	160,000	4	4								
	FLUORIDE	470	760	615	UG/L	100	2	2			1,400	0				
	NITRATE	440	4,600	1,920	UG/L	46.7	4	3	58,000	0						
	SULFATE	402,000	1,790,000	1,220,000	UG/L	6,250	4	4								
SOLIDS	TOTAL DISSOLVED SOLIDS	1,970,000	26,600,000	13,200,000	UG/L	40,000	4	4								
SALIN	SALINITY	3.8	15.5	9.7	PPT	0.005	2	2								

TABLE 4.4-18A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects.[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
TMICROB	FECAL COLIFORM	7	7	7	j	2	3	1								
	TOTAL COLIFORM	3	3	3	j	2	1	1								

TABLE 4.4-18A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

j Most probable number of organisms per 100 milliliters (mpn/100 mL)

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.4-18B

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	105	138	122	UG/L	64.7	18	2	37,000	0						
	ANTIMONY	2.5	10.4	6.7	UG/L	3.5	18	7	15.0	0	6.0	4	500	0		
	ARSENIC	4.0	19.9	10.4	UG/L	2.0	18	5	0.04	5	50.0	0	36.0	0		
	BARIUM	27.4	331	107	UG/L	1.7	18	18	2,600	0	1,000	0				
	CALCIUM	14,700	730,000	266,000	UG/L	27.9	18	17								
	CHROMIUM	1.9	195	85.5	UG/L	0.95	18	4			50.0	2				
	COBALT	0.62	4.5	2.0	UG/L	0.54	18	12								
	COPPER	0.97	46.9	12.2	UG/L	0.72	18	6	1,400	0			2.4	4		
	IRON	26.8	167	103	UG/L	14.2	18	3								
	LEAD	0.55	0.55	0.55	UG/L	0.60	18	1	4.0	0	50.0	0	8.1	0		
	MAGNESIUM	10,400	787,000	360,000	UG/L	38.3	18	18								
	MANGANESE	3.2	4,920	774	UG/L	0.43	18	16	180	7						
	MERCURY	0.16	0.16	0.16	UG/L	0.10	18	1	11.0	0	2.0	0	0.03	1		
	MOLYBDENUM	1.9	89.5	44.7	UG/L	0.83	18	8	180	0						
	NICKEL	1.4	79.6	20.9	UG/L	1.5	18	8	730	0	100	0	8.2	4		
	POTASSIUM	3,050	510,000	102,000	UG/L	592	18	18								
	SELENIUM	2.0	20.1	6.9	UG/L	5.5	17	7	180	0	50.0	0	71.0	0		
	SILVER	0.65	0.65	0.65	UG/L	0.40	18	1	180	0			0.92	0		
	SODIUM	117,000	8,850,000	2,280,000	UG/L	153	18	18								
	THALLIUM	2.2	3.1	2.8	UG/L	2.0	18	3			2.0	3				
	VANADIUM	1.3	9.3	4.7	UG/L	0.74	18	13	260	0						
	ZINC	17.0	57.8	34.5	UG/L	2.5	18	3	11,000	0			81.0	0		

TABLE 4.4-18B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
VOC	BENZENE	3	3	3	UG/L	10	18	1	0.4	1	1	1				
	CARBON DISULFIDE	0.2	21	7	UG/L	8	18	4	21	0						
	CHLOROFORM	0.09	0.09	0.09	UG/L	0.5	18	1	0.2	0	100	0				
SVOC	2-METHYLNAPHTHALENE	16	48	32	UG/L	10	18	2	240	0						
	ACENAPHTHENE	3	5	4	UG/L	20	18	3	370	0						
	CARBAZOLE	8	11	10	UG/L	10	18	2	3	2						
	FLUORENE	1	3	2	UG/L	10	18	2	240	0						
	NAPHTHALENE	6	29	15	UG/L	10	18	3	240	0						
	PHENANTHRENE	3	4	3	UG/L	10	18	2	240	0			5	0		
PEST	4,4'-DDD	0.05	0.05	0.05	UG/L	0.1	18	1	0.3	0						
	DIELDRIN	0.05	0.05	0.05	UG/L	0.1	18	1	0.004	1			0.002	1		
	AROCLOR-1260	1	1	1	UG/L	1	18	1	0.009	1						
TPHPRG	TPH-GASOLINE	49	310	180	UG/L	50	18	2	100	1i						
TPHEXT	TPH-DIESEL	56	1,700	890	UG/L	100	18	10	100	7i						
	TPH-MOTOR OIL	54	1,100	490	UG/L	100	18	13	100	12i						
TRPH	TRPH	500	600	550	UG/L	1,000	18	2	100	2i						
ANION	CHLORIDE	11,600	7,630,000	2,990,000	UG/L	66,100	8	8								
	FLUORIDE	180	500	303	UG/L	100	3	3			1,400	0				
	NITRATE	170	104,000	18,500	UG/L	247	8	6	58,000	1						
	ORTHOPHOSPHATE	490	29,000	14,700	UG/L	2,530	8	2								
	SULFATE	105,000	1,550,000	760,000	UG/L	5,130	8	8								
SOLIDS	TOTAL DISSOLVED SOLIDS	436,000	14,800,000	6,590,000	UG/L	22,500	8	8								

TABLE 4.4-18B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
SALIN	SALINITY	3.9	4.4	4.1	PPT	0.005	3	3								

TABLE 4.4-18B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

j Most probable number of organisms per 100 milliliters (mpn/100 mL)

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.4-19

SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29B047	9424C275						√		√	√							√		√	√	√
IR29B071	9408A488																√		√		√
IR29B085	9434A038																√		√		√
IR49B014	9412L147																√		√		√
IR49B015	9413A693						√		√	√				√			√		√	√	√
IR49B016A	9412A684						√		√	√				√			√		√	√	√
IR50B017	9419T119						√		√	√				√	√		√		√	√	√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-20

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ALUMINUM	140	140	140	UG/L	8.6	4	1	37,000	0						
	ANTIMONY	9.2	17.7	12.2	UG/L	1.2	4	3	15.0	1	6.0	3	500	0		
	ARSENIC	2.6	2.6	2.6	UG/L	1.5	4	1	0.04	1	50.0	0	36.0	0		
	BARIUM	35.2	112	62.6	UG/L	4.4	4	4	2,600	0	1,000	0				
	BERYLLIUM	0.68	0.68	0.68	UG/L	0.10	4	1	0.02	1	4.0	0				
	CADMIUM	0.39	7.4	3.9	UG/L	0.20	4	2	18.0	0	5.0	1	9.3	0		
	CALCIUM	41,700	301,000	193,000	UG/L	68.8	4	4								
	COBALT	0.81	4.4	2.3	UG/L	0.57	4	3								
	COPPER	9.0	9.7	9.4	UG/L	0.40	4	2	1,400	0			2.4	2		
	MAGNESIUM	42,800	942,000	578,000	UG/L	149	4	4								
	MANGANESE	88.3	828	353	UG/L	0.55	4	4	180	2						
	MOLYBDENUM	7.2	9.4	8.3	UG/L	0.70	4	2	180	0						
	NICKEL	5.2	14.8	8.8	UG/L	1.7	4	4	730	0	100	0	8.2	2		
	POTASSIUM	1,350	506,000	236,000	UG/L	394	4	4								
	SELENIUM	1.9	1.9	1.9	UG/L	1.7	4	1	180	0	50.0	0	71.0	0		
	SODIUM	46,100	9,040,000	5,250,000	UG/L	2,020	4	4								
	THALLIUM	3.1	3.1	3.1	UG/L	2.0	4	1			2.0	1				
	VANADIUM	1.6	2.2	1.9	UG/L	0.60	4	2	260	0						
	ZINC	7.2	9.1	8.2	UG/L	0.90	4	2	11,000	0			81.0	0		
VOC	1,2-DICHLOROBENZENE	0.3	0.3	0.3	UG/L	1	4	1	370	0	600	0				
	2-BUTANONE	8	130	69	UG/L	8	7	2	1,900	0						
TPHPRG	TPH-GASOLINE	100	100	100	UG/L	50	7	1	100	0i						

TABLE 4.4-20 (Continued)

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL[i] Value	Above[j] HGAL
TPHEXT	TPH-DIESEL	82	770	430	UG/L	100	7	2	100	1i						
	TPH-MOTOR OIL	110	1,100	440	UG/L	100	7	4	100	4i						
TRPH	TRPH	710	4,000	1,900	UG/L	420	4	3	100	3i						

TABLE 4.4-20 (Continued)

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.4-21

SUMMARY OF GRAB GROUNDWATER ANALYTICAL TESTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29B040	9402N215						√		√	√				√			√		√	√	√
IR29B046	9424C281						√		√	√							√		√	√	√
IR29B053	9408A484																√		√		√
IR29B062	9429A985																√		√		√
IR29B063	9427A975													√			√		√		√
IR29B064	9434Y036																√		√		√
IR29B070	9408A497																√		√		√
IR29B082	9426R364													√			√		√		√
IR29B083	9427R369													√			√		√		√
IR29MW56F	9429A982																√		√		√
IR29MW72F	9428A978																√		√		√
IR49B014	9412L149						√		√	√				√			√			√	
IR49B019	9429A984																√		√		√
IR49B019	9430A987																√		√		√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.4-22

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above PRG[e]	MCL[f] Value	Above MCL[g]	NAWQC Value	Above NAWQC[h]	NGAL Value	Above NGAL[k]
METAL	ANTIMONY	9.5	9.5	9.5	UG/L	1.6	3	1	15.0	0	6.0	1	500	0		
	BARIUM	21.1	47.9	34.5	UG/L	4.6	3	2	2,600	0	1,000	0				
	CALCIUM	49,100	341,000	195,000	UG/L	96.5	3	2								
	COBALT	1.0	1.0	1.0	UG/L	0.50	3	1								
	MAGNESIUM	50,900	440,000	245,000	UG/L	140	3	2								
	MANGANESE	164	342	253	UG/L	0.55	3	2	180	1						
	MOLYBDENUM	32.8	32.8	32.8	UG/L	0.70	3	1	180	0						
	NICKEL	11.9	19.8	15.8	UG/L	1.3	3	2	730	0	100	0	8.2	2		
	POTASSIUM	1,920	252,000	127,000	UG/L	153	3	2								
	SELENIUM	0.64	0.64	0.64	UG/L	3.2	3	1	180	0	50.0	0	71.0	0		
	SODIUM	77,700	3,710,000	1,890,000	UG/L	168	3	2								
	VANADIUM	1.6	1.6	1.6	UG/L	0.50	3	1	260	0						
VOC	1,2-DICHLOROBENZENE	0.8	0.8	0.8	UG/L	1	13	1	370	0	600	0				
	BENZENE	0.3	5	3	UG/L	1	13	2	0.4	1	1	1				
	TETRACHLOROETHENE	0.4	0.4	0.4	UG/L	1	13	1	1	0	5	0				
	TOLUENE	0.6	0.6	0.6	UG/L	1	13	1	720	0	150	0				
PEST	HEPTACHLOR EPOXIDE	0.01	0.01	0.01	UG/L	0.05	3	1	0.007	1	0.01	1				
TPHPRG	TPH-GASOLINE	26	310	82	UG/L	50	13	6	100	1i						
TPHEXT	TPH-DIESEL	57	4,300	1,100	UG/L	170	14	6	100	5i						
	TPH-MOTOR OIL	62	16,000	1,700	UG/L	230	14	13	100	12i						
TRPH	TRPH	2,400	2,400	2,400	UG/L	310	3	1	100	1i						

TABLE 4.4-22 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-29
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
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VOC	Volatile organic compound

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b Blank boxes indicate that screening critera have not been established for these analytes.

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d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.5-1
IR-30 RI FIELD ACTIVITIES SUMMARY
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	Hydro-Punch	Grab	
Soil Borings	20	NA	76	NA	NA	2	F
Surface Soil Samples	6	NA	6	NA	NA	NA	NA
Floor Vault Samples	2	2	NA	NA	NA	NA	NA
Floor Drain Samples	1	1	NA	NA	NA	NA	NA
Sump Samples	1	1	NA	NA	NA	NA	NA

Notes:

NA = Not applicable
Sampling stations include samples collected for each site investigation, and do not reflect the sample reassociation that was done for the calculation of human health risk.

TABLE 4.5-2
IR-30 SOURCE CHARACTERIZATION SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Sample Type	Sample Location	Analyses
PA30FV02	2/24/93	Floor vault sediment	Inside Building 241	Metals, Cyanide, Pest, SVOCs, O&G, TPH-e, TPH-p, pH
PA30FV03	2/24/93	Floor vault sediment	Inside Building 241	Metals, Cyanide, Pest, SVOCs, O&G, TPH-e, TPH-p, pH
IR30SU01	5/4/94	Sump oil	Inside Building 241	VOCs, TPH-e, TPH-p
IR30FD01	7/13/94	Floor drain sediment	Inside Building 241	VOCs, TPH-e, TPH-p

NOTES:

IR - Installation Restoration

Pest - Pesticides and PCBs

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

O&G - Oil and Grease

TRPH - Total Recoverable Purgable Hydrocarbons

TPH-p - Total Recoverable Hydrocarbons Purgeable

TPH-e - Total Recoverable Hydrocarbons Extractable

TABLE 4.5-3
IR-30 SURFACE SOIL SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Location	Analyses
PA30SS04	2/2/93	Stained area east of the Building 241	Metals, Cyanide, Pest, SVOCs, O&G, TPH-e, TPH-p, pH
PA30SS05	2/2/93	Stained area east of the Building 241	Metals, Cyanide, Pest, SVOCs, O&G, TPH-e, TPH-p, pH
PA30SS09	2/2/93	Stained area near southeast corner of Building 241	Metals, Cyanide, Pest, SVOCs, O&G, TPH-e, TPH-p, pH
PA30SS10	2/2/93	Stained area south of Building 241	Metals, Cyanide, Pest, SVOCs, O&G, TPH-e, TPH-p, pH
PA30SS07	3/17/93	Stained area inside Building 241	Metals, Cyanide, Pest, SVOCs, O&G, TPH-e, TPH-p, pH
IR30SS38	8/16/94	Stained area east of Building 154	Metals, Pest, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

NOTES:

IR - Installation Restoration

PA - Preliminary Assessment

Pest - Pesticides and PCBs

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

O&G - Oil and Grease

TRPH - Total Recoverable Purgable Hydrocarbons

TPH-p - Total Recoverable Hydrocarbons Purgeable

TPH-e - Total Recoverable Hydrocarbons Extractable

% moisture - Percent Moisture

TABLE 4.5-4
IR-30 SOIL SAMPLES FROM SOIL BORINGS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring Name	Date Drilled and Sampled	TD (feet bgs)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Soil Borings								
PA30B014	1/29/93	40.0	1	1	2			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA30B015	2/2/93	31.0	1	1	2			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA30B016	2/2/93	31.0	1	1	2			Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA30B011	3/16/93	6.0	1	1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA30B008	3/17/93	6.0	1	1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA30B012	3/17/93	7.0	1	1				Metals (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
IR30B017	1/10/94	21.5	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B018	1/10/94	21.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B019	1/11/94	56.5	1	1	2	2	6	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B027	5/12/94	30.5	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B029	5/16/94	25.0	1	1	2	2		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B032	6/14/94	11.5	1	1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B035	6/14/94	11.5	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B031	6/15/94	11.5	1	1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B030	6/17/94	11.5	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B033	6/21/94	11.0	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B034	6/21/94	10.5	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH

TABLE 4.5-4 (continued)
IR-30 SOIL SAMPLES FROM SOIL BORINGS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring Name	Date Drilled and Sampled	TD (feet bgs)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
IR30B036	8/9/94	26.0	1	2	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B037	8/11/94	17.5	1	1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR30B028	8/28/95	8.0	1	1				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH

NOTES:

bgs - below ground surface

IR - Installation Restoration

TD - Total Depth

+CR - Hexavalent chromium

Pest - Pesticides and PCBs

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

O&G - Oil and Grease

TRPH - Total Recoverable Purgable Hydrocarbons

TPH-p - Total Recoverable Hydrocarbons Purgeable

TPH-e - Total Recoverable Hydrocarbons Extractable

TABLE 4.5-5
IR-30 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet bgs)	Sample Depth (feet bgs)	Sample Type	Analyses
Soil Borings					
IR30B019	1/10/94	56.5	56.5	Grab	Metals, Pest, VOCs, SVOCs, TRPH, TPH-p
IR30B028	8/29/95	8.0	8.0	Grab	VOCs, TPH-e, TPH-p

NOTES:

IR - Installation Restoration

bgs - below ground surface

Pest - Pesticides and PCBs

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

TRPH - Total Recoverable Purgable Hydrocarbons

TPH-p - Total Petroleum Hydrocarbons Purgable

TPH-e - Total Petroleum Hydrocarbons Extractable

TABLE 4.5-6

SUMMARY OF OTHER SEDIMENT ANALYTICAL TESTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR30FD01	9428X399																✓		✓		✓
PA30FV02	9308A619				✓		✓		✓	✓				✓			✓		✓		✓
PA30FV03	9308A618				✓		✓		✓	✓				✓			✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.5-7

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	3,000	8,710	5,860	MG/KG	3.2	2	2	76,700	0	100,000	0		
	ARSENIC	8.1	8.9	8.5	MG/KG	0.83	2	2	0.32	2	2.0	2	11.10	0
	BARIUM	766	3,270	2,020	MG/KG	0.21	2	2	5,340	0	100,000	0	314.36	2
	CADMIUM	5.3	7.4	6.4	MG/KG	1.0	2	2	9.0	0	852	0	3.14	2
	CALCIUM	7,120	31,300	19,200	MG/KG	10.0	2	2						
	CHROMIUM	411	590	501	MG/KG	0.72	2	2	211	2	1,580	0	h	2
	COBALT	21.5	62.5	42.0	MG/KG	2.0	2	2					h	1
	COPPER	3,080	3,660	3,370	MG/KG	0.53	2	2	2,850	2	63,300	0	124.31	2
	IRON	37,000	72,000	54,500	MG/KG	1.3	2	2						
	LEAD	85.0	279	182	MG/KG	5.4	2	2	130	1	1,000	0	8.99	2
	MAGNESIUM	2,310	5,580	3,950	MG/KG	6.8	2	2						
	MANGANESE	715	829	772	MG/KG	0.26	2	2	382	2	8,300	0	1431.18	0
	MERCURY	0.71	0.71	0.71	MG/KG	0.05	2	1	23.0	0	511	0	2.28	0
	MOLYBDENUM	115	1,980	1,050	MG/KG	0.81	2	2	383	1	8,520	0	2.68	2
	NICKEL	2,510	8,040	5,280	MG/KG	8.2	2	2	150	2	34,100	0	h	2
	POTASSIUM	1,440	2,020	1,730	MG/KG	130	2	2						
	SELENIUM	1.1	1.1	1.1	MG/KG	0.72	2	1	383	0	8,520	0	1.95	0
	SILVER	0.92	1.3	1.1	MG/KG	0.44	2	2	383	0	8,520	0	1.43	0
	SODIUM	1,720	3,290	2,510	MG/KG	15.7	2	2						
	VANADIUM	22.0	30.3	26.2	MG/KG	0.51	2	2	537	0	11,900	0	117.17	0
	ZINC	705	1,380	1,040	MG/KG	0.64	2	2	23,000	0	100,000	0	109.86	2
CYAN	CYANIDE	0.54	20.5	10.5	MG/KG	0.53	2	2	1,300	0	13,600	0		

TABLE 4.5-7 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
VOC	4-METHYL-2-PENTANONE	0.012	0.012	0.012	MG/KG	0.053	2	1	5,200	0	55,000	0		
	METHYLENE CHLORIDE	0.049	0.049	0.049	MG/KG	0.053	3	1	11	0	25	0		
	TRICHLOROETHENE	0.007	0.007	0.007	MG/KG	0.011	3	1	7.1	0	17	0		
SVOC	PHENANTHRENE	11	11	11	MG/KG	85	2	1	800	0	800	0		
TPHPRG	TPH-PURGEABLE UNKNOWN HYDROCA.	4.4	4.4	4.4	MG/KG	1.1	2	1	100	0i				
TPHEXT	TPH-EXTRACTABLE UNKNOWN HYDRO.	2,600	33,000	18,000	MG/KG	680	2	2	1,000	2i				
	TPH-MOTOR OIL	190,000	190,000	190,000	MG/KG	15,000	1	1	1,000	1i				

TABLE 4.5-7 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 70.419 to 129.296, 14.693 to 23.201, and 58.423 to 134.815 mg/kg respectively.

TABLE 4.5-8

SUMMARY OF SOIL ANALYTICAL TESTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR29B038	9404A315						√	√	√	√				√			√		√	√	√
IR29B038	9404A316						√	√	√	√				√			√		√	√	√
IR29B038	9404A317						√	√	√	√				√			√		√	√	√
IR29B038	9404A318						√	√	√	√				√			√		√	√	√
IR29B038	9404A319						√	√	√	√				√			√		√	√	√
IR29B038	9404A320						√	√	√	√				√			√		√	√	√
IR29B038	9404A321						√	√	√	√				√			√		√	√	√
IR29B038	9404A323						√	√	√	√				√			√		√	√	√
IR29B038	9404A324						√	√	√	√				√			√		√	√	√
IR29B038	9404A326						√	√	√	√				√			√		√	√	√
IR30B017	9402N200						√	√	√	√				√					√	√	√
IR30B017	9402N201						√	√	√	√				√			√		√	√	√
IR30B017	9402N202						√	√	√	√				√			√		√	√	√
IR30B017	9402N203						√	√	√	√				√			√		√	√	√
IR30B017	9402N204						√	√	√	√				√			√		√	√	√
IR30B018	9402N206						√	√	√	√				√					√	√	√
IR30B018	9402N207						√	√	√	√				√			√		√	√	√
IR30B018	9402N208						√	√	√	√				√			√		√	√	√
IR30B018	9402N209						√	√	√	√				√			√		√	√	√
IR30B018	9402N210						√	√	√	√				√			√		√	√	√
IR30B019	9401A233						√	√	√	√				√			√		√	√	√
IR30B019	9401A234						√	√	√	√				√			√		√	√	√
IR30B019	9402A224						√	√	√	√				√			√		√	√	√
IR30B019	9402A225						√	√	√	√				√			√		√	√	√
IR30B019	9402A226						√	√	√	√				√			√		√	√	√
IR30B019	9402A227						√	√	√	√				√			√		√	√	√
IR30B019	9402A228						√	√						√			√		√	√	√
IR30B019	9402A229						√	√						√					√	√	√
IR30B019	9402A230						√	√	√	√				√			√		√	√	√
IR30B019	9402A231						√	√	√	√				√			√		√		√
IR30B019	9402A232						√	√	√	√				√			√		√	√	√
IR30B019	9402N211						√	√	√	√				√			√		√	√	√
IR30B027	9419C211						√	√	√	√				√			√		√	√	√
IR30B027	9419C212						√	√	√	√				√			√		√	√	√
IR30B027	9419C213						√	√	√	√				√			√		√	√	√
IR30B027	9419C214						√	√	√	√				√			√		√	√	√
IR30B027	9419C215						√	√	√	√				√			√		√	√	√

TABLE 4.5-8 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR30B028	9535A086						√	√	√	√				√			√		√	√	√
IR30B028	9535A087						√	√	√	√				√			√		√	√	√
IR30B029	9420C218						√	√	√	√				√			√		√	√	√
IR30B029	9420C219						√	√	√	√				√			√		√	√	√
IR30B029	9420C220						√	√	√	√				√			√		√	√	√
IR30B029	9420C221						√	√	√	√				√			√		√	√	√
IR30B029	9420C222						√	√	√	√				√			√		√	√	√
IR30B029	9420C224						√	√	√	√				√			√		√	√	√
IR30B030	9424W001						√	√	√	√				√			√		√	√	√
IR30B030	9424W002						√	√	√	√				√			√		√	√	√
IR30B030	9424W003						√	√	√	√				√			√		√	√	√
IR30B031	9424R295						√	√	√	√				√			√		√	√	√
IR30B031	9424R296						√	√	√	√				√			√		√	√	√
IR30B032	9424R280						√	√	√	√				√			√		√	√	√
IR30B032	9424R281						√	√	√	√				√			√		√	√	√
IR30B033	9424W004						√	√	√	√				√			√		√	√	√
IR30B033	9424W005						√	√	√	√				√			√		√		√
IR30B033	9424W006						√	√	√	√				√			√		√		√
IR30B034	9425W007						√	√	√	√				√			√		√	√	√
IR30B034	9425W008						√	√	√	√				√			√		√	√	√
IR30B034	9425W009						√	√	√	√				√			√		√	√	√
IR30B035	9424R282						√	√	√	√				√			√		√	√	√
IR30B035	9424R283						√	√	√	√				√			√		√	√	√
IR30B035	9424R284						√	√	√	√				√			√		√	√	√
IR30B036	9432C443						√	√	√	√				√			√		√	√	√
IR30B036	9432C444						√	√	√	√				√			√		√	√	√
IR30B036	9432C445						√	√	√	√				√			√		√	√	√
IR30B036	9432C446						√	√	√	√				√			√		√	√	√
IR30B037	9432C464						√	√	√	√				√			√		√	√	√
IR30B037	9432C465						√	√	√	√				√			√		√	√	√
IR30B037	9432C466						√	√	√	√				√			√		√	√	√
IR30SS38	9433C474						√	√	√	√				√			√		√	√	√
PA30B008	9311N167						√	√	√	√				√			√		√		√
PA30B008	9311N168						√	√	√	√				√			√		√		√
PA30B011	9311N162						√	√	√	√				√			√		√		√
PA30B011	9311N163						√	√		√				√			√		√		√

TABLE 4.5-8 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA30B012	9311N165						√	√	√	√				√			√		√		√
PA30B012	9311N166						√	√	√	√				√			√		√		√
PA30B014	9304A487			√			√		√	√				√			√		√		√
PA30B014	9304A488			√			√		√	√				√			√		√		√
PA30B014	9304A489			√			√		√	√				√			√		√		√
PA30B014	9304A490			√			√		√	√				√			√		√		√
PA30B015	9305N097			√			√			√				√			√		√		√
PA30B015	9305N098			√			√		√	√				√			√		√		√
PA30B015	9305N099			√			√		√	√				√			√		√		√
PA30B015	9305N100						√		√	√				√			√		√		√
PA30B016	9305N101			√			√		√	√				√			√		√		√
PA30B016	9305N102			√			√		√	√				√			√		√		√
PA30B016	9305N103			√			√		√	√				√			√		√		√
PA30B016	9305N104			√			√		√	√				√			√		√		√
PA30SS04	9305X899				√		√		√	√				√			√		√		√
PA30SS05	9305X898				√		√		√	√				√			√		√		√
PA30SS07	9311N169						√	√	√	√				√			√		√		√
PA30SS09	9305X897						√		√	√				√			√		√		√
PA30SS10	9305X896						√			√				√			√		√		√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.5-9

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	4,550	44,700	30,300	MG/KG	5.3	92	91	76,700	0	100,000	0		
	ANTIMONY	0.78	6.8	3.5	MG/KG	0.55	91	17	30.7	0	681	0	9.05	0
	ARSENIC	0.56	17.2	6.5	MG/KG	0.54	92	85	0.32	85	2.0	80	11.10	10
	BARIUM	45.7	493	239	MG/KG	0.79	92	92	5,340	0	100,000	0	314.36	16
	BERYLLIUM	0.13	1.2	0.49	MG/KG	0.04	92	49	0.14	48	1.1	1	0.71	1
	CADMIUM	0.17	3.3	1.2	MG/KG	0.13	92	31	9.0	0	852	0	3.14	1
	CALCIUM	4,620	65,100	15,300	MG/KG	17.4	92	88						
	CHROMIUM	6.0	1,610	284	MG/KG	0.33	92	92	211	55	1,580	1	h	8
	COBALT	8.0	134	35.2	MG/KG	0.59	92	92					h	4
	COPPER	16.4	10,200	394	MG/KG	0.37	92	91	2,850	4	63,300	0	124.31	9
	IRON	13,200	82,000	41,200	MG/KG	3.3	92	92						
	LEAD	0.56	389	22.8	MG/KG	0.58	91	90	130	3	1,000	0	8.99	34
	MAGNESIUM	1,520	186,000	60,000	MG/KG	18.9	92	92						
	MANGANESE	221	2,200	780	MG/KG	0.13	92	92	382	90	8,300	0	1431.18	2
	MERCURY	0.05	0.93	0.18	MG/KG	0.05	92	73	23.0	0	511	0	2.28	0
	MOLYBDENUM	0.42	291	53.3	MG/KG	0.27	92	17	383	0	8,520	0	2.68	7
	NICKEL	11.2	8,650	686	MG/KG	1.5	92	91	150	71	34,100	0	h	5
	POTASSIUM	162	5,750	1,130	MG/KG	66.5	92	88						
	SELENIUM	5.3	70.2	28.4	MG/KG	3.4	92	9	383	0	8,520	0	1.95	9
	SILVER	0.20	1.2	0.70	MG/KG	0.12	92	2	383	0	8,520	0	1.43	0
	SODIUM	87.9	2,420	809	MG/KG	20.9	92	75						
	THALLIUM	0.68	1.5	0.96	MG/KG	0.45	82	3					0.81	1

TABLE 4.5-9 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	VANADIUM	14.1	224	73.2	MG/KG	0.40	92	92	537	0	11,900	0	117.17	3
	ZINC	33.4	3,050	153	MG/KG	0.43	92	92	23,000	0	100,000	0	109.86	9
CYAN	CYANIDE	0.55	0.55	0.55	MG/KG	0.52	2	1	1,300	0	13,600	0		
VOC	1,2-DICHLOROETHANE	0.007	0.007	0.007	MG/KG	0.020	92	1	0.44	0	0.98	0		
	4-METHYL-2-PENTANONE	0.002	0.020	0.012	MG/KG	0.011	85	3	5,200	0	55,000	0		
	ACETONE	0.008	0.33	0.072	MG/KG	0.016	90	19	2,000	0	8,400	0		
	BENZENE	0.002	0.65	0.23	MG/KG	0.017	92	57	1.4	0	3.2	0		
	CHLOROBENZENE	0.002	0.002	0.002	MG/KG	0.011	89	1	160	0	570	0		
	ETHYLBENZENE	0.004	0.009	0.006	MG/KG	0.014	90	6	2,900	0	3,100	0		
	METHYLENE CHLORIDE	0.004	0.10	0.026	MG/KG	0.027	92	5	11	0	25	0		
	TETRACHLOROETHENE	0.003	0.003	0.003	MG/KG	0.011	89	1	7.0	0	25	0		
	TOLUENE	0.002	0.24	0.077	MG/KG	0.018	91	45	1,900	0	2,700	0		
	XYLENE (TOTAL)	0.002	0.040	0.016	MG/KG	0.020	91	44	980	0	980	0		
SVOC	2,4-DIMETHYLPHENOL	0.024	0.044	0.038	MG/KG	0.35	92	4	1,300	0	14,000	0		
	2-METHYLNAPHTHALENE	0.012	0.50	0.18	MG/KG	0.43	92	46	800	0	800	0		
	2-METHYLPHENOL	0.020	0.081	0.052	MG/KG	0.35	92	9	3,300	0	34,000	0		
	4-METHYLPHENOL	0.022	0.10	0.063	MG/KG	0.35	92	6	330	0	3,400	0		
	ANTHRACENE	0.036	0.036	0.036	MG/KG	0.34	92	1	19	0	19	0		
	BENZO(A)ANTHRACENE	0.009	0.15	0.049	MG/KG	0.36	92	5	0.61	0	2.6	0		
	BENZO(A)PYRENE	0.018	0.045	0.024	MG/KG	0.36	92	9	0.061	0	0.26	0		
	BENZO(B)FLUORANTHENE	0.015	0.13	0.036	MG/KG	0.35	92	11	0.61	0	2.6	0		
	BENZO(G,H,I)PERYLENE	0.018	0.054	0.031	MG/KG	0.36	92	5	800	0	800	0		

TABLE 4.5-9 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	BENZO(K)FLUORANTHENE	0.002	0.11	0.033	MG/KG	0.36	92	4	0.61	0	26	0		
	BIS(2-ETHYLHEXYL)PHTHALATE	0.46	1.5	0.98	MG/KG	0.36	92	2	32	0	140	0		
	CARBAZOLE	0.024	0.049	0.036	MG/KG	0.35	92	10	22	0	95	0		
	CHRYSENE	0.010	0.19	0.055	MG/KG	0.36	92	14	6.1	0	24	0		
	DI-N-BUTYLPHTHALATE	0.091	0.12	0.10	MG/KG	0.36	92	4	6,500	0	68,000	0		
	DIBENZOFURAN	0.020	0.11	0.067	MG/KG	0.36	92	22	260	0	2,700	0		
	FLUORANTHENE	0.010	0.24	0.055	MG/KG	0.36	92	7	2,600	0	27,000	0		
	FLUORENE	0.022	0.085	0.049	MG/KG	0.36	92	20	300	0	300	0		
	INDENO(1,2,3-CD)PYRENE	0.020	0.020	0.020	MG/KG	0.36	92	1	0.61	0	2.6	0		
	NAPHTHALENE	0.016	0.56	0.22	MG/KG	0.43	92	43	800	0	800	0		
	PHENANTHRENE	0.034	0.22	0.11	MG/KG	0.42	92	47	800	0	800	0		
	PHENOL	0.042	0.042	0.042	MG/KG	0.35	92	1	39,000	0	100,000	0		
	PYRENE	0.014	0.59	0.072	MG/KG	0.36	92	15	2,000	0	20,000	0		
PEST	4,4'-DDE	0.004	0.14	0.038	MG/KG	0.012	87	4	1.3	0	5.6	0		
	4,4'-DDT	0.002	0.11	0.021	MG/KG	0.009	87	6	1.3	0	5.6	0		
	ALPHA-CHLORDANE	0.005	0.10	0.052	MG/KG	0.011	87	2	0.34	0	1.5	0		
	BETA-BHC	0.003	0.004	0.004	MG/KG	0.002	87	3	0.25	0	1.1	0		
	ENDOSULFAN I	0.007	0.10	0.054	MG/KG	0.011	87	2	3.3	0	34	0		
	ENDOSULFAN II	0.002	0.17	0.038	MG/KG	0.010	87	5	3.3	0	34	0		
	ENDOSULFAN SULFATE	0.003	0.003	0.003	MG/KG	0.004	87	1	3.3	0	34	0		
	ENDRIN	0.006	0.006	0.006	MG/KG	0.004	87	1	20	0	200	0		
	ENDRIN ALDEHYDE	0.005	0.14	0.050	MG/KG	0.015	87	3	20	0	200	0		

TABLE 4.5-9 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	GAMMA-BHC (LINDANE)	0.028	0.028	0.028	MG/KG	0.020	87	1	0.34	0	1.5	0		
	GAMMA-CHLORDANE	0.0010	0.23	0.055	MG/KG	0.005	87	5	0.34	0	1.5	0		
	HEPTACHLOR	0.022	0.022	0.022	MG/KG	0.020	87	1	0.099	0	0.42	0		
	HEPTACHLOR EPOXIDE	0.018	0.018	0.018	MG/KG	0.002	87	1	0.049	0	0.21	0		
	AROCLOR-1260	0.041	0.20	0.12	MG/KG	0.036	87	2	0.066	1	0.34	0		
TPHPRG	TPH-GASOLINE	0.31	5.9	1.1	MG/KG	0.55	92	11	100	0i				
	TPH-PURGEABLE UNKNOWN HYDROCA.	1.3	1.3	1.3	MG/KG	1.1	16	1	100	0i				
TPHEXT	TPH-DIESEL	5.7	3,600	190	MG/KG	23	89	29	1,000	2i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	12	4,600	520	MG/KG	110	16	10	1,000	1i				
	TPH-MOTOR OIL	6.4	70,000	2,300	MG/KG	430	50	42	1,000	7i				
TRPH	TRPH	4.2	21,000	1,000	MG/KG	87	66	46	1,000	7i				

TABLE 4.5-9 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG

California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).

For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 52.781 to 1450.207, 11.830 to 142.770, and 39.288 to 3752.415 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.5-10

SUMMARY OF GRAB GROUNDWATER ANALYTICAL TESTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR30B019	9402N212						✓		✓					✓					✓	✓	✓
IR30B028	9535A093																✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.5-11

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	BARIUM	132	132	132	UG/L	5.6	1	1	2,600	0	1,000	0				
	CALCIUM	56,400	56,400	56,400	UG/L	84.7	1	1								
	MAGNESIUM	30,000	30,000	30,000	UG/L	51.1	1	1								
	MANGANESE	372	372	372	UG/L	0.90	1	1	180	1						
	POTASSIUM	13,100	13,100	13,100	UG/L	421	1	1								
	SODIUM	270,000	270,000	270,000	UG/L	45.4	1	1								
	ZINC	2.8	2.8	2.8	UG/L	1.1	1	1	11,000	0			81.0	0		
VOC	BENZENE	2	2	2	UG/L	1	2	1	0.4	1	1	1				
SVOC	PHENOL	6	6	6	UG/L	10	1	1	22,000	0						
TPHPRG	TPH-GASOLINE	120	120	120	UG/L	50	2	1	100	1i						
TPHEXT	TPH-DIESEL	16,000	16,000	16,000	UG/L	5,000	1	1	100	1i						
	TPH-MOTOR OIL	83,000	83,000	83,000	UG/L	5,000	1	1	100	1i						
TRPH	TRPH	5,200	5,200	5,200	UG/L	2,000	1	1	100	1i						

TABLE 4.5-11 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-30
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.11-1
IR-57 RI FIELD ACTIVITIES SUMMARY
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	HydroPunch	Grab	
Soil Borings	8	NA	15	NA	NA	NA	NA
Soil/HydroPunch Borings	NA	NA	NA	NA	NA	NA	NA
Sandblast Grit Samples	2	2	NA	NA	NA	NA	NA
Surface Soil Samples	2	NA	2	NA	NA	NA	NA
Storm Drain Sediment Samples	10	10	NA	NA	NA	NA	NA
Drydock Sediment Samples	3	3	NA	NA	NA	NA	NA
Monitoring Wells	1	NA	NA	0	NA	NA	NA
Aquifer Tests	NA	NA	NA	NA	NA	NA	NA

Notes:
IR - Installation Restoration
NA - Not applicable
Sampling stations include samples collected for each site investigation, and do not reflect the sample reassociation that was done for the calculation of human health risk.
Groundwater samples were not collected from the single monitoring well installed at IR-57 because the well is dry.

TABLE 4.11-2
IR-57 SOIL SAMPLES FROM SOIL BORINGS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	Total Depth (feet bgs)	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30-40	
Soil Borings								
IR57B020	5/10/94	11.5	0	2	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC
IR57B021	5/10/94	11.5	0	1	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC
IR57B022	5/11/94	11.5	0	2	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC
IR57B023	5/10/94	11.0	0	2	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC
IR57B024	5/11/94	11.0	0	1	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC
IR57B025	5/10/94	11.5	0	2	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC
IR57B026	5/11/94	11.0	1	2	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC
IR57B027	5/11/94	11.5	0	2	0	0	0	Metals, % Moist, Pest, pH, SVOC, TPH-e, TPH-p, TRPH, VOC

Notes:
bgs - below ground surface
IR - Installation Restoration
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOC - Semivolatile Organic Compounds
VOC - Volatile Organic Compounds

TABLE 4.11-3
IR-57 SURFACE/ SOURCE SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Location	Sample Name	Date Sampled	Type	Sample Depth (feet bgs)	Analyses
PA57SS14	9302X822	1/15/93	Surface soil	0.75	Chromium VI, Cyanide, Metal, O&G, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SS15	9310J363	3/8/93	Surface soil	0.75	Metal, O&G, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SB11	9302X820	1/15/93	Grab-Source	0.00	Cyanide, Metals, pH, SVOC
PA57SB13	9302X821	1/15/93	Grab-Source	0.00	Cyanide, Metals, pH, SVOC

Notes:
bgs - below ground surface
IR - Installation Restoration
O&G - Total Oil & Grease
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOC - Semivolatile Organic Compounds
VOC - Volatile Organic Compounds

TABLE 4.11-4
IR-57 SEDIMENT SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Location	Sample Name	Date Sampled	Type	Analyses
PA57SW01	9302X819	1/15/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW02	9302X817	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW03	9302X815	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW04	9302X816	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW05	9302X814	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW06	9302X813	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW07	9302X810	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW09	9302X818	1/15/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW10	9302X811	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
PA57SW12	9302X812	1/14/93	Sediment	Chromium VI, Cyanide, Metals, Oil & Grease, % Moisture, Pest, pH, SVOC, TPH-e, TPH-p, VOC
IR57SS28	9432H607	8/10/94	Sediment	Metals, Pest, SVOC, TPH-e, TPH-p, VOC
IR57SS29	9432H613	8/10/94	Sediment	Metals, Pest, SVOC, TPH-e, TPH-p, VOC
IR57SS30	9432H614	8/10/94	Sediment	Metals, Pest, SVOC, TPH-e, TPH-p, VOC

Notes:
IR - Installation Restoration
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOC - Semivolatile Organic Compounds
VOC - Volatile Organic Compounds

TABLE 4.11-5
IR-57 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet bgs)	Well Diameter (inches)	Screened Interval (feet bgs)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR57MW30A	10/31/95	21.5	4	6.0-21.0	0			NA	NA (Dry)

NOTES:
A - A-aquifer
B - B-aquifer
F - Bedrock Water-Bearing Zone
IR - Installation Restoration
NA - Not Applicable
bgs - below ground surface

TABLE 4.11-6

SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL TESTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA57SW01	9302X819			√	√		√	√	√	√				√			√		√		√
PA57SW02	9302X817			√	√		√	√	√	√				√			√		√		√
PA57SW03	9302X815			√	√		√	√	√	√				√			√		√		√
PA57SW04	9302X816			√	√		√	√	√	√				√			√		√		√
PA57SW05	9302X814			√	√		√	√	√	√				√			√		√		√
PA57SW06	9302X813			√	√		√	√	√	√				√			√		√		√
PA57SW07	9302X810			√	√		√	√	√	√				√			√		√		√
PA57SW09	9302X818			√	√		√	√	√	√				√			√		√		√
PA57SW10	9302X811			√	√		√	√	√	√				√			√		√		√
PA57SW12	9302X812			√	√		√	√	√	√				√			√		√		√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-7

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	7,470	25,200	12,700	MG/KG	4.4	10	10	76,700	0	100,000	0		
	ANTIMONY	9.9	34.4	22.1	MG/KG	4.0	10	9	30.7	2	681	0	9.05	9
	ARSENIC	6.4	88.7	41.2	MG/KG	0.38	10	10	0.32	10	2.0	10	11.10	9
	BARIUM	252	976	499	MG/KG	0.79	10	10	5,340	0	100,000	0	314.36	7
	CADMIUM	2.5	2.6	2.5	MG/KG	0.62	10	2	9.0	0	852	0	3.14	0
	CALCIUM	18,900	95,700	40,400	MG/KG	15.8	10	10						
	CHROMIUM	86.8	285	161	MG/KG	0.49	10	10	211	2	1,580	0	h	3
	COBALT	17.9	58.7	34.1	MG/KG	0.82	10	10					h	7
	COPPER	732	3,340	1,630	MG/KG	0.05	10	10	2,850	1	63,300	0	124.31	10
	IRON	33,500	136,000	76,200	MG/KG	4.6	10	10						
	LEAD	165	1,200	523	MG/KG	3.0	10	10	130	10	1,000	1	8.99	10
	MAGNESIUM	5,580	17,600	10,800	MG/KG	25.1	10	10						
	MANGANESE	556	2,170	1,040	MG/KG	0.22	10	10	382	10	8,300	0	1431.18	3
	MERCURY	0.16	1.5	0.57	MG/KG	0.07	10	10	23.0	0	511	0	2.28	0
	MOLYBDENUM	15.4	601	186	MG/KG	0.68	10	10	383	2	8,520	0	2.68	10
	NICKEL	50.0	270	100	MG/KG	1.2	10	10	150	2	34,100	0	h	1
	POTASSIUM	968	3,120	1,720	MG/KG	145	10	10						
	SILVER	5.0	9.4	6.8	MG/KG	0.53	10	4	383	0	8,520	0	1.43	4
	SODIUM	332	1,910	943	MG/KG	31.4	10	10						
	VANADIUM	30.0	105	54.4	MG/KG	0.85	10	10	537	0	11,900	0	117.17	0
	ZINC	486	46,700	5,650	MG/KG	0.36	10	10	23,000	1	100,000	0	109.86	10
CYAN	CYANIDE	0.13	0.15	0.14	MG/KG	0.12	10	2	1,300	0	13,600	0		

TABLE 4.11-7 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
VOC	CARBON DISULFIDE	0.009	0.009	0.009	MG/KG	0.012	10	1	16	0	52	0		
SVOC	BENZO(A)ANTHRACENE	0.63	0.63	0.63	MG/KG	2.1	10	1	0.61	1	2.6	0		
	BENZO(A)PYRENE	0.40	0.40	0.40	MG/KG	2.1	10	1	0.061	1	0.26	1		
	BENZO(B)FLUORANTHENE	0.61	0.61	0.61	MG/KG	2.1	10	1	0.61	1	2.6	0		
	BENZO(K)FLUORANTHENE	0.51	0.51	0.51	MG/KG	2.1	10	1	0.61	0	26	0		
	BIS(2-ETHYLHEXYL)PHTHALATE	6.4	16	11	MG/KG	1.5	10	2	32	0	140	0		
	CHRYSENE	0.98	0.98	0.98	MG/KG	2.1	10	1	6.1	0	24	0		
	FLUORANTHENE	0.36	1.3	0.93	MG/KG	1.6	10	5	2,600	0	27,000	0		
	PHENANTHRENE	0.41	0.74	0.58	MG/KG	1.5	10	4	800	0	800	0		
	PYRENE	0.60	1.3	0.95	MG/KG	1.6	10	5	2,000	0	20,000	0		
PEST	AROCLOR-1260	0.19	3.0	0.83	MG/KG	0.12	10	10	0.066	10	0.34	4		
TPHEXT	TPH-DIESEL	120	800	340	MG/KG	27	10	10	1,000	0				

TABLE 4.11-7 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 129.331 to 285.031, 23.205 to 42.030, and 134.866 to 400.085 mg/kg respectively.

TABLE 4.11-8

SUMMARY OF OTHER SEDIMENT ANALYTICAL TESTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR57SS28	9432H607						✓		✓					✓			✓		✓		✓
IR57SS29	9432H613						✓		✓					✓			✓		✓		✓
IR57SS30	9432H614						✓		✓					✓			✓		✓		✓
PA57SB11	9302X820				✓		✓			✓				✓							
PA57SB13	9302X821				✓		✓	✓		✓				✓							

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-9

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	7,910	38,100	21,900	MG/KG	10.6	5	5	76,700	0	100,000	0		
	ANTIMONY	1.7	18.2	8.1	MG/KG	2.0	5	4	30.7	0	681	0	9.05	2
	ARSENIC	12.2	23.2	17.5	MG/KG	0.51	5	5	0.32	5	2.0	5	11.10	5
	BARIUM	191	574	378	MG/KG	1.3	5	5	5,340	0	100,000	0	314.36	3
	BERYLLIUM	0.44	0.64	0.56	MG/KG	0.04	5	3	0.14	3	1.1	0	0.71	0
	CADMIUM	0.41	1.1	0.72	MG/KG	0.09	5	3	9.0	0	852	0	3.14	0
	CALCIUM	15,000	138,000	65,000	MG/KG	38.5	5	5						
	CHROMIUM	58.2	128	85.6	MG/KG	0.34	5	5	211	0	1,580	0	h	0
	COBALT	14.6	66.5	31.7	MG/KG	0.45	5	5					h	1
	COPPER	347	8,120	2,820	MG/KG	0.46	5	5	2,850	2	63,300	0	124.31	5
	IRON	34,400	123,000	69,400	MG/KG	6.4	5	5						
	LEAD	3.9	212	120	MG/KG	0.89	5	5	130	2	1,000	0	8.99	4
	MAGNESIUM	7,730	22,500	15,900	MG/KG	18.7	5	5						
	MANGANESE	443	2,670	1,270	MG/KG	0.15	5	5	382	5	8,300	0	1431.18	2
	MERCURY	0.10	0.96	0.45	MG/KG	0.09	5	5	23.0	0	511	0	2.28	0
	MOLYBDENUM	50.3	118	84.7	MG/KG	0.28	5	4	383	0	8,520	0	2.68	4
	NICKEL	29.0	86.2	62.5	MG/KG	1.0	5	5	150	0	34,100	0	h	0
	POTASSIUM	855	6,420	3,960	MG/KG	62.3	5	5						
	SILVER	0.38	9.6	2.8	MG/KG	0.29	5	4	383	0	8,520	0	1.43	1
	SODIUM	338	34,100	14,400	MG/KG	45.4	5	5						
	VANADIUM	31.9	134	79.5	MG/KG	0.56	5	5	537	0	11,900	0	117.17	1
	ZINC	170	1,980	890	MG/KG	0.92	5	5	23,000	0	100,000	0	109.86	5

TABLE 4.11-9 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
CYAN	CYANIDE	0.12	0.12	0.12	MG/KG	0.09	2	1	1,300	0	13,600	0		
VOC	1,2-DICHLOROBENZENE	0.0008	0.0008	0.0008	MG/KG	0.001	3	1	2,300	0	2,300	0		
	1,3-DICHLOROBENZENE	0.0005	0.0005	0.0005	MG/KG	0.001	3	1	2,800	0	2,800	0		
	1,4-DICHLOROBENZENE	0.0006	0.0006	0.0006	MG/KG	0.001	3	1	7.4	0	20	0		
	2-BUTANONE	0.014	0.014	0.014	MG/KG	0.005	3	1	8,700	0	34,000	0		
	ETHYLBENZENE	0.0006	0.0006	0.0006	MG/KG	0.001	3	1	2,900	0	3,100	0		
	XYLENE (TOTAL)	0.0004	0.0004	0.0004	MG/KG	0.001	3	1	980	0	980	0		
SVOC	2-METHYLNAPHTHALENE	0.18	0.21	0.20	MG/KG	0.75	5	2	800	0	800	0		
	ACENAPHTHENE	0.11	0.11	0.11	MG/KG	0.94	5	1	360	0	360	0		
	BENZO(A)ANTHRACENE	0.52	0.85	0.69	MG/KG	0.75	5	2	0.61	1	2.6	0		
	BENZO(A)PYRENE	0.20	0.80	0.52	MG/KG	0.72	5	3	0.061	3	0.26	2		
	BENZO(B)FLUORANTHENE	0.24	1.3	0.82	MG/KG	0.72	5	3	0.61	2	2.6	0		
	BENZO(G,H,I)PERYLENE	0.18	0.51	0.36	MG/KG	0.72	5	3	800	0	800	0		
	BENZO(K)FLUORANTHENE	0.064	0.46	0.29	MG/KG	0.72	5	3	0.61	0	26	0		
	BIS(2-ETHYLHEXYL)PHTHALATE	0.77	4.7	2.7	MG/KG	0.53	5	2	32	0	140	0		
	CARBAZOLE	0.13	0.29	0.21	MG/KG	0.75	5	2	22	0	95	0		
	CHRYSENE	0.16	1.4	0.81	MG/KG	0.72	5	3	6.1	0	24	0		
	DIBENZOFURAN	0.15	0.15	0.15	MG/KG	1.1	5	1	260	0	2,700	0		
	FLUORANTHENE	1.7	3.3	2.5	MG/KG	0.75	5	2	2,600	0	27,000	0		
	FLUORENE	0.13	0.21	0.17	MG/KG	0.75	5	2	300	0	300	0		
	INDENO(1,2,3-CD)PYRENE	0.13	0.46	0.31	MG/KG	0.72	5	3	0.61	0	2.6	0		
	NAPHTHALENE	0.24	0.27	0.26	MG/KG	0.75	5	2	800	0	800	0		

TABLE 4.11-9 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	PHENANTHRENE	0.14	2.7	1.4	MG/KG	0.72	5	3	800	0	800	0		
	PYRENE	0.36	2.7	1.5	MG/KG	0.72	5	3	2,000	0	20,000	0		
TPHPRG	TPH-GASOLINE	0.82	0.82	0.82	MG/KG	1.2	3	1	100	0i				
TPHEXT	TPH-DIESEL	32	32	32	MG/KG	59	3	1	1,000	0i				
	TPH-MOTOR OIL	120	1,500	940	MG/KG	140	3	3	1,000	2i				

TABLE 4.11-9 (Continued)

STATISTICAL SUMMARY OF OTHER SEDIMENT ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 161.822 to 338.054, 27.463 to 47.781, and 183.588 to 505.950 mg/kg respectively.

TABLE 4.11-10

SUMMARY OF SOIL ANALYTICAL TESTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR22B001	9320A046			√			√	√	√	√				√			√		√		√
IR22B002	9317A819		√	√	√		√		√	√				√			√		√		√
IR22B002	9317A820		√	√	√		√		√	√				√			√		√		√
IR22B003	9320A044			√			√	√	√	√				√			√		√		√
IR22B003	9320A045			√	√		√	√	√	√				√			√		√		√
IR22B004	9320A043			√			√	√	√	√				√			√		√		√
IR22B021	9419R115						√	√		√							√		√		
IR22B021	9419R116						√	√		√							√		√		
IR22B021A	9419R117						√	√		√							√		√		
IR22B021A	9419R118						√	√		√							√		√		
IR22B022	9419R119						√	√		√							√		√		
IR22B022	9419R120						√	√		√							√		√		
IR22B022	9419R121						√	√	√	√							√				
IR22B023	9419R125						√	√		√											
IR22B023	9419R126						√	√		√											
IR22B023	9419R127						√	√		√											
IR22B023	9419R128						√	√		√											
IR57B020	9419R101						√	√	√	√				√			√		√	√	√
IR57B021	9419R099						√	√	√	√				√			√		√	√	√
IR57B021	9419R100						√	√	√	√				√			√		√	√	√
IR57B022	9419R106						√	√	√	√				√			√		√	√	√
IR57B022	9419R107						√	√	√	√				√			√		√	√	√
IR57B023	9419R102						√	√	√	√				√			√		√	√	√
IR57B023	9419R103						√	√	√	√				√			√		√	√	√
IR57B024	9419R110						√	√	√	√				√			√		√	√	√
IR57B025	9419R104						√	√	√	√				√			√		√	√	√
IR57B025	9419R105						√	√	√	√				√			√		√	√	√
IR57B026	9419R111						√	√	√	√				√			√		√	√	√
IR57B026	9419R112						√	√	√	√				√			√		√	√	√
IR57B026	9419R113						√	√	√	√				√			√		√	√	√
IR57B027	9419R108						√	√	√	√				√			√		√	√	√
IR57B027	9419R109						√	√	√	√				√			√		√	√	√
PA45TA01	9322P220		√				√	√	√	√				√			√		√	√	√
PA45TA09	9322P225		√				√	√	√	√				√			√		√	√	√
PA45TA18	9325A060		√				√	√	√	√				√			√		√	√	√
PA49TA02	9307H412						√		√	√				√			√		√	√	√
PA57SS14	9302X822			√	√		√	√	√	√				√			√		√		√

TABLE 4.11-10 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA57SS15	9310J363						✓	✓	✓	✓				✓			✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.11-11

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	5,000	50,900	24,900	MG/KG	4.2	38	38	76,700	0	100,000	0		
	ANTIMONY	1.1	10.0	4.6	MG/KG	0.85	38	16	30.7	0	681	0	9.05	1
	ARSENIC	1.1	89.0	7.8	MG/KG	0.32	38	26	0.32	26	2.0	21	11.10	2
	BARIUM	1.8	419	120	MG/KG	0.96	38	38	5,340	0	100,000	0	314.36	3
	BERYLLIUM	0.20	0.66	0.40	MG/KG	0.03	38	13	0.14	13	1.1	0	0.71	0
	CADMIUM	0.09	2.0	0.57	MG/KG	0.10	38	22	9.0	0	852	0	3.14	0
	CALCIUM	886	67,300	23,700	MG/KG	11.7	38	38						
	CHROMIUM	29.0	795	177	MG/KG	0.25	38	38	211	9	1,580	0	h	0
	CHROMIUM VI	0.33	0.33	0.33	MG/KG	0.21	7	1	0.20	1	225	0		
	COBALT	10.2	67.5	28.1	MG/KG	0.42	38	38					h	0
	COPPER	9.0	2,370	176	MG/KG	0.38	38	38	2,850	0	63,300	0	124.31	3
	IRON	10,900	69,100	35,900	MG/KG	4.1	38	38						
	LEAD	1.4	352	36.1	MG/KG	0.63	38	28	130	2	1,000	0	8.99	9
	MAGNESIUM	5,760	244,000	47,900	MG/KG	85.4	38	38						
	MANGANESE	257	2,940	783	MG/KG	0.17	38	38	382	36	8,300	0	1431.18	2
	MERCURY	0.08	58.7	6.8	MG/KG	0.09	38	13	23.0	2	511	0	2.28	2
	MOLYBDENUM	0.11	131	8.7	MG/KG	0.13	38	16	383	0	8,520	0	2.68	1
	NICKEL	27.0	2,110	251	MG/KG	1.4	38	38	150	12	34,100	0	h	0
	POTASSIUM	472	3,220	1,120	MG/KG	62.9	38	36						
	SELENIUM	0.54	2.5	1.5	MG/KG	0.60	37	2	383	0	8,520	0	1.95	1
	SILVER	1.2	1.2	1.2	MG/KG	0.46	38	1	383	0	8,520	0	1.43	0
	SODIUM	148	2,890	910	MG/KG	25.7	38	25						

TABLE 4.11-11 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	THALLIUM	0.73	0.73	0.73	MG/KG	0.46	38	1					0.81	0
	VANADIUM	16.2	142	72.5	MG/KG	0.34	38	38	537	0	11,900	0	117.17	2
	ZINC	34.5	1,320	119	MG/KG	0.56	38	38	23,000	0	100,000	0	109.86	6
CYAN	CYANIDE	0.04	0.04	0.04	MG/KG	0.04	4	1	1,300	0	13,600	0		
VOC	ACETONE	0.052	0.052	0.052	MG/KG	0.011	27	1	2,000	0	8,400	0		
	BENZENE	0.002	0.002	0.002	MG/KG	0.011	27	1	1.4	0	3.2	0		
	CARBON DISULFIDE	0.004	0.004	0.004	MG/KG	0.011	27	1	16	0	52	0		
	ETHYLBENZENE	0.086	0.086	0.086	MG/KG	0.054	27	1	2,900	0	3,100	0		
	TETRACHLOROETHENE	0.002	0.047	0.011	MG/KG	0.011	27	6	7.0	0	25	0		
	XYLENE (TOTAL)	0.012	0.57	0.29	MG/KG	0.032	27	2	980	0	980	0		
SVOC	2-METHYLNAPHTHALENE	0.016	0.48	0.25	MG/KG	0.52	27	2	800	0	800	0		
	ACENAPHTHYLENE	0.12	0.12	0.12	MG/KG	0.73	27	1	360	0	360	0		
	ANTHRACENE	0.061	0.061	0.061	MG/KG	0.35	27	1	19	0	19	0		
	BENZO(A)ANTHRACENE	0.030	0.18	0.095	MG/KG	0.48	27	3	0.61	0	2.6	0		
	BENZO(A)PYRENE	0.12	0.17	0.15	MG/KG	0.59	27	3	0.061	3	0.26	0		
	BENZO(B)FLUORANTHENE	0.12	0.31	0.22	MG/KG	0.55	27	2	0.61	0	2.6	0		
	BENZO(G,H,I)PERYLENE	0.17	0.17	0.17	MG/KG	0.73	27	1	800	0	800	0		
	BENZO(K)FLUORANTHENE	0.10	0.16	0.13	MG/KG	0.55	27	2	0.61	0	26	0		
	CHRYSENE	0.031	0.65	0.29	MG/KG	0.53	27	4	6.1	0	24	0		
	FLUORANTHENE	0.27	0.27	0.27	MG/KG	0.36	27	1	2,600	0	27,000	0		
	INDENO(1,2,3-CD)PYRENE	0.19	0.19	0.19	MG/KG	0.73	27	1	0.61	0	2.6	0		
	NAPHTHALENE	0.090	0.090	0.090	MG/KG	0.69	27	1	800	0	800	0		

TABLE 4.11-11 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[e] Ind PRG	HPAL Value	Above[e] HPAL
	PHENANTHRENE	0.034	0.19	0.090	MG/KG	0.39	27	9	800	0	800	0		
	PHENOL	0.042	1.7	0.87	MG/KG	0.55	27	2	39,000	0	100,000	0		
	PYRENE	0.50	0.50	0.50	MG/KG	0.36	27	1	2,000	0	20,000	0		
PEST	4,4'-DDE	0.004	0.004	0.004	MG/KG	0.004	28	1	1.3	0	5.6	0		
	ALDRIN	0.002	0.002	0.002	MG/KG	0.002	28	1	0.026	0	0.11	0		
	ALPHA-CHLORDANE	0.002	0.002	0.002	MG/KG	0.002	28	1	0.34	0	1.5	0		
	BETA-BHC	0.002	0.002	0.002	MG/KG	0.002	28	1	0.25	0	1.1	0		
	ENDRIN KETONE	0.006	0.006	0.006	MG/KG	0.004	28	1	20	0	200	0		
	AROCLOR-1254	0.023	0.023	0.023	MG/KG	0.036	28	1	1.4	0	19	0		
	AROCLOR-1260	0.022	0.052	0.037	MG/KG	0.035	28	2	0.066	0	0.34	0		
TPHPRG	TPH-GASOLINE	0.56	120	41	MG/KG	4.9	33	3	100	1i				
TPHEXT	TPH-DIESEL	11	2,600	410	MG/KG	60	34	7	1,000	1i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	22	22	22	MG/KG	11	3	1	1,000	0i				
	TPH-MOTOR OIL	100	6,500	1,300	MG/KG	440	22	13	1,000	5i				
TRPH	TRPH	37	9,700	1,600	MG/KG	54	19	11	1,000	4i				

TABLE 4.11-11 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-57
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 132.206 to 1748.770, 23.592 to 164.341, and 139.009 to 4854.804 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.12-1
IR-58 RI FIELD ACTIVITIES SUMMARY
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	HydroPunch	Grab	
Soil Borings	16	NA	62	NA	6	7	NA
Surface Soil Samples	11	NA	11	NA	NA	NA	NA
Storm Drain Samples	1	1	NA	NA	NA	NA	NA
Monitoring Wells	6	NA	12	14	1	NA	NA
Additional Activities							
Aquifier Testing (slug testing)							

Notes:
IR - Installation Restoration
NA - Not applicable
Sampling stations include samples collected for each site investigation, and do not reflect the sample reassociation that was done for the calculation of human health risk.

TABLE 4.12-2
IR-58 SOURCE CHARACTERIZATION SAMPLES
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Sample Type	Sample Location	Analyses
PA58SW06	5/28/93	Storm drain sediment	Southeast of IR-58	Metal (+Cr), Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH

Notes:
Cr - Chromium VI
IR - Installation Restoration
O&G - Total Oil & Grease
Pest - Pesticides and Ploychlorinated Biphenyls
TPHe - Total Petroleum Hydrocarbons Extractable
TPHp - Total Petroleum Hydrocarbons Purgeable
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.12-3
IR-58 SURFACE SOIL SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Sample Name	Data Sampled	Location	Analyses
PA58SS01	2/3/93	Discolored soil composite collected below stained asphalt	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA58SS02	2/3/93	Soil beneath leaking drum	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA58SS03	2/3/93	Soil composite beneath leaking insulator	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA58SS04	2/3/93	Soil beneath large equipment	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA58SS05	2/3/93	Discolored soil composite	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA58SS07	2/3/93	Trash/debris soil composite	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, pH
PA58SS08	2/3/93	Parking area soil composite	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH
PA58SS09	3/8/93	Stained soil beneath large crane	Metals, Pest, VOCs, SVOCs, O&G, TPH-e, TPH-p, pH, % moisture
IR58SS34	5/22/96	Stained soil north of Building 251	Metals, Pest, SVOCs, TPH-e, TPH-p, TRPH, pH, % moisture
IR58SS35	5/22/96	Stained soil north of Building 251	Metals, Pest, SVOCs, TPH-e, TPH-p, TRPH, pH, % moisture
IR58SS36	5/22/96	Stained soil north of Building 251	Metals, Pest, SVOCs, TPH-e, TPH-p, TRPH, pH, % moisture

Notes:
IR - Installation Restoration
O&G - Total Oil & Grease
Pest - Pesticides and Ploychlorinated Biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.12-4
IR-58 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	TD	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30-40	
Soil Borings								
IR58B010	3/15/94	22	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B011	3/15/94	36.5	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B012	2/24/94	25.25	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B013	2/23/94	16	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B014	2/23/94	26	1	1	2	1	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B015	4/1/94	22	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B016	2/24/94	15.75	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B017	2/23/94	21.5	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B018	3/31/94	18.5	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B019	2/24/94	22	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B020	2/24/94	15.5	1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B021	3/16/94	17	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B022	2/24/94	17.5	1	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B023	3/31/94	15.5	1	1	1	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58B028	2/4/94	26.5	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH

TABLE 4.12-4 (CONTINUED)
IR-58 SOIL SAMPLES FROM SOIL BORINGS AND MONITORING WELL PILOT BOREHOLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	TD	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30-40	
IR58B030	1/27/94	17	0	1	2	0	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
Monitoring Wells								
IR58MW32B	3/28/96	26.5	1	1	2	2	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH
IR58MW33B	4/3/96	26	1	1	2	2	0	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, % Solids, pH

Notes:
bgs - below ground surface
IR - Installation Restoration
TD - Total Depth
Pest - Pesticides and Polychlorinated biphenyls
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.12-5
IR-58 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet bgs)	Sample Depth (feet bgs)	Sample Type	Analyses
Soil Borings					
IR58B011	3/15/94	36.5	36.5	Grab	VOCs, TPH-p, TPH-e
IR58B013	2/23/94	16	16	Grab	VOCs, TPH-p, TPH-e
IR58B014	2/23/94	26	26	Grab	VOCs, TPH-p, TPH-e
IR58B017	2/24/94	21.5	21.5	Grab	VOCs, TPH-p, TPH-e
IR58B019	2/24/94	22	22	Grab	VOCs, TPH-p, TPH-e
IR58B020	2/24/94	15.5	15.5	Grab	VOCs, TPH-p, TPH-e
IR58B021	3/16/94	17	17	Grab	VOCs, TPH-p, TPH-e
IR58B010	3/15/94	22	13	HydroPunch	VOCs, TPH-p, TPH-e
IR58B012	2/24/94	25.25	25.25	HydroPunch	VOCs, TPH-p, TPH-e
IR58B016	2/24/94	15.75	15.75	HydroPunch	VOCs, TPH-p, TPH-e
IR58B022	2/24/94	17.5	17.5	HydroPunch	VOCs, TPH-p, TPH-e
IR58B028	2/4/94	26.5	13	HydroPunch	VOCs, TPH-p, TPH-e
IR58B030	2/4/94	26.5	26.5	HydroPunch	VOCs, TPH-p, TPH-e
Monitoring Wells					
IR58MW31A	5/12/94	21.5	21.5	HydroPunch	VOCs, TPH-p, TPH-e

Notes:
bgs - below ground surface
IR - Installation Restoration
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
VOCs - Volatile Organic Compounds

TABLE 4.12-6
IR-58 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet bgs)	Well Diameter (inches)	Screened Interval (feet bgs)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR58MW24F	6/7/94	23.5	4	13.0-23.5			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	7/11/94 6/20/95 11/28/95
IR58MW25F	6/6/94	27.5	4	17.0-27.5			3	Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	7/11/94 6/20/94 12/4/95
IR58MW26A	5/26/94	22.5	4	6.0-21.5	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	6/15/94 6/16/95 11/28/95
IR58MW31A	5/11/94	21.5	4	5.0-15.5	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, pH	6/30/94 6/20/95 11/28/95
IR58MW32B	3/3/96	26.5	4	9.5-24.5		3		Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, Salinity, pH	4/17/96 5/22/96 6/24/96
IR58MW33B	5/22/96	26	4	18.0-25.0		3		Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, TRPH, Anions, TDS, Salinity, pH	4/17/96 5/23/96 6/24/96

Notes:
bgs - below ground surface
A - A-aquifer
B - B-aquifer
F - Bedrock Water-Bearing Zone
IR - Installation Restoration
Pest - Pesticides and Ploychlorinated Biphenyls
TDS - Total Dissolved Solids
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE 4.12-7

SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL TESTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA58SW06	9305X908			✓			✓		✓	✓				✓			✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.12-8

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	7,640	7,640	7,640	MG/KG	12.2	1	1	76,700	0	100,000	0		
	ARSENIC	5.1	5.1	5.1	MG/KG	0.50	1	1	0.32	1	2.0	1	11.10	0
	BARIUM	79.3	79.3	79.3	MG/KG	0.13	1	1	5,340	0	100,000	0	314.36	0
	CADMIUM	2.2	2.2	2.2	MG/KG	0.66	1	1	9.0	0	852	0	3.14	0
	CALCIUM	8,230	8,230	8,230	MG/KG	13.2	1	1						
	CHROMIUM	114	114	114	MG/KG	0.42	1	1	211	0	1,580	0	h	0
	COBALT	12.9	12.9	12.9	MG/KG	1.7	1	1					h	0
	COPPER	219	219	219	MG/KG	0.57	1	1	2,850	0	63,300	0	124.31	1
	IRON	37,000	37,000	37,000	MG/KG	5.6	1	1						
	LEAD	295	295	295	MG/KG	6.7	1	1	130	1	1,000	0	8.99	1
	MAGNESIUM	13,700	13,700	13,700	MG/KG	13.6	1	1						
	MANGANESE	472	472	472	MG/KG	0.13	1	1	382	1	8,300	0	1431.18	0
	MERCURY	0.21	0.21	0.21	MG/KG	0.06	1	1	23.0	0	511	0	2.28	0
	MOLYBDENUM	7.6	7.6	7.6	MG/KG	0.59	1	1	383	0	8,520	0	2.68	1
	NICKEL	122	122	122	MG/KG	3.8	1	1	150	0	34,100	0	h	0
	POTASSIUM	732	732	732	MG/KG	132	1	1						
	SODIUM	727	727	727	MG/KG	13.1	1	1						
	VANADIUM	32.0	32.0	32.0	MG/KG	0.39	1	1	537	0	11,900	0	117.17	0
	ZINC	610	610	610	MG/KG	0.48	1	1	23,000	0	100,000	0	109.86	1
VOC	1,2-DICHLOROETHENE (TOTAL)	0.36	0.36	0.36	MG/KG	0.055	1	1	75	0	270	0		
	CHLOROBENZENE	0.24	0.24	0.24	MG/KG	0.055	1	1	160	0	570	0		
	TOLUENE	0.007	0.007	0.007	MG/KG	0.055	1	1	1,900	0	2,700	0		

TABLE 4.12-8 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	VINYL CHLORIDE	0.063	0.063	0.063	MG/KG	0.055	1	1	0.005	1	0.011	1		
	XYLENE (TOTAL)	0.008	0.008	0.008	MG/KG	0.055	1	1	980	0	980	0		
SVOC	PHENANTHRENE	1.2	1.2	1.2	MG/KG	11	1	1	800	0	800	0		
	PHENOL	1.1	1.1	1.1	MG/KG	11	1	1	39,000	0	100,000	0		
	PYRENE	1.1	1.1	1.1	MG/KG	11	1	1	2,000	0	20,000	0		
PEST	AROCLOR-1260	19	19	19	MG/KG	3.6	1	1	0.066	1	0.34	1		
TPHPRG	TPH-PURGEABLE UNKNOWN HYDROCA.	3.1	3.1	3.1	MG/KG	1.1	1	1	100	0i				
TPHEXT	TPH-EXTRACTABLE UNKNOWN HYDRO.	3,900	3,900	3,900	MG/KG	990	1	1	1,000	1i				

TABLE 4.12-8 (Continued)

STATISTICAL SUMMARY OF STORM DRAIN SEDIMENT ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 240.110 to 240.110, 36.947 to 36.947, and 315.983 to 315.983 mg/kg respectively.

TABLE 4.12-9

SUMMARY OF SOIL ANALYTICAL TESTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B256	9426T407						√	√	√	√				√			√		√	√	√
IR28B256	9426T408						√	√	√	√				√			√		√	√	√
IR28B257	9426R365						√	√	√	√				√			√		√	√	√
IR28B257	9426R366						√	√	√	√				√			√		√	√	√
IR28B257	9426R367						√	√	√	√				√			√		√	√	√
IR28MW313F	9614J015						√	√	√	√				√			√		√	√	√
IR28MW313F	9614J016						√	√	√	√				√			√		√	√	√
IR28MW313F	9614J017						√	√	√	√				√			√		√	√	√
IR58B010	9411N480						√	√	√	√				√			√		√	√	√
IR58B010	9411N481						√	√	√	√				√			√		√	√	√
IR58B010	9411N483						√	√	√	√				√			√		√	√	√
IR58B010	9411N484						√	√	√	√				√			√		√	√	√
IR58B011	9411N476						√	√	√	√				√			√		√	√	√
IR58B011	9411N477						√	√	√	√				√			√		√	√	√
IR58B011	9411N478						√	√	√	√				√			√		√	√	√
IR58B011	9411N479						√	√	√	√				√			√		√	√	√
IR58B012	9408N419						√	√	√	√				√			√		√	√	√
IR58B012	9408N420						√	√	√	√				√			√		√	√	√
IR58B012	9408N421						√	√	√	√				√			√		√	√	√
IR58B012	9408N422						√	√	√	√				√			√		√	√	√
IR58B012	9408N424						√	√	√	√				√			√		√	√	√
IR58B013	9408G754						√	√	√	√				√			√		√	√	√
IR58B013	9408G755						√	√	√	√				√			√		√	√	√
IR58B013	9408G756						√	√	√	√				√			√		√	√	√
IR58B013	9408G757						√	√	√	√				√			√		√	√	√
IR58B014	9408G758						√	√	√	√				√			√		√	√	√
IR58B014	9408G759						√	√	√	√				√			√		√	√	√
IR58B014	9408G760						√	√	√	√				√			√		√	√	√
IR58B014	9408G761						√	√	√	√				√			√		√	√	√
IR58B014	9408G763						√	√	√	√				√			√		√	√	√
IR58B015	9413A735						√	√	√	√				√			√		√	√	√
IR58B015	9413A736						√	√	√	√				√			√		√	√	√
IR58B015	9413A737						√	√	√	√				√			√		√	√	√
IR58B015	9413A738						√	√	√	√				√			√		√	√	√
IR58B016	9408N409						√	√	√	√				√			√		√	√	√
IR58B016	9408N410						√	√	√	√				√			√		√	√	√
IR58B016	9408N411						√	√	√	√				√			√		√	√	√

TABLE 4.12-9 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR58B016	9408N412						√	√	√	√				√			√		√	√	√
IR58B017	9408A492						√	√	√	√				√			√		√	√	√
IR58B017	9408A493						√	√	√	√				√			√		√	√	√
IR58B017	9408A494						√	√	√	√				√			√		√	√	√
IR58B017	9408A495						√	√	√	√				√			√		√	√	√
IR58B018	9413A724						√	√	√	√				√			√		√	√	√
IR58B018	9413A725						√	√	√	√				√			√		√	√	√
IR58B018	9413A726						√	√	√	√				√			√		√	√	√
IR58B018	9413A727						√	√	√	√				√			√		√	√	√
IR58B019	9408A499						√	√	√	√				√			√		√	√	√
IR58B019	9408A500						√	√		√				√			√		√	√	√
IR58B019	9408A501						√	√	√	√				√			√		√	√	√
IR58B019	9408A502						√	√	√	√				√			√		√	√	√
IR58B020	9408A503						√	√	√	√				√			√		√	√	√
IR58B020	9408A504						√	√	√	√				√			√		√	√	√
IR58B020	9408A505						√	√	√	√				√			√		√	√	√
IR58B021	9411N487						√	√	√	√				√			√		√	√	√
IR58B021	9411N488						√	√	√	√				√			√		√	√	√
IR58B021	9411N489						√	√	√	√				√			√		√	√	√
IR58B021	9411N490						√	√	√	√				√			√		√	√	√
IR58B022	9408N413						√	√	√	√				√			√		√	√	√
IR58B022	9408N414						√	√	√	√				√			√		√	√	√
IR58B022	9408N415						√	√	√	√				√			√		√	√	√
IR58B022	9408N417						√	√	√	√				√			√		√	√	√
IR58B023	9413A714						√	√	√	√				√			√		√	√	√
IR58B023	9413A715						√	√	√	√				√			√		√	√	√
IR58B023	9413A716						√	√	√	√				√			√		√	√	√
PA58SS01	9305X911						√		√	√				√			√		√		√
PA58SS02	9305X910						√			√				√			√		√		√
PA58SS03	9305X913						√		√	√				√			√		√		√
PA58SS04	9305X909						√		√	√				√			√		√		√
PA58SS05	9305X912						√			√				√			√		√		√
PA58SS07	9305X914						√		√	√				√			√		√		√
PA58SS08	9305X915						√		√	√				√			√		√		√

TABLE 4.12-9 (Continued)

SUMMARY OF SOIL ANALYTICAL TESTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.12-10

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	686	76,900	13,100	MG/KG	6.5	71	71	76,700	1	100,000	0		
	ANTIMONY	1.2	48.3	6.8	MG/KG	0.92	71	26	30.7	1	681	0	9.05	3
	ARSENIC	0.28	14.2	2.6	MG/KG	0.30	71	54	0.32	53	2.0	30	11.10	1
	BARIUM	3.4	486	125	MG/KG	0.81	71	71	5,340	0	100,000	0	314.36	3
	BERYLLIUM	0.20	1.1	0.39	MG/KG	0.02	71	16	0.14	16	1.1	0	0.71	1
	CADMIUM	0.08	7.5	1.6	MG/KG	0.12	71	30	9.0	0	852	0	3.14	6
	CALCIUM	186	58,300	7,630	MG/KG	19.0	71	71						
	CHROMIUM	43.1	2,000	395	MG/KG	0.37	71	71	211	32	1,580	2	h	14
	COBALT	6.6	192	56.5	MG/KG	0.61	71	71					h	8
	COPPER	4.6	417	40.5	MG/KG	0.18	71	66	2,850	0	63,300	0	124.31	4
	IRON	14,100	166,000	41,600	MG/KG	3.9	71	71						
	LEAD	1.4	642	50.4	MG/KG	0.80	71	53	130	5	1,000	0	8.99	15
	MAGNESIUM	2,630	528,000	94,300	MG/KG	38.6	71	71						
	MANGANESE	141	3,150	931	MG/KG	0.18	71	71	382	58	8,300	0	1431.18	11
	MERCURY	0.02	29.2	1.1	MG/KG	0.04	71	39	23.0	1	511	0	2.28	2
	MOLYBDENUM	0.71	34.4	12.3	MG/KG	0.30	71	3	383	0	8,520	0	2.68	1
	NICKEL	40.2	4,350	943	MG/KG	1.5	71	71	150	56	34,100	0	h	19
	POTASSIUM	22.1	1,520	638	MG/KG	61.5	71	37						
	SILVER	0.11	0.89	0.34	MG/KG	0.11	71	4	383	0	8,520	0	1.43	0
	SODIUM	63.6	1,950	374	MG/KG	24.0	71	29						
	VANADIUM	9.1	321	53.9	MG/KG	0.48	71	71	537	0	11,900	0	117.17	5
	ZINC	10.3	1,190	85.5	MG/KG	0.50	71	70	23,000	0	100,000	0	109.86	9

TABLE 4.12-10 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
VOC	2-HEXANONE	0.006	0.006	0.006	MG/KG	0.010	71	1						
	4-METHYL-2-PENTANONE	0.008	0.031	0.020	MG/KG	0.010	71	2	5,200	0	55,000	0		
	ACETONE	0.002	0.002	0.002	MG/KG	0.011	71	1	2,000	0	8,400	0		
	BENZENE	0.002	0.002	0.002	MG/KG	0.012	71	1	1.4	0	3.2	0		
	ETHYLBENZENE	0.004	0.008	0.007	MG/KG	0.028	71	3	2,900	0	3,100	0		
	TETRACHLOROETHENE	0.088	0.088	0.088	MG/KG	0.010	71	1	7.0	0	25	0		
	TOLUENE	0.010	0.011	0.011	MG/KG	0.032	71	2	1,900	0	2,700	0		
	XYLENE (TOTAL)	0.036	0.042	0.039	MG/KG	0.015	71	2	980	0	980	0		
SVOC	2-METHYLNAPHTHALENE	0.18	40	19	MG/KG	85	71	3	800	0	800	0		
	BENZO(A)ANTHRACENE	0.10	0.10	0.10	MG/KG	0.39	70	1	0.61	0	2.6	0		
	BENZO(A)PYRENE	0.15	0.26	0.21	MG/KG	0.37	70	2	0.061	2	0.26	0		
	BENZO(B)FLUORANTHENE	0.14	0.50	0.32	MG/KG	1.6	70	2	0.61	0	2.6	0		
	BENZO(K)FLUORANTHENE	0.096	0.096	0.096	MG/KG	0.39	70	1	0.61	0	26	0		
	CHRYSENE	0.11	0.44	0.28	MG/KG	1.2	71	3	6.1	0	24	0		
	DI-N-BUTYLPHTHALATE	0.14	0.14	0.14	MG/KG	0.37	71	1	6,500	0	68,000	0		
	FLUORANTHENE	0.020	0.86	0.19	MG/KG	0.93	71	7	2,600	0	27,000	0		
	FLUORENE	12	12	12	MG/KG	82	71	1	300	0	300	0		
	NAPHTHALENE	0.044	0.044	0.044	MG/KG	1.8	71	1	800	0	800	0		
	PHENANTHRENE	0.038	32	7.7	MG/KG	34	71	8	800	0	800	0		
	PHENOL	1.2	1.2	1.2	MG/KG	11	71	1	39,000	0	100,000	0		
	PYRENE	0.040	0.65	0.23	MG/KG	0.93	71	7	2,000	0	20,000	0		
PEST	4,4'-DDE	0.002	0.002	0.002	MG/KG	0.004	67	1	1.3	0	5.6	0		

TABLE 4.12-10 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	4,4'-DDT	0.003	0.038	0.015	MG/KG	0.004	68	3	1.3	0	5.6	0		
	DIELDRIN	0.003	0.045	0.017	MG/KG	0.004	68	3	0.028	1	0.12	0		
	HEPTACHLOR EPOXIDE	0.030	0.093	0.062	MG/KG	0.10	67	2	0.049	1	0.21	0		
	AROCLOR-1242	1.2	1.2	1.2	MG/KG	0.34	67	1						
	AROCLOR-1254	1.5	1.5	1.5	MG/KG	0.34	67	1	1.4	1	19	0		
TPHPRG	TPH-GASOLINE	1.3	1.3	1.3	MG/KG	0.53	71	1	100	0i				
	TPH-PURGEABLE UNKNOWN HYDROCA.	3.4	440	190	MG/KG	13	13	3	100	2i				
TPHEXT	TPH-DIESEL	7.6	40,000	20,000	MG/KG	2,500	70	2	1,000	1i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	32	22,000	6,200	MG/KG	670	7	6	1,000	4i				
	TPH-MOTOR OIL	5.8	7,100	730	MG/KG	180	64	21	1,000	3i				
TRPH	TRPH	2.9	6,400	500	MG/KG	83	64	30	1,000	4i				

TABLE 4.12-10 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 77.088 to 2978.233, 15.728 to 245.211, and 66.170 to 10099.427 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.12-11

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28MW313F	9616J028	√					√		√	√		√	√	√			√		√	√	√
IR28MW313F	9621J155	√					√		√	√		√	√	√			√		√	√	√
IR28MW313F	9627J353	√					√		√	√		√	√	√			√		√	√	√
IR58MW24F	9428E055																		√		√
IR58MW24F	9428E057						√		√	√				√			√			√	
IR58MW24F	9525X715																		√		√
IR58MW24F	9525X719	√					√		√	√			√	√			√			√	
IR58MW24F	9548B134																		√		√
IR58MW24F	9548B136						√		√	√				√			√			√	
IR58MW25F	9428E056																		√		√
IR58MW25F	9428E058						√		√	√				√			√			√	
IR58MW25F	9525X716																		√		√
IR58MW25F	9525X720	√					√		√	√			√	√			√			√	
IR58MW25F	9549B149																		√		√
IR58MW25F	9549B153						√		√	√				√			√			√	
IR58MW26A	9424E016						√		√	√				√			√		√	√	√
IR58MW26A	9524X700	√					√		√	√			√	√			√		√	√	√
IR58MW26A	9524X701	√					√		√	√			√	√			√		√	√	√
IR58MW26A	9548B132						√		√	√				√			√		√	√	√
IR58MW26A	9548B133						√		√	√				√			√		√	√	√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.12-12A

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	BARIUM	10.8	22.5	16.6	UG/L	1.2	3	2	2,600	0	1,000	0			504	0
	CALCIUM	14,300	14,300	14,300	UG/L	7.0	3	1								
	COBALT	0.99	2.2	1.4	UG/L	0.47	3	3							20.8	0
	IRON	326	326	326	UG/L	13.8	3	1							2,380	0
	MAGNESIUM	28,700	36,700	32,600	UG/L	51.2	3	3							1,440,000	0
	MANGANESE	617	1,720	1,340	UG/L	0.23	3	3	180	3					8,140	0
	MOLYBDENUM	1.1	1.1	1.1	UG/L	0.70	3	1	180	0					61.9	0
	NICKEL	3.3	10.2	6.8	UG/L	1.0	3	2	730	0	100	0	8.2	1	96.5	0
	POTASSIUM	484	2,930	1,330	UG/L	213	3	3							448,000	0
	SODIUM	28,500	127,000	63,800	UG/L	117	3	3							9,240,000	0
	VANADIUM	3.6	3.6	3.6	UG/L	0.50	3	1	260	0					26.6	0
VOC	1,2-DICHLOROETHENE (TOTAL.	3	3	3	UG/L	10	3	1	55	0						
	CHLOROBENZENE	7	7	7	UG/L	10	3	1	39	0	70	0				
	TETRACHLOROETHENE	3	3	3	UG/L	10	3	1	1	1	5	0				
	TRICHLOROETHENE	2	2	2	UG/L	10	3	1	2	1	5	0				
SVOC	1,3-DICHLOROBENZENE	0.8	0.8	0.8	UG/L	5	3	1								
	1,4-DICHLOROBENZENE	2	2	2	UG/L	5	3	1	0.5	1	5	0				
TPHEXT	TPH-DIESEL	74	74	74	UG/L	100	3	1	100	0i						
	TPH-MOTOR OIL	200	600	420	UG/L	400	3	3	100	3i						
ANION	SULFATE	20,900	20,900	20,900	UG/L	100	1	1								
SOLIDS	TOTAL DISSOLVED SOLIDS	261,000	261,000	261,000	UG/L	10,000	1	1								

TABLE 4.12-12A (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER A-AQUIFER ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.12-12B

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ARSENIC	1.5	4.3	3.1	UG/L	2.2	9	8	0.04	8	50.0	0	36.0	0		
	BARIUM	3.8	42.3	17.5	UG/L	0.44	9	7	2,600	0	1,000	0				
	CALCIUM	11,600	51,600	28,800	UG/L	25.7	9	8								
	CHROMIUM	19.3	63.1	37.3	UG/L	0.76	9	8			50.0	3				
	COBALT	0.83	0.83	0.83	UG/L	0.70	9	1								
	MAGNESIUM	53,100	266,000	138,000	UG/L	26.5	9	9								
	MANGANESE	3.0	3.5	3.3	UG/L	0.15	9	2	180	0						
	MERCURY	0.16	0.16	0.16	UG/L	0.10	9	1	11.0	0	2.0	0	0.03	1		
	NICKEL	1.2	48.5	23.3	UG/L	1.6	9	3	730	0	100	0	8.2	2		
	POTASSIUM	1,450	15,200	8,110	UG/L	180	9	7								
	SELENIUM	32.7	34.9	33.5	UG/L	3.2	9	3	180	0	50.0	0	71.0	0		
	SODIUM	34,100	233,000	114,000	UG/L	79.1	9	8								
	VANADIUM	1.0	5.7	3.3	UG/L	0.80	9	8	260	0						
	ZINC	15.3	20.3	17.8	UG/L	0.30	9	2	11,000	0			81.0	0		
VOC	TRICHLOROETHENE	0.1	0.1	0.1	UG/L	0.5	9	1	2	0	5	0				
TPHEXT	TPH-DIESEL	63	90	75	UG/L	100	9	3	100	0i						
	TPH-MOTOR OIL	95	780	430	UG/L	100	9	4	100	3i						
TRPH	TRPH	1,000	1,000	1,000	UG/L	1,000	9	1	100	1i						
ANION	CHLORIDE	57,500	237,000	145,000	UG/L	2,840	5	5								
	NITRATE	5,000	35,100	11,700	UG/L	92.0	5	5	58,000	0						
	ORTHOPHOSPHATE	83.0	210	147	UG/L	50.0	5	2								
	SULFATE	5,500	669,000	142,000	UG/L	1,090	5	5								

TABLE 4.12-12B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
SOLIDS	TOTAL DISSOLVED SOLIDS	368,000	1,970,000	776,000	UG/L	10,000	5	5								
SALIN	SALINITY	0.23	0.25	0.24	PPT	0.005	3	3								

TABLE 4.12-12B (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER BEDROCK WATER-BEARING ZONE ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.12-13

SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL TESTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR58B010	9411N485																✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.12-14

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
VOC	1,2-DICHLOROBENZENE	19	19	19	UG/L	1	1	1	370	0	600	0				
	1,3-DICHLOROBENZENE	3	3	3	UG/L	1	1	1								
	1,4-DICHLOROBENZENE	9	9	9	UG/L	1	1	1	0.5	1	5	1				
	CHLOROBENZENE	14	14	14	UG/L	1	1	1	39	0	70	0				
	CIS-1,2-DICHLOROETHENE	4	4	4	UG/L	1	1	1	61	0	6	0				
	TETRACHLOROETHENE	0.6	0.6	0.6	UG/L	1	1	1	1	0	5	0				
	TRANS-1,2-DICHLOROETHENE	1	1	1	UG/L	1	1	1	120	0	10	0				
	TRICHLOROETHENE	2	2	2	UG/L	1	1	1	2	1	5	0				
	TRICHLOROFLUOROMETHANE	0.6	0.6	0.6	UG/L	1	1	1	1,300	0						
	VINYL CHLORIDE	0.7	0.7	0.7	UG/L	1	1	1	0.02	1	0.5	1				
TPHPRG	TPH-GASOLINE	59	59	59	UG/L	50	1	1	100	0i						
TPHEXT	TPH-MOTOR OIL	110	110	110	UG/L	100	1	1	100	1i						

TABLE 4.12-14 (Continued)

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
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TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.12-15

SUMMARY OF GRAB GROUNDWATER ANALYTICAL TESTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR28B256	9427C340																✓		✓		✓
IR28B257	9427R368																✓		✓		✓
IR58B011	9411N482																✓		✓		✓
IR58B012	9408N423																✓		✓		✓
IR58B013	9408N408																✓		✓		✓
IR58B014	9408N407																✓		✓		✓
IR58B016	9408N418																✓		✓		✓
IR58B017	9408A496																✓		✓		✓
IR58B019	9408A508																✓		✓		✓
IR58B020	9408A506																✓		✓		✓
IR58B021	9411N498																✓		✓		✓
IR58B022	9408N416																✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.12-16

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
VOC	1,2-DICHLOROBENZENE	7	7	7	UG/L	1	12	1	370	0	600	0				
	1,4-DICHLOROBENZENE	2	2	2	UG/L	1	12	1	0.5	1	5	0				
	CHLOROBENZENE	0.6	0.6	0.6	UG/L	1	12	1	39	0	70	0				
	CIS-1,2-DICHLOROETHENE	4	4	4	UG/L	1	12	1	61	0	6	0				
	TETRACHLOROETHENE	2	2	2	UG/L	1	12	1	1	1	5	0				
	TRANS-1,2-DICHLOROETHENE	0.6	0.6	0.6	UG/L	1	12	1	120	0	10	0				
	TRICHLOROETHENE	14	14	14	UG/L	1	12	1	2	1	5	1				
	TRICHLOROFLUOROMETHANE	23	23	23	UG/L	1	12	1	1,300	0						
TPHPRG	TPH-GASOLINE	30	43	39	UG/L	50	12	3	100	0i						
TPHEXT	TPH-DIESEL	80	680	340	UG/L	100	12	3	100	2i						
	TPH-MOTOR OIL	88	530	210	UG/L	110	12	9	100	8i						

TABLE 4.12-16 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-58
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.13-1
IR-63 RI FIELD ACTIVITIES SUMMARY
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	Hydro-Punch	Grab	
Soil Borings	1	NA	NA	NA	NA	NA	NA
Surface Soil Samples	2	NA	2	NA	NA	NA	NA

Note:

NA = Not applicable

TABLE 4.13-2
IR-63 SURFACE SOIL SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Sample Name	Date Sampled	Location	Analyses
IR63SS02	5/22/96	Inside former Building 278	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH
IR63SS03	5/22/96	Inside former Building 278	Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, % moisture, pH

Notes:

IR - Installation Restoration
NA - Not applicable
Pest - Pesticides and Polychlorinated Biphenyls
SVOCs - Semivolatile Organic Compounds
TPH-e - Total Petroleum Hydrocarbons Extractable
TPH-p - Total Petroleum Hydrocarbons Purgeable
TRPH - Total Recoverable Petroleum Hydrocarbons
VOCs - Volatile Organic Compounds

TABLE 4.13-3

SUMMARY OF SOIL ANALYTICAL TESTS - IR-63
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR63SS02	9621J142						✓	✓	✓	✓				✓			✓		✓	✓	
IR63SS02	9627J349							✓													✓
IR63SS03	9621J143						✓	✓	✓	✓				✓			✓		✓	✓	
IR63SS03	9627J350							✓													✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.13-4

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-63
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	29,900	53,600	41,800	MG/KG	4.8	2	2	76,700	0	100,000	0		
	ANTIMONY	2.0	2.5	2.3	MG/KG	0.29	2	2	30.7	0	681	0	9.05	0
	ARSENIC	2.3	3.0	2.7	MG/KG	0.31	2	2	0.32	2	2.0	2	11.10	0
	BARIUM	263	638	451	MG/KG	0.19	2	2	5,340	0	100,000	0	314.36	1
	CALCIUM	14,400	15,500	15,000	MG/KG	3.2	2	2						
	CHROMIUM	313	345	329	MG/KG	0.17	2	2	211	2	1,580	0	h	0
	COBALT	38.4	43.3	40.9	MG/KG	0.12	2	2					h	0
	COPPER	36.5	38.4	37.5	MG/KG	0.19	2	2	2,850	0	63,300	0	124.31	0
	IRON	40,300	47,300	43,800	MG/KG	3.0	2	2						
	LEAD	7.2	8.0	7.6	MG/KG	0.24	2	2	130	0	1,000	0	8.99	0
	MAGNESIUM	58,700	160,000	109,000	MG/KG	3.1	2	2						
	MANGANESE	967	1,150	1,060	MG/KG	0.05	2	2	382	2	8,300	0	1431.18	0
	NICKEL	392	949	671	MG/KG	0.22	2	2	150	2	34,100	0	h	0
	POTASSIUM	443	1,150	797	MG/KG	6.9	2	2						
	SODIUM	1,280	1,280	1,280	MG/KG	26.7	2	1						
	THALLIUM	1.1	1.1	1.1	MG/KG	0.41	2	1					0.81	1
	VANADIUM	93.8	109	101	MG/KG	0.17	2	2	537	0	11,900	0	117.17	0
	ZINC	80.0	93.8	86.9	MG/KG	0.69	2	2	23,000	0	100,000	0	109.86	0
TPHEXT	TPH-DIESEL	18	18	18	MG/KG	12	2	1	1,000	0i				
	TPH-MOTOR OIL	27	72	50	MG/KG	12	2	2	1,000	0i				
TRPH	TRPH	170	200	190	MG/KG	12	2	2	1,000	0i				

TABLE 4.13-4 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-63
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 654.679 to 1307.162, 78.527 to 132.050, and 1256.237 to 3252.806 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.14-1
IR-64 RI FIELD ACTIVITIES SUMMARY
HUNTERS POINT SHIPYARD
PARCEL C REMEDIAL INVESTIGATION

Task	Number of Sampling Stations	Number of Samples/Tests					
		Source	Soil	Groundwater			Aquifer
				Monitoring Well	Hydro-Punch	Grab	
Soil Borings	4	NA	14	NA	2	NA	A
Monitoring Well Samples	1	NA	NA	3	NA	NA	NA
Aquifer Tests	1	NA	NA	NA	NA	NA	A

Notes:

NA = Not applicable

Sampling stations include samples collected for each site investigation, and do not reflect the sample reassociation that was done for the calculation of human health risk.

TABLE 4.14-2
IR-64 SOIL SAMPLES FROM SOIL BORINGS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Boring or Well Name	Date Drilled and Sampled	TD	Sample Depth (feet bgs)					Analyses
			0-2	2-10	10-20	20-30	30+	
Soil Borings								
IR64B002	9/11/95	21.0	1	1	2	1		Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR64B001	9/12/95	11.5	1	1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR64B003	9/13/95	11.5	1	1	1			Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH
IR64B004	9/13/95	10.0	1	2				Metals, Pest, VOCs, SVOCs, TRPH, TPH-e, TPH-p, pH

Notes:
bgs - below ground surface
IR - Installation Restoration
TD - Total Depth
Pest - Pesticides and PCBs
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
TRPH - Total Recoverable Purgable Hydrocarbons
TPH-p - Total Recoverable Hydrocarbons Purgeable
TPH-e - Total Recoverable Hydrocarbons Extractable

TABLE 4.14-3
IR-64 GRAB AND HYDROPUNCH GROUNDWATER SAMPLES
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Station Name	Date Drilled	Total Depth (feet bgs)	Sample Depth (feet bgs)	Sample Type	Analyses
Soil Borings					
IR64B001	9/12/95	11.5	8.75	HydroPunch	VOCs, TPH-e, TPH-p
IR64B003	9/13/95	11.5	8.75	HydroPunch	VOCs, TPH-e, TPH-p

NOTES:

bgs - below ground surface

IR - Installation Restoration

VOCs - Volatile Organic Compounds

TPH-p - Total Recoverable Hydrocarbons Purgeable

TPH-e - Total Recoverable Hydrocarbons Extractable

TABLE 4.14-4
IR-64 GROUNDWATER SAMPLES FROM MONITORING WELLS
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Well Name	Date Installed	Total Depth (feet bgs)	Well Diameter (inches)	Screened Interval (feet bgs)	Number of Samples			Analyses	Dates Sampled
					Aquifer				
					A	B	F		
IR64MW05A	9/20/95	10.5	4	5.0-10.0	3			Metals, Pest, VOCs, SVOCs, TPH-e, TPH-p, pH	11/17/95 11/20/95 3/5/96

NOTES:

bgs - below ground surface

A - A -aquifier

B - B-aquifier

F - Bedrock water-bearing zone

IR - Installation Restoration

Pest - Pesticides and PCBs

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

TPH-p - Total Recoverable Hydrocarbons Purgable

TPH-e - Total Recoverable Hydrocarbons Extractable

TABLE 4.14-5

SUMMARY OF SOIL ANALYTICAL TESTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR64B001	9537J216						√	√	√	√				√			√		√	√	
IR64B001	9537J217						√	√	√	√				√			√		√	√	√
IR64B001	9537J219						√	√	√	√				√			√		√	√	√
IR64B002	9537J201						√	√	√	√				√			√		√	√	
IR64B002	9537J202						√	√	√	√				√			√		√	√	√
IR64B002	9537J203						√	√	√	√				√			√		√	√	√
IR64B002	9537J204						√	√	√	√				√			√		√	√	√
IR64B002	9537J205						√	√	√	√				√			√		√	√	√
IR64B003	9537J221						√	√	√	√				√			√		√	√	
IR64B003	9537J222						√	√	√	√				√			√		√	√	√
IR64B003	9537J224						√	√	√	√				√			√		√	√	√
IR64B004	9537J213						√	√	√	√				√			√		√	√	
IR64B004	9537J214						√	√	√	√				√			√		√	√	√
IR64B004	9537J215						√	√	√	√				√			√		√	√	√
PA49TA08	9307H418						√			√				√			√		√	√	√

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.14-6

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
METAL	ALUMINUM	3,640	22,900	9,200	MG/KG	1.9	15	15	76,700	0	100,000	0		
	ANTIMONY	0.68	8.5	2.4	MG/KG	0.71	15	12	30.7	0	681	0	9.05	0
	ARSENIC	0.68	52.6	9.6	MG/KG	0.72	15	10	0.32	10	2.0	9	11.10	1
	BARIUM	4.2	477	120	MG/KG	0.12	15	14	5,340	0	100,000	0	314.36	2
	CADMIUM	0.04	0.19	0.11	MG/KG	0.05	15	7	9.0	0	852	0	3.14	0
	CALCIUM	969	157,000	24,100	MG/KG	2.5	15	15						
	CHROMIUM	69.2	1,070	470	MG/KG	0.18	15	15	211	9	1,580	0	h	1
	COBALT	20.4	91.4	44.5	MG/KG	0.28	15	15					h	1
	COPPER	10.7	122	34.8	MG/KG	0.24	15	15	2,850	0	63,300	0	124.31	0
	IRON	18,200	42,000	28,600	MG/KG	3.5	15	15						
	LEAD	3.4	72.0	18.1	MG/KG	0.72	15	15	130	0	1,000	0	8.99	7
	MAGNESIUM	4,540	238,000	106,000	MG/KG	1.5	15	15						
	MANGANESE	306	2,350	944	MG/KG	0.09	15	15	382	13	8,300	0	1431.18	3
	MERCURY	0.11	1.8	0.65	MG/KG	0.06	15	6	23.0	0	511	0	2.28	0
	MOLYBDENUM	2.0	2.0	2.0	MG/KG	0.47	15	1	383	0	8,520	0	2.68	0
	NICKEL	94.9	1,640	766	MG/KG	0.97	15	15	150	14	34,100	0	h	2
	POTASSIUM	22.0	4,430	1,600	MG/KG	13.0	15	14						
	SODIUM	35.3	5,050	1,170	MG/KG	31.2	15	15						
	VANADIUM	20.2	95.4	42.9	MG/KG	0.23	15	15	537	0	11,900	0	117.17	0
	ZINC	27.1	174	58.0	MG/KG	0.34	15	15	23,000	0	100,000	0	109.86	1
VOC	BROMOMETHANE	0.0003	0.0003	0.0003	MG/KG	0.011	11	1	15	0	57	0		
	CARBON DISULFIDE	0.0003	0.045	0.017	MG/KG	0.015	11	4	16	0	52	0		

TABLE 4.14-6 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]							
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Residential PRG Value	Above[e] Res PRG	Industrial PRG Value	Above[f] Ind PRG	HPAL Value	Above[g] HPAL
	CHLOROBENZENE	0.0002	0.0002	0.0002	MG/KG	0.011	11	1	160	0	570	0		
	TETRACHLOROETHENE	0.012	0.012	0.012	MG/KG	0.011	11	1	7.0	0	25	0		
	TOLUENE	0.0003	0.0003	0.0003	MG/KG	0.011	11	1	1,900	0	2,700	0		
SVOC	BENZO(A)ANTHRACENE	0.049	0.049	0.049	MG/KG	0.42	15	1	0.61	0	2.6	0		
	BENZO(A)PYRENE	0.060	0.060	0.060	MG/KG	0.42	15	1	0.061	0	0.26	0		
	BENZO(B)FLUORANTHENE	0.099	0.099	0.099	MG/KG	0.42	15	1	0.61	0	2.6	0		
	BENZO(K)FLUORANTHENE	0.044	0.044	0.044	MG/KG	0.42	15	1	0.61	0	26	0		
	CHRYSENE	0.061	0.061	0.061	MG/KG	0.42	15	1	6.1	0	24	0		
	FLUORANTHENE	0.068	0.12	0.091	MG/KG	0.38	15	3	2,600	0	27,000	0		
	PHENANTHRENE	0.15	0.15	0.15	MG/KG	0.37	15	1	800	0	800	0		
	PYRENE	0.053	0.17	0.13	MG/KG	0.38	15	3	2,000	0	20,000	0		
TPHEXT	TPH-DIESEL	8.1	8.1	8.1	MG/KG	11	15	1	1,000	0i				
	TPH-EXTRACTABLE UNKNOWN HYDRO.	17	17	17	MG/KG	13	1	1	1,000	0i				
	TPH-MOTOR OIL	15	490	99	MG/KG	20	14	7	1,000	0i				
TRPH	TRPH	14	360	100	MG/KG	14	15	8	1,000	0i				

TABLE 4.14-6 (Continued)

STATISTICAL SUMMARY OF SOIL ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HPAL	Hunters Point ambient level
MG/KG	Milligram per kilogram
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PHYS	Physical characteristic
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compound

a Organic results of less than 0.01 are reported to one significant figure, and results of greater than or equal to 0.01 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than residential PRG

f Total number of samples showing concentrations greater than industrial PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

g Total number of samples showing concentrations greater than HPAL

h HPALs for chromium, cobalt, and nickel are based on the concentration of magnesium in each sample; thus, no single value applies to all samples. The range of HPAL values for chromium, cobalt, and nickel are 112.166 to 1718.995, 20.850 to 162.234, and 110.866 to 4741.441 mg/kg respectively.

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

TABLE 4.14-7

SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL TESTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR64MW05A	9546W187																		✓		✓
IR64MW05A	9547W189						✓		✓	✓				✓			✓			✓	
IR64MW05A	9610W135						✓		✓	✓				✓			✓		✓	✓	✓
IR64MW05A	9619J101									✓									✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.14-8

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
METAL	ANTIMONY	1.7	1.7	1.7	UG/L	1.6	2	1	15.0	0	6.0	0	500	0	43.3	0
	ARSENIC	5.1	5.1	5.1	UG/L	1.4	2	1	0.04	1	50.0	0	36.0	0	27.3	0
	BARIUM	103	135	119	UG/L	0.35	2	2	2,600	0	1,000	0			504	0
	CALCIUM	76,900	112,000	94,500	UG/L	11.2	2	2								
	CHROMIUM	8.2	8.2	8.2	UG/L	0.40	2	1			50.0	0			15.7	0
	COBALT	4.2	4.2	4.2	UG/L	0.50	2	1							20.8	0
	IRON	15.0	15.0	15.0	UG/L	13.8	2	1							2,380	0
	MAGNESIUM	359,000	572,000	466,000	UG/L	26.0	2	2							1,440,000	0
	MANGANESE	428	625	527	UG/L	0.20	2	2	180	2					8,140	0
	MOLYBDENUM	5.1	9.8	7.5	UG/L	0.90	2	2	180	0					61.9	0
	NICKEL	9.6	22.2	15.9	UG/L	1.0	2	2	730	0	100	0	8.2	2	96.5	0
	POTASSIUM	78,700	117,000	97,900	UG/L	1,740	2	2							448,000	0
	SODIUM	1,830,000	2,950,000	2,390,000	UG/L	126	2	2							9,240,000	0
	THALLIUM	3.6	3.6	3.6	UG/L	1.9	2	1			2.0	1			13.0	0
	VANADIUM	4.1	6.1	5.1	UG/L	0.60	2	2	260	0					26.6	0
VOC	1,2-DICHLOROETHENE (TOTAL.	2	4	3	UG/L	0.5	3	3	55	0						
	CARBON DISULFIDE	2	2	2	UG/L	0.5	3	1	21	0						
	TETRACHLOROETHENE	0.2	0.9	0.6	UG/L	0.5	3	3	1	0	5	0				
	TRICHLOROETHENE	0.3	0.5	0.4	UG/L	0.5	3	3	2	0	5	0				
	VINYL CHLORIDE	0.4	1	0.7	UG/L	0.5	3	2	0.02	2	0.5	1				
TPHEXT	TPH-DIESEL	120	120	120	UG/L	100	2	1	100	1i						
	TPH-MOTOR OIL	130	130	130	UG/L	100	2	1	100	1i						

TABLE 4.14-8 (Continued)

STATISTICAL SUMMARY OF MONITORING WELL GROUNDWATER ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.14-9

SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL TESTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
IR64B001	9537J218																✓		✓		✓
IR64B003	9537J223																✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.14-10

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
VOC	CIS-1,2-DICHLOROETHENE	0.4	0.4	0.4	UG/L	0.5	2	1	61	0	6	0				
	TETRACHLOROETHENE	4	4	4	UG/L	0.5	2	1	1	1	5	0				
	TRICHLOROETHENE	0.7	0.7	0.7	UG/L	0.5	2	1	2	0	5	0				
TPHPRG	TPH-GASOLINE	160	160	160	UG/L	50	2	1	100	1i						
TPHEXT	TPH-DIESEL	340	390	370	UG/L	100	2	2	100	2i						
	TPH-MOTOR OIL	130	400	270	UG/L	100	2	2	100	2i						

TABLE 4.14-10 (Continued)

STATISTICAL SUMMARY OF HYDROPUNCH GROUNDWATER ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

TABLE 4.14-11

SUMMARY OF GRAB GROUNDWATER ANALYTICAL TESTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

STATION NO.	SAMPLE NO.	ANION	ASBESTOS	CHROM	CYAN	HYDRAZINE	METAL	PCTMST	PEST	PH	PHYS	SALIN	SOLIDS	SVOC	TMICROB	TOC	TPHEXT	TPHOS	TPHPRG	TRPH	VOC
PA28B04A1	9408X217																✓		✓		✓

Notes:

CHROM	CHROMIUM VI
CYAN	Cyanide
PCTMST	Percent moisture
PEST	Pesticides/polychlorinated biphenyls
PHYS	Physical characteristic
SALIN	Salinity
SVOC	Semivolatile organic compounds
SOLIDS	Total dissolved solids
TOC	Total organic carbon
TMICROB	Coliform
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
VOC	Volatile organic compounds

TABLE 4.14-12

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Analysis Code	Analyte	Detected Results[a]				Detection Limit Average	Detection Frequency[b]									
		Minimum	Maximum	Average	Units		Samples Analyzed[c]	Total Detects[d]	Tap Water PRG Value	Above[e] PRG	MCL[f] Value	Above[g] MCL	NAWQC Value	Above[h] NAWQC	HGAL Value	Above[k] HGAL
VOC	TETRACHLOROETHENE	0.4	0.4	0.4	UG/L	1	1	1	1	0	5	0				
TPHPRG	TPH-GASOLINE	30	30	30	UG/L	50	1	1	100	0i						
TPHEXT	TPH-MOTOR OIL	300	300	300	UG/L	100	1	1	100	1i						

TABLE 4.14-12 (Continued)

STATISTICAL SUMMARY OF GRAB GROUNDWATER ANALYTICAL RESULTS - IR-64
HUNTERS POINT SHIPYARD, PARCEL C REMEDIAL INVESTIGATION

Notes:

CYAN	Cyanide
EPA	U.S. Environmental Protection Agency
HGAL	Hunters Point groundwater ambient level (HGAL is only applicable to groundwater from the A-aquifer.)
MCL	Maximum contaminant level
NAWQC	National Ambient Water Quality Criteria
PCTMST	Percent moisture
PEST	Pesticide/polychlorinated biphenyl
PPT	Parts per thousand
PRG	Preliminary remediation goal
SALIN	Salinity
SVOC	Semivolatile organic compound
TMICROB	Coliform
TOC	Total organic carbon
TPHEXT	Total petroleum hydrocarbons-extractable
TPHPRG	Total petroleum hydrocarbons-purgeable
TRPH	Total recoverable petroleum hydrocarbons
UG/L	Microgram per liter
VOC	Volatile organic compound

a Organic results of less than 10 are reported to one significant figure, and results of greater than or equal to 10 are reported to two significant figures. Inorganic results of less than 10 are reported to two significant figures, and results of greater than or equal to 10 are reported to three significant figures. Values that are not nondetects are compared to screening criteria before the significant figure rule is applied. Both the value and the screening criteria are then rounded for reporting purposes.

b Blank boxes indicate that screening critera have not been established for these analytes.

c Total number of samples analyzed

d Total number of samples showing concentrations greater than detection limit

e Total number of samples showing concentrations greater than tap water PRG
California-modified PRGs were used for the following analytes: 1,2-Dibromo-3-chloropropane, benzo[a]pyrene, benzo[k]fluoranthene, cadmium, chromium VI, chrysene, lead, nickel, and tetrachloroethylene (PCE).
For the analytes listed below, Region IX PRGs are not available; therefore, PRGs for similar chemicals were used as follows:

Analyte:	Similar Analyte:
2-Methylnapthalene	Naphthalene
Acenaphthylene	Acenaphthene
Alpha-chlordane	Chlordane
Aroclor-1260	Polychlorinated biphenyls
Benzo(g,h,i)perylene	Naphthalene
Delta BHC	HCH-technical
Endosulfan I	Endosulfan
Endosulfan sulfate	Endosulfan
Endrin aldehyde	Endrin
Endrin ketone	Endrin
Gamma-chlordane	Chlordane
Phenanthrene	Naphthalene

f EPA Title 40 Code of Federal Regulations or California Code of Regulations Title 22 MCL used, whichever is more stringent

g Total number of samples showing concentrations greater than MCL

h Total number of samples showing concentrations greater than NAWQC;
NAWQC based on 4-day average study of saltwater aquatic life

i Total number of samples showing concentrations greater than TPH, TRPH, or O&G screening level, not PRG value

k Total number of samples showing concentrations greater than HGAL (HGALs are only applicable to groundwater from the A-aquifer.)

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
7	RMR results	Table 1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.1.4.2, page 2-6. Final Sampling and Analysis Plan, Parcel C Soil Site Delineation. Tetra Tech and Washington Group International. January 18, 2001. Table-1.

The basis of the excavation areas for the TCRA was the RMR. The RMR process was developed and conducted during a series of meetings held by the Navy and the regulatory agencies beginning in 1999 through July 2000. The process employed various criteria and decision rules to reevaluate whether response actions were required at the IR sites in Parcel C.

At the conclusion of the RMR process, the review team confirmed or eliminated sites from proposed response action based on current risk. After completion of the review, all sites fell into one of the following three categories: (1) sites for which the team agreed no response action was required, (2) sites for which the team agreed response action was required, and (3) sites for which the team did not yet agree on the course of action. The team produced a table summarizing their analysis and recommendations. The results of the RMR process and the TCRA cleanup goals are provided in the "Final Sampling and Analysis Plan, Parcel C Soil Site Delineation" (Tetra Tech and Washington Group International 2001).

Approximately 3,000 soil samples were collected during the Parcel C TCRA. Some sites recommended for action during the RMR process were delineated but not excavated. The revised HHRA evaluates all of the data from samples that have not been excavated. Table 2-8 briefly summarizes the RMR recommendations and the current status of the TCRA sites.

In 2002 through 2004, the Navy completed activities to consolidate and remove waste throughout Parcel C. Industrial process equipment was decontaminated, sumps cleaned, and waste was consolidated, including removal of waste material stored in or near buildings and removal or encapsulation of asbestos-containing material (Tetra Tech FW, Inc. 2004).

Storm drains and sewer lines were removed in 2007 at portions of redevelopment blocks 10 and 11 in Parcel C to address radiological concerns. Storm drains and sewer lines were addressed in these locations because they were connected to lines in Parcel B. Storm drain and sewer lines at the remainder of Parcel C are planned for removal in 2010.

2.1.4.3 Treatability Studies

This section summarizes the groundwater treatability studies that have been conducted at Parcel C. These studies include chemical oxidation, zero-valent iron (ZVI) injection, and anaerobic-aerobic bioremediation techniques. The studies are organized below by RU. Groundwater treatability studies have not been conducted at RU-C2.

RU-C1. A soil vapor extraction (SVE) system that included 14 SVE wells, 36 vapor monitoring wells and an extraction system was installed and operated for over 3 months inside Building 231 beginning in March 2001. Analytical results for soil vapor samples collected during operation of the SVE system indicated low concentrations of VOCs in the vadose zone, primarily cis-1,2-dichloroethene (DCE), tetrachloroethene (PCE), and trichloroethene (TCE). The

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL REMEDIATION AREAS IN PARCEL C
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 1 of 8)

IR Site Number	Remediation or De Minimis Area	Reuse Goal	Reuse Plan Designation	RMR Recommendation	Specific Recommendation	Chemicals of Potential Concern[f]	Removal Action: Planned Analyses[g]	Subareas	Figure Number
IR-25	25-1 (Includes DM B3924)	Residential	Mixed Use	Action	Treatability Study Area/Delineation[a]	Aroclor-1260 Benzo(a)anthracene	PCBs PAHs	250101 250102	25.01 25.02
	25-2	Residential	Mixed Use	Action	TCRA Delineation	Aroclor-1260 Copper Lead Manganese Zinc	PCBs Copper Lead Manganese Zinc	250201	25.03
	25-3	Residential	Mixed Use	Action	Treatability Study Area/Delineation[a]	Antimony Chromium 2-Methylnaphthalene Trichloroethene	Antimony, Chromium Chromium VI, Magnesium CLP SVOC TPH-purg, TPH-ext[j]	250301	25.04
	DM B3822	Residential	Mixed Use	Action	Parcel B activities	Parcel B activities	Parcel B activities	—	—
	DM B3924	Residential	Mixed Use	Action	TCRA Delineation	Included with 25-1	See 25-1	—	—
	DM B3926	Residential	Mixed Use	Action	TCRA Delineation	Manganese	Manganese	DM B3926	25.05
	DM B4126	Residential	Mixed Use	Action	No further action (changed from TCRA Delineation)[b]	None	None	DM B4126	
IR-27	DM 9307	Industrial	Educational/ Cultural	No Action	—	—	—	—	—
IR-28	28-1	Industrial	Open Space	Action	TCRA Delineation	Arsenic Benzo(a)pyrene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Dibenz(a,h)anthracene Indeno(1,2,3-c,d)pyrene Lead	Arsenic PAHs Lead TPH-purg, TPH-ext[j]	280101 280102 280103 280104	28.01 28.02 28.03 28.04
	28-2	Industrial	Educational/ Cultural	Action	Treatability Study Area/Delineation[a]	Aroclor-1260 Arsenic Chromium	PCBs Arsenic, Chromium Chromium VI, Magnesium TPH-purg, TPH-ext[j]	280202 280203 280204	28.06 28.06 28.07
	28-3	Residential	Research and Development	Action	TCRA Delineation	Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Copper Manganese Mercury	Arsenic PAHs Copper Manganese Mercury	280301 280302	28.08 28.09

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL REMEDIATION AREAS IN PARCEL C
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
(Page 2 of 8)

IR Site Number	Remediation or De Minimis Area	Reuse Goal	Reuse Plan Designation	RMR Recommendation	Specific Recommendation	Chemicals of Potential Concern[f]	Removal Action: Planned Analyses[g]	Subareas	Figure Number
IR-28 (cont.)	28-4	Industrial	Educational/ Cultural	No Action	No further action	Arsenic	None	None	
	28-5	Industrial	Educational/ Cultural	No Action	No further action	Arsenic	None	None	
	28-6	Residential	Research and Development	Action	TCRA Delineation	Aroclor-1260 Benzo(a)anthracene Benzo(b)fluoranthene VOCs Chromium Manganese	PCBs PAHs Chromium, Chromium VI VOCs Magnesium Manganese TPH-purg, TPH-ext[j]	280601 280602 280603	28.10 28.11 28.12
	28-7	Residential	Research and	Action	TCRA Delineation	Manganese[i]	Manganese PAHs	280701	28.13
	28-8	Residential	Research and Development	Action	TCRA Delineation	Arsenic Copper Manganese Thallium	Arsenic Copper Manganese Thallium	280801	28.14
	28-9	Industrial	Educational/ Cultural	No Action	No further action	Arsenic Chromium Benzo(a)anthracene	None	None	
	28-10	Residential	Research and Development	Action	TCRA Delineation	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Manganese	PAHs Manganese TPH-purg, TPH-ext[j]	281001 281002 281003	28.15 28.15 28.16
	28-11	Industrial	Open Space	Action	TCRA Delineation[a]	Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenz(a,h)anthracene Indeno(1,2,3-c,d)pyrene VOCs Chromium	Arsenic PAHs TPH-purg, TPH-ext[j] Chromium, Chromium VI Magnesium VOCs	281101 281102 281103 281104 281105	28.17 28.18 28.17 28.19 28.20
	28-12	Industrial	Educational/ Cultural	No Action	No further action	Arsenic Benzo(a)pyrene	None		
	28-13	Residential	Mixed Use	Action	TCRA Delineation	Manganese	Manganese TPH-purg, TPH-ext[j]	281301	28.21
	28-14	Industrial	Open Space	No Action	No further action	Arsenic	None		
	28-15	Industrial	Open Space	No Action	No further action	Arsenic	None	None	
	28-16	Industrial	Open Space	No Action	No further action	None	None	None	

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL REMEDIATION AREAS IN PARCEL C
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IR Site Number	Remediation or De Minimis Area	Reuse Goal	Reuse Plan Designation	RMR Recommendation	Specific Recommendation	Chemicals of Potential Concern[f]	Removal Action: Planned Analyses[g]	Subareas	Figure Number
IR-28 (cont.)	28-17	Industrial	Open Space	Action	Data gap sampling[c]	Aroclor-1260	PCBs	281701	28.23
	28-18	Industrial	Educational/ Cultural	Action	TCRA Delineation	Arsenic Lead	Arsenic Lead	281801	28.24
	28-19	Industrial	Open Space	Action	TCRA Delineation	Arsenic Lead N-Nitroso-di-n-propylamine	Arsenic Lead SVOCs TPH-purg, TPH-ext[i]	281901	28.25
	28-21	Residential/ Industrial	Mixed Use	Action	TCRA Delineation[d]	Chromium VI Manganese Arsenic	Chromium VI Chromium, Magnesium Manganese, Arsenic	282101	28.26
	DM 8425	Industrial	Open Space	No Action	No further action	Arsenic	None	None	
	DM 8331	Residential		Not identified	New data gap sampling/ TCRA exceedance[b]	Copper Manganese	Copper Manganese	DM 8331	28.28
	DM 8334	Residential	Research and Development	Action	Data gap sampling[c]	Copper Aroclor-1260 Chromium Zinc	Copper PCBs Chromium, Chormium VI Magnesium, Zinc	DM 8334	28.29
	DM 8435	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese VOCs	DM 8435	28.30
	DM 8632	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 8632	28.31
	DM 8834	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Copper Chromium, Chromium VI Manganese	Copper Chromium, Chromium VI Manganese, Magnesium	DM 8834	28.32
	DM 8835	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese Chromium, Chromium VI Mercury	Manganese, Magnesium Chromium, Chromium VI Mercury	DM 8835	28.33
	DM 8934	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese	Manganese	DM 8934	28.34
	DM 8935	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Copper Manganese	Copper Manganese	DM 8935A DM 8935B	28.35 28.36
	DM 9132	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9132	28.37
	DM 9134	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9134	28.38

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL REMEDIATION AREAS IN PARCEL C
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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IR Site Number	Remediation or De Minimis Area	Reuse Goal	Reuse Plan Designation	RMR Recommendation	Specific Recommendation	Chemicals of Potential Concern[f]	Removal Action: Planned Analyses[g]	Subareas	Figure Number
IR-28 (cont.)	DM 9233	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Zinc	Zinc	DM 9233	28.39
	DM 9330 (formerly DM51SS15)	Residential	Research and Development	Action	TCRA Delineation	Aroclor-1260 Manganese Zinc	PCBs Manganese Zinc	DM 9330	28.40
	DM 9331	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9331	28.41
	DM 9334	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9334	28.42
	DM 9336	Residential	Research and Development	Action	TCRA Delineation	Copper Arsenic Manganese	Copper Arsenic Manganese	DM 9336A DM 9336B	28.43 28.43
	DM 9420	Industrial	Educational/ Cultural	Action	Data gap sampling[c]	Arsenic, Lead, PAHs	Arsenic, Lead, PAHs TPH-purg, TPH-ext[j]	DM 9420	28.44
	DM 9434	Residential	Research and Development	Action	TCRA Delineation	Manganese Arsenic Thallium	Manganese Arsenic Thallium PAHs	DM 9434	28.45
	DM 9435	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese PAHs	DM 9435	28.46
	DM 9441	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9441	28.47
	DM 9532	Residential	Research and Development	Action	TCRA Delineation	Antimony Aroclor-1260 Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Chromium Copper Manganese Thallium Zinc	Antimony PCBs PAHs Chromium, Chormium VI Magnesium Copper Manganese Thallium Zinc TPH-purg, TPH-ext[j]	DM 9532A DM 9532B DM 9532C	28.48 28.48 28.49
	DM 9618	Industrial	Cultural	No Action	No further action	None	None		
	DM 9621	Industrial	Cultural	No Action	No further action	None	None		
	DM 9628	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9628	28.50

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL REMEDIATION AREAS IN PARCEL C
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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IR Site Number	Remediation or De Minimis Area	Reuse Goal	Reuse Plan Designation	RMR Recommendation	Specific Recommendation	Chemicals of Potential Concern[f]	Removal Action: Planned Analyses[g]	Subareas	Figure Number
IR-28 (cont.)	DM 9721	Industrial	Educational/ Cultural	No Action	No further action		None	None	
	DM 9729	Residential	Research and Development	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9729	28.51
	DM 9819	Industrial	Educational/ Cultural	Action	Treatability Study Area[k]	Chromium, Chromium VI	Chromium, Chromium VI, Magnesium	DM 9819	28.52
	DM 10112	Industrial	Open Space	No Action	No further action		None	None	
	DM 9824	Industrial	Cultural	No Action	No further action	Benzo(a)pyrene	None		
	DM 10204	Industrial	Open Space	No Action	No further action		None	None	
	DM 9919	Industrial	Cultural	No Action	No further action		None		
	DM 10220	Industrial	Cultural	No Action	No further action	Arsenic	None	None	
	DM 9921	Industrial	Educational/ Cultural	No Action	No further action		None		
	DM 10329	Industrial	Open Space	No Action	No further action		None	None	
	DM 10413	Industrial	Open Space	No Action	No further action	Arsenic	None	None	
IR-29	29-1	Residential	Research and Development	Action	TCRA Delineation	Aroclor-1260 Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Arsenic, Cadmium Chrysene Copper Dibenz(a,h)anthracene Indeno(1,2,3-c,d)pyrene Lead Organic Lead Manganese Mercury Thallium Zinc	PCBs PAHs Arsenic Copper Lead Manganese Mercury Thallium Zinc Cadmium Organic Lead TPH-purg, TPH-ext[j]	290101 290102 290103 290104 290105 290106 290107 290108 290109 290110 290111 290112	29.01 29.02 29.03 29.03 29.04 29.05 29.05 29.06 29.06 29.07 29.08 29.08
	DM 8343	Industrial	Maritime Industrial	No Action	No further action	Arsenic	None	None	
	29-2	Residential	Research and Development	Combined with 29-4	TCRA Delineation	Arsenic Copper Aroclor-1260 Manganese	Arsenic Copper PCBs Manganese	290201	29.09
	29-3	Residential	Research and Development	Action	TCRA Delineation	Aroclor-1254 Aroclor-1260	PCBs	290301 290302	29.10 29.10

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL REMEDIATION AREAS IN PARCEL C
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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IR Site Number	Remediation or De Minimis Area	Reuse Goal	Reuse Plan Designation	RMR Recommendation	Specific Recommendation	Chemicals of Potential Concern[f]	Removal Action: Planned Analyses[g]	Subareas	Figure Number
IR-29 (cont.)	29-4 (includes 29-2)	Residential	Research and Development	Action	TCRA Delineation	Aroclor-1260 Benzo(a)anthracene Benzo(a)pyrene Benzo(k)fluoranthene Arsenic, Cadmium Copper Manganese Vanadium Zinc	PCBs PAHs Arsenic Cadmium Copper Manganese Vanadium Zinc	290401 290402 290403	29.11 29.12 29.12
	29-6	Residential	Mixed Use	Action	TCRA Delineation	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene PCBs Lead, organic lead Manganese	PAHs Manganese PCBs Lead Organic Lead	290601	29.13
	29-7	Residential	Mixed Use	Action	TCRA Delineation	Cadmium Copper Lead Manganese Mercury Zinc Chromium, Chromium VI	Cadmium Copper Lead Manganese Mercury Zinc Chromium, Chromium VI, Magnesium	290701 290702 300701	29.14 29.14
	DM 8944	Residential	Mixed Use	No Action	No further action	Copper Lead Mercury Zinc	None	None	-
	DM 8235	Residential	-	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 8235	29.15
	DM 8637	Residential	-	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 8637	29.16
	DM 9143	Residential	Mixed Use	Not identified	New data gap sampling	Organic Lead, PCBs	Organic Lead, PCBs TPH-purg, TPH-ext[j]	DM 9143	29.17
	DM 9343	Residential	Mixed Use	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 9343	29.18
IR-30	30-1	Residential	Research and Development	Action	TCRA Delineation[c]	Aroclor-1260 gamma-Chlordane Arsenic Benzene	PCBs Pesticides Arsenic Benzene	300101 300102 300103	30.01 30.02 30.03

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL REMEDIATION AREAS IN PARCEL C
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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IR Site Number	Remediation or De Minimis Area	Reuse Goal	Reuse Plan Designation	RMR Recommendation	Specific Recommendation	Chemicals of Potential Concern[f]	Removal Action: Planned Analyses[g]	Subareas	Figure Number
IR-30 (cont.)	30-1 (cont.)	Residential	Research and Development	Action	TCRA Delineation[c]	Cadmium Chromium Copper Lead Manganese Molybdenum Nickel Zinc	Cadmium Chromium, Chormium VI Magnesium, Cobalt Copper Lead Manganese Molybdenum Nickel Zinc TPH-purg, TPH-ext[j]	300104 300105 300106 300107 300108 300109 300110 300111 300112 300113 300114 300115 300116 300117 300118 300119	30.04 30.05 30.06 30.07 30.08 30.09 30.08 30.07 30.10 30.11 30.12 30.13 30.11 30.14 30.11 30.10
IR-57	57-1	Industrial	Industrial	No Action	No further action	Arsenic	None	None	
	DM 9654	Industrial	Industrial	No Action	No further action		None	None	
IR-58	58-1	Residential	Mixed Use	Action	TCRA Delineation	Manganese[i] Copper	Manganese, Copper PAHs, PCBs	580101	58.03
	58-2	Residential	Mixed Use	Action	TCRA Delineation	Manganese	Manganese, lead PAHs, PCBs	580201 580202	58.01 58.02
	58-4	Industrial	Open Space	No Action	No further action		None	None	
	DM 7527	Residential	Mixed Use	Action	TCRA Delineation	Chromium	Chromium, Chromium VI, Magnesium	DM 7527	58.04
	DM 7727	Residential	Mixed Use	Action	TCRA Delineation	Antimony Chromium	Antimony, Magnesium, Chromium, Chromium VI	DM 7727	58.05
	DM 7728	Residential	Mixed Use	Action	TCRA Delineation	Manganese[i]	Manganese, TPHext	DM 7728	58.06
	DM 7927	Residential	Mixed Use	Not identified	New data gap sampling/ TCRA exceedance[b]	Manganese[i]	Manganese	DM 7927	58.07
	DM 7930	Residential	Mixed Use	Action	TCRA Delineation	Manganese[i]	Manganese	DM 7930	58.08
	DM 8025	Industrial	Open Space	No Action	No further action		None	None	
	DM 8029	Residential	Mixed Use	Action	TCRA Delineation	Aluminum Cadmium Manganese	Aluminum Cadmium Manganese	DM 8029	58.09
	DM 8127	Residential	Mixed Use	Action	TCRA Delineation	Lead	Lead TPH-purg, TPH-ext[j]	DM 8127	58.10
	DM 8130	Residential	Research and Development	Action	Data gap sampling[c]	Benzo(a)pyrene	PAHs, TPH-purg, TPH-ext[j]	DM 8130	58.11
IR-64	64-1	Industrial	Open Space	Action	TCRA Delineation	Arsenic	Arsenic	640101	64.01

TABLE 1

CHEMICALS OF POTENTIAL CONCERN IN SOIL
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
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Notes: COPCs listed are based on recommendations from the Parcel C RMR process and TCRA cleanup goals (listed on Table 2 of the final action memorandum for the TCRA, dated September 13, 2000) using soil data from 0 to 10 feet below ground surface (the maximum remediation depth from the TCRA).

a The remediation area (or portions thereof) is within the area of the soil-vapor extraction TS. Although the area is not part of the TCRA (except for Remediation Area 28-11), the Navy will conduct preexcavation delineation in the area for non-volatile COPCs. Field screening for VOCs will be performed.

b The Navy proposes to collect limited soil samples in this area to address data gaps. The area represents point exceedance of TCRA cleanup goals, which differ from the1998 PRGs used during the RMR process. This area was not identified during the RMR process.

c The Navy proposes to collect limited soil samples in the remediation area for the identified COPCs to address a data gap identified by the California Department of Toxic Substances Control.

d Remediation Areas 28-17 and 28-21 are located on the boundary of residential and industrial reuse, are proposed for preexcavation delineation. Criteria developed for buffer zone locations will apply.

e Preexcavation sampling at Remediation Area 30-1 will include sampling at adjacent points at which concentrations of COPCs exceed TCRA cleanup goals. In addition, benzene has been added as a COPC for preexcavation sampling to provide additional data for the remediation area.

f COPCs listed may not apply to all subareas within the remediation area. See Table 2 of the Field Sampling Plan for analyses by subarea.

g Methods used in laboratory analysis for COPC's: PAH's by method 8270C with silica gel cleanup. PCB's by SW-846 Method 8082. Metals by CLP Metals. VOCs by CLP VOC. SVOC's by CLP SVOC. Pesticides by CLP Pesticides. TPH by SW-846 8015B. Benzene by SW-846 8021B unless CLP VOC analysis is also performed. Chromium VI by SW-846 Method 7196A/modified Method 3060A. Organic Lead by CA DHS LUFT Method.

h Chromium and nickel were the only COPCs at this area. Nickel concentrations are consistent with ambient concentrations (based on nickel-cobalt regression). Total chromium concentrations in the area are speciated as chromium III; chromium VI samples collected at 1.25 and 5.25 feet bgs were ND.

i For sites at which manganese is the only COPC, sampling will be delayed until data are collected and analyzed from sites at which manganese and other COPCs are present. The results of analysis of the samples will be used to determine whether sampling of sites where manganese is the only COPC will be performed.

j TPH COPCs listed on the basis of exceedances of RI screening criteria (1,000 mg/kg each for TPH-d and TPH-mo, and 100 mg/kg for TPH-g). TPH-only sites use the cleanup goal of 3500 mg/kg. TPH data will be used for the TPH CAP.

BCT	Base Closure and Realignment Cleanup Team
CLP	Contract laboratory program
COPC	Chemical of potential concern
DM	De minimis
ND	Not detected
PAH	Polynuclear aromatic hydrocarbons, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.
PCB	Polychlorinated biphenyl
RMR	Risk management review
SAP	Sampling and analysis plan
SVOC	Semivolatile organic compound
TCRA	Time-critical removal action
TPH	Total petroleum hydrocarbons (-ext = extractables, -purg = purgeables)
VOC	Volatile organic compound

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
8	Impacted or non-impacted	Table 1	Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939 – 2003, Hunters Point Shipyard, San Francisco, California. Naval Sea Systems Command. August 31, 2004. Section 1.2, Page 1-2 and 1-3.

1.2 HRA METHODOLOGY

The primary purpose of the HRA is to designate sites as impacted or non-impacted. An impacted site is one that has potential for radioactive contamination based on historical information, or is know to contain or have contained radioactive contamination. In many instances, designation as impacted does not confirm that radioactive contamination is present; only that the possibility exists and must be investigated. If contamination is found at an HPS-impacted site, measures will be taken to remove the contamination to below release levels. Because of the extensive use of radioactive materials by the Naval Radiological Defense Laboratory (NRDL), former NRDL facilities have been included as impacted sites. Once a site is designated as impacted, it remains "impacted" even after any residual contamination is removed.

A non-impacted site is one, based on historical documentation or results of previous radiological survey information, where there is no reasonable possibility for residual radioactive contamination. If new historical information becomes available or contamination is found at a non-impacted site, the site would be redesignated as "impacted."

To designate sites as impacted or non-impacted, the HRA defines the extent of past radiological operations, assesses the likelihood of potential contamination and potential contamination migration pathways, and recommends future actions. As well as being used to designate impacted sites, this information can be used to support removal actions within the context of the U.S. Environmental Protection Agency's (EPA) CERCLA process. As such, this HRA includes:

- Initial classification of areas that are impacted by radiological operations
- Historical information about radiological operations, investigations, and surveys
- Identification of potential, likely or known sources of radioactive material, radioactive contamination, and areas of use
- Assessments of the likelihood of areas of residual contamination

- Assessments of the likelihood of contamination migration
- Identification of sites that need further action as opposed to those posing no risk to human health or the environment from radiological operations
- Recommendations for future radiological investigations and remediation processes

The Navy researched multiple federal and personal archives to obtain information for preparation of the HRA. This research was supplemented by interviews of personnel with knowledge of radiological operations at HPS. Historical information was compared with evaluations made during site reconnaissance.

1.3 HISTORY

This HRA covers 64 years of radiological history at HPS from 1939 through June 2003. However, the shipyard only functioned as an active Navy-run repair facility from 1939 through 1974. After HPS ceased to function as an operational Navy shipyard in 1974, some HPS buildings and structures were leased to private tenants and Navy-related entities, the largest of which was Triple A Machine Shop, Inc. (Triple A), for ship repair operations. Buildings at HPS have also been leased for maritime and non-maritime industrial and artistic purposes. In addition, the Navy continued to use some buildings and structures for on-site oversight activities. The Navy resumed operation of the shipyard in 1986, when HPS was assigned as an annex to Naval Station Treasure Island. Throughout its history, HPS has been the subject of many radiological investigations. These investigations continue today.

Shipyard operations were permanently terminated on 29 December 1989. In 1991, HPS was placed on the Navy's BRAC list and its mission as a Navy shipyard ended on 1 April 1994. Engineering Field Activity West, Naval Facilities Engineering Command (EFA WEST), San Bruno, California, had initial oversight of base closure management of HPS. After closure of EFA WEST, this oversight authority was transferred to Southwest Division, Naval Facilities Engineering Command (SWDIV) in San Diego, California. SWDIV continues to manage the site today.

Details of the radiological history of HPS are provided in Section 6.0. Historical radiological operations included the following:

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
9	VOCs	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.3.1.2, pages 2-24 and 2-25.

blocks 22, 23 and 24, most arsenic concentrations are distributed across Parcel C with no apparent pattern to indicate their presence due to a release. The area where bedrock is closest to the surface in redevelopment blocks 23 and 24 also has significant concentrations of arsenic. Similarly, the distribution of manganese is presented on Figure 2-18, showing a high frequency of detections above the HPAL in areas where the bedrock is close to the surface. The Navy believes that arsenic and manganese are ubiquitous in the local bedrock that was used for fill or is present in the native soil, and that this is the source of these metals present throughout Parcel C. This same condition is true for most other metals at Parcel C.

Lead, mercury, organic lead, and zinc concentrations are presented on Figure 2-19. The presence of these metals may be due to industrial activities. Lead and organic lead are most frequently detected in the vicinity of former USTs. Mercury detections, however, are associated with the areas where bedrock is close to the surface in redevelopment blocks 23 and 24, similar to other metals present throughout Parcel C. In one location in redevelopment block 26, mercury was found where the potential exists for industrial contamination. This area will be addressed in the remedial alternatives. Zinc concentrations are clustered in the former pickling and degreasing area at Building 258, which is indicative of industrial contamination.

Antimony, cadmium, and thallium are detected infrequently at Parcel C. Antimony is found at redevelopment block 10 in the vicinity of the former tank farm. Cadmium and thallium detections were found in redevelopment blocks 23, 24, and 26 in the vicinity of Buildings 203 and 272, where bedrock is close to the surface. Cadmium was also detected adjacent to Building 258 in redevelopment block 20A, where cadmium may be related to the former metal machining and pickling activities.

2.3.1.2 Volatile Organic Compounds

In total, 1,428 soil samples were analyzed for VOCs at Parcel C, with analysis for 71 VOCs. In the revised HHRA, seven VOCs were determined to be COCs: 1,2-dichloroethane (DCA), 1,4-dichlorobenzene (DCB), benzene, naphthalene, PCE, TCE, and vinyl chloride.

VOCs in soil are associated with historic spills and releases. Figure 2-20 shows the location of the chlorinated VOCs most frequently detected above criteria (PCE, TCE, and vinyl chloride). The chlorinated VOC detections in soil are generally associated with former dip tanks or solvent USTs and where groundwater contamination has been identified: in RU-C1 near Building 231 and 253, RU-C2 near Buildings 258 and 251, RU-C4 in or near Buildings 272 and 281, and RU-C5 in or near Building 134. DCA was detected at RU-C5 and DCB is present at RU-C5 and RU-C2.

Benzene detections are associated primarily with the former foundry, Building 241, as shown on Figure 2-21. Benzene has historically been identified as a risk driver in soil at Parcel C (PRC, LFR, and U&A 1997; Tetra Tech and Washington Group International 2002). Although not a risk driver in this area, benzene was also detected in soil at concentrations exceeding criteria near the former fuel station location by Building 253.

Naphthalene in soil is consistently detected in areas associated with fuel or petroleum releases; PAHs are nearly always detected in the same areas as naphthalene.

2.3.1.3 Semivolatile Organic Compounds

In total, 2,154 soil samples were analyzed for SVOCs at Parcel C, with analysis for 72 chemicals. Twelve SVOCs were determined to be COCs in the revised HHRA: 2-methylnaphthalene, 3,3'-dichlorobenzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenz(a,h)anthracene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, and n-nitroso-di-n-propylamine.

The seven PAHs—benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene—were detected at most frequently of the SVOCs, with benzo(a)pyrene detected in more than 25 percent of the samples. These COCs are associated with the fuel lines, fuel tanks, and industrial activities.

Figure 2-22 shows the location of benzo(a)pyrene results exceeding screening criteria. Benzo(a)pyrene is considered representative of the PAHs because of its high frequency of detection and its toxicity. PAHs are widespread across Parcel C. Benzo(a)pyrene and other PAHs have historically been identified as risk drivers in soil at Parcel C (PRC, LFR, and U&A 1997; Tetra Tech and Washington Group International 2002).

The remaining five COCs were detected infrequently above residential RBCs. Bis(2-ethylhexyl)phthalate, a common laboratory contaminant, was detected three times above the RBC; the other COCs were only detected once above residential RBCs.

2.3.1.4 Pesticides and Polychlorinated Biphenyls

In total, 631 soil samples were analyzed for pesticides, with analysis for 23 chemicals. Four pesticides—dieldrin, gamma-benzene hexachloride (BHC), heptachlor epoxide, and heptachlor epoxide b were identified as COCs in the HHRA (see Appendix C). However, all of these pesticides were detected in very few samples—approximately 1 or 2 percent of all samples tested for pesticides. Detections were typically estimated values below the PQL. Figure 2-23 shows the locations where detected pesticides exceed the PQL. Detections of COCs occurred in redevelopment blocks 10, 13, 18, and 23. These typically shallow detections do not appear to be associated with a particular type of industrial activity or spills and may be related to localized historic pesticide use.

In total, 1,545 soil samples were analyzed for PCBs in soil at Parcel C, with analysis for 7 chemicals. Aroclor-1254 and Aroclor-1260 were identified as COCs in the HHRA. Aroclor-1254 was detected in less than 2 percent of the samples analyzed. Aroclor-1260 is the most commonly detected PCB at HPS and was detected an order of magnitude more frequently than Aroclor-1254. Aroclors are associated with transformer sites and with spills. As shown on

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
10	PAHs	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.3.1.3, page 2-25.

2.3.1.3 Semivolatile Organic Compounds

In total, 2,154 soil samples were analyzed for SVOCs at Parcel C, with analysis for 72 chemicals. Twelve SVOCs were determined to be COCs in the revised HHRA: 2-methylnaphthalene, 3,3'-dichlorobenzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenz(a,h)anthracene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, and n-nitroso-di-n-propylamine.

The seven PAHs—benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene—were detected at most frequently of the SVOCs, with benzo(a)pyrene detected in more than 25 percent of the samples. These COCs are associated with the fuel lines, fuel tanks, and industrial activities.

Figure 2-22 shows the location of benzo(a)pyrene results exceeding screening criteria. Benzo(a)pyrene is considered representative of the PAHs because of its high frequency of detection and its toxicity. PAHs are widespread across Parcel C. Benzo(a)pyrene and other PAHs have historically been identified as risk drivers in soil at Parcel C (PRC, LFR, and U&A 1997; Tetra Tech and Washington Group International 2002).

The remaining five COCs were detected infrequently above residential RBCs. Bis(2-ethylhexyl)phthalate, a common laboratory contaminant, was detected three times above the RBC; the other COCs were only detected once above residential RBCs.

2.3.1.4 Pesticides and Polychlorinated Biphenyls

In total, 631 soil samples were analyzed for pesticides, with analysis for 23 chemicals. Four pesticides—dieldrin, gamma-benzene hexachloride (BHC), heptachlor epoxide, and heptachlor epoxide b were identified as COCs in the HHRA (see Appendix C). However, all of these pesticides were detected in very few samples—approximately 1 or 2 percent of all samples tested for pesticides. Detections were typically estimated values below the PQL. Figure 2-23 shows the locations where detected pesticides exceed the PQL. Detections of COCs occurred in redevelopment blocks 10, 13, 18, and 23. These typically shallow detections do not appear to be associated with a particular type of industrial activity or spills and may be related to localized historic pesticide use.

In total, 1,545 soil samples were analyzed for PCBs in soil at Parcel C, with analysis for 7 chemicals. Aroclor-1254 and Aroclor-1260 were identified as COCs in the HHRA. Aroclor-1254 was detected in less than 2 percent of the samples analyzed. Aroclor-1260 is the most commonly detected PCB at HPS and was detected an order of magnitude more frequently than Aroclor-1254. Aroclors are associated with transformer sites and with spills. As shown on

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
11	Metals	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.3.1.1, page 2-23 and 2-24.

2.3.1.1 Metals

Soil samples were collected and analyzed for 26 individual metals (including chromium VI and organic lead) at Parcel C, and 1,865 soil samples were analyzed for at least one metal at Parcel C. Twelve of these metals—aluminum, barium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, vanadium, and zinc—were detected in more than 90 percent of the soil samples collected and analyzed for metals at Parcel C. Similarly, arsenic, lead, and mercury were detected in more than 60 percent of the samples analyzed for these metals. The high frequency of detections indicates that metals are widespread across the site.

The results of the revised HHRA identified 12 metals as COCs: antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, nickel, thallium, vanadium, and zinc. Organic lead was also determined to be a COC. The analytical method for organic lead does not provide results for a specific chemical, but rather is a wet chemistry method that indicates the presence of some form of organic lead.

The Navy has evaluated potential sources of metals at Parcel C to assess where Navy activities may have contributed to metals concentrations in soil. For example, zinc concentrations detected near Building 258 may be associated with metal finishing activities. Lead may be associated with industrial activities. Organic lead is associated with former fuel sites. Marine paint and abrasive sandblast material also contain metals. Sources of metals contamination are discussed with each redevelopment block (see Section 2.3.2). Section 3.0 and Appendix C present the risk associated with all these metals based on the samples that remain in place. Figures 2-17, 2-18, and 2-19 show the distribution of metals across Parcel C.

In addition to identified industrial sources, the presence of metals across Parcel C is likely related to the fill and naturally occurring bedrock material. A group of metals related to the bedrock fill quarried to build HPS in the 1940s consistently exceeded RBCs across Parcel C. These metals occur in the local HPS bedrock and were distributed throughout all parcels as HPS was built. The highest concentrations of metals are in the areas where bedrock is close to the surface; for example, near Buildings 272 and 203 in redevelopment blocks 23 and 24. In areas where fill is present, the resulting distribution of ubiquitous metals concentrations in soil is nearly random. In this report, the term “ubiquitous” refers to metals that are naturally occurring or are in the same concentration ranges as naturally occurring metals in the source material (including material from the same geologic formations in the San Francisco area) that was used for filling operations at HPS. The Navy acknowledges that industrial sources of metals exist at HPS and that there is a potential that some concentrations of metals could have sources other than naturally occurring materials. The Navy has worked to remove these sources during the removal actions taken to date.

The distribution of arsenic and manganese in soil are used to illustrate the widespread occurrence of naturally occurring metals in the fill used to create Parcel C. Arsenic is a naturally occurring semi-metal associated with bedrock at HPS. Potential sources of arsenic include paints and abrasive sandblast material. Figure 2-17 illustrates the distribution of arsenic in post-excavation soil samples collected between 0 and 10 feet bgs. The data ranges on Figure 2-17 were selected

to illustrate concentrations above and below the HPAL (11.1 milligrams per kilogram [mg/kg]) for arsenic. Although apparent clusters of higher arsenic concentrations appear in redevelopment blocks 22, 23 and 24, most arsenic concentrations are distributed across Parcel C with no apparent pattern to indicate their presence due to a release. The area where bedrock is closest to the surface in redevelopment blocks 23 and 24 also has significant concentrations of arsenic. Similarly, the distribution of manganese is presented on Figure 2-18, showing a high frequency of detections above the HPAL in areas where the bedrock is close to the surface. The Navy believes that arsenic and manganese are ubiquitous in the local bedrock that was used for fill or is present in the native soil, and that this is the source of these metals present throughout Parcel C. This same condition is true for most other metals at Parcel C.

Lead, mercury, organic lead, and zinc concentrations are presented on Figure 2-19. The presence of these metals may be due to industrial activities. Lead and organic lead are most frequently detected in the vicinity of former USTs. Mercury detections, however, are associated with the areas where bedrock is close to the surface in redevelopment blocks 23 and 24, similar to other metals present throughout Parcel C. In one location in redevelopment block 26, mercury was found where the potential exists for industrial contamination. This area will be addressed in the remedial alternatives. Zinc concentrations are clustered in the former pickling and degreasing area at Building 258, which is indicative of industrial contamination.

Antimony, cadmium, and thallium are detected infrequently at Parcel C. Antimony is found at redevelopment block 10 in the vicinity of the former tank farm. Cadmium and thallium detections were found in redevelopment blocks 23, 24, and 26 in the vicinity of Buildings 203 and 272, where bedrock is close to the surface. Cadmium was also detected adjacent to Building 258 in redevelopment block 20A, where cadmium may be related to the former metal machining and pickling activities.

2.3.1.2 Volatile Organic Compounds

In total, 1,428 soil samples were analyzed for VOCs at Parcel C, with analysis for 71 VOCs. In the revised HHRA, seven VOCs were determined to be COCs: 1,2-dichloroethane (DCA), 1,4-dichlorobenzene (DCB), benzene, naphthalene, PCE, TCE, and vinyl chloride.

VOCs in soil are associated with historic spills and releases. Figure 2-20 shows the location of the chlorinated VOCs most frequently detected above criteria (PCE, TCE, and vinyl chloride). The chlorinated VOC detections in soil are generally associated with former dip tanks or solvent USTs and where groundwater contamination has been identified: in RU-C1 near Building 231 and 253, RU-C2 near Buildings 258 and 251, RU-C4 in or near Buildings 272 and 281, and RU-C5 in or near Building 134. DCA was detected at RU-C5 and DCB is present at RU-C5 and RU-C2.

Benzene detections are associated primarily with the former foundry, Building 241, as shown on Figure 2-21. Benzene has historically been identified as a risk driver in soil at Parcel C (PRC, LFR, and U&A 1997; Tetra Tech and Washington Group International 2002). Although not a risk driver in this area, benzene was also detected in soil at concentrations exceeding criteria near the former fuel station location by Building 253.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
12	VOCs	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Sections 2.4.1, 2.4.3, and 2.4.4, pages 2-28, 2-29, 2-31 to 2-38, and 2-40.

The following subsections summarize the nature and extent of A-aquifer groundwater contamination by RU, followed by a subsection summarizing data for wells not located within an RU. Each RU has a unique list of COCs and COECs. Both were developed based on the area-specific analysis. The planned reuse also affects the determination of COCs from the vapor intrusion pathway.

2.4.1 Remedial Unit C1 Groundwater Summary

RU-C1 is located in the eastern portion of Parcel C and covers portions of redevelopment blocks COS-2, COS-3, 20B, 22, 24, and 25. This area was formerly referred to as IR-28, and includes Buildings 231, 211, 218, 219, and 253. The location of RU-C1 is shown on Figure 2-26.

Buildings 218 and 219 are located next to each other. Building 218 was used as a latrine, and no actions have been taken at that building (Tetra Tech FW, Inc. 2004). Building 219 was an electrical substation that housed six PCB-containing transformers, three 55-gallon drums of PCB-containing oil, six cardboard drums of unknown solids, and miscellaneous electrical equipment. A sump was also located on the north exterior of the building. The primary concerns at Building 219 were the PCB-containing transformers and the sump (PRC 1997).

Buildings 211 and 253 were used for machining, welding, assembly, painting, repair, and fabrication of a variety of electronic, optical, and ordnance-related equipment. The buildings share a common production floor, one large and two small paint booths, two large dip tanks, one large vapor degreaser, resin impregnation tanks, and a parts washer. Two sumps are located inside Building 253. Nine former USTs are associated with Buildings 211 and 253; these tanks were removed between 1991 and 1993 (PRC 1994a). The tanks primarily stored gasoline and diesel fuel, although results for samples from some of the tanks also indicated they stored solvents (Tetra Tech 2004a).

Building 231, located immediately north of Buildings 211 and 253 and south of Dry Dock 2, was historically used for heavy industrial machining. The building housed several air treatment systems, sumps, sandblasting rooms, a boiler, and subfloor trenches and piping. Five former USTs are located north and east of Building 231; three of these were removed in 1991 and the remaining two were closed in place. The tanks stored diesel and fuel oil (Tetra Tech 2004a).

Ten COCs were identified for RU-C1: 1,1-DCA, 1,2 DCE, 1,4-DCB, benzene, chloroform, cis-1,2-DCE, naphthalene, PCE, TCE, and vinyl chloride. Chromium VI and zinc were identified as COECs in A-aquifer groundwater at RU-C1 based on potential effects to the Bay. Table 2-17 provides RU-C1-specific summaries for both COCs and COECs.

Figures 2-27 through 2-30 show the maximum detected concentrations of PCE, TCE, cis-1,2-DCE, and vinyl chloride, respectively, for samples collected in 2004 in RU-C1. Concentration contours shown on these figures were developed considering reported analytical results of groundwater samples collected from 1990 to the second quarter 2007.

PCE concentrations have historically been as high as 220 to 380 micrograms per liter (µg/L) in RU-C1, with the highest concentrations detected in samples collected from IR28MW127A (located north of Building 231) and IR28MW338A (located in the south-central portion of Building 231). The areal extent of PCE in groundwater at RU-C1 is shown on Figure 2-27.

TCE concentrations have historically been as high as 25 to 78 µg/L in RU-C1, with the highest concentrations detected in samples collected from a group of wells located north of the sumps in the former cleaning and spray paint rooms in Building 253 and from wells IR28MW354A and IR28MW128A located to the north along Spear Avenue south of Building 231. Another cluster of wells with TCE above 10 µg/L occurs in the southeast portion of Building 231. The areal extent of TCE in groundwater at RU-C1 is shown on Figure 2-28.

Cis-1,2-DCE concentrations have historically been as high as 1,000 to 2,000 µg/L in RU-C1, with the highest concentrations detected in samples collected from well IR28MW151A (located just north of the sumps in the former cleaning and spray paint rooms in Building 253). The areal extent of cis-1,2-DCE in groundwater at RU-C1 is shown on Figure 2-29.

Vinyl chloride concentrations have historically been as high as 120 to 680 µg/L in RU-C1, with the highest concentrations detected in samples collected from IR28MW919A (located north of the sumps in Building 253) and IR28MW136A (located in the south-central portion of Building 231). The areal extent of vinyl chloride in groundwater at RU-C1 is shown on Figure 2-30.

VOCs (PCE, TCE, 1,2-DCE, vinyl chloride and chlorobenzene) have been reported in only one B-aquifer well located within RU-C1. The detections are reported in well IR28MW314B which is located within the eastern portion of Building 231. VOC concentrations in the B-aquifer are one to two orders of magnitude lower than the concentrations reported in the overlying A-aquifer. This location is near the edge of the B-aquifer and has TDS of greater than 10,000 mg/L. VOCs have not been reported in any other B-aquifer wells within RU-C1, nor within any F-WBZ wells in this area.

TPH is addressed under a separate program rather than under CERCLA, although TPH may be addressed in conjunction with CERCLA remediation at some sites were it is collocated with CERCLA hazardous substances. The upcoming Parcel C TPH CAP will address TPH at Parcel C. As documented in the Parcels C, D, and E CAP (Tetra Tech 2002b), the Navy developed two groundwater criteria to protect the Bay from petroleum contamination. One criterion provides specific limits for dissolved-phase TPH concentrations in groundwater as a function of distance from the shoreline (see Appendix G). The second criterion developed by the Navy is the removal of any recoverable free product encountered, regardless of its location. Recoverable free product is defined as any measurable thickness of free product (Tetra Tech 2002b). Light nonaqueous-phase

Building 258 was historically used as a pipe manufacturing facility where sulfuric, chromic, and hydrochloric acids, sodium hydroxide, and degreasing solvents were used. On the eastern side of the building, facing Building 251, the roof overhangs a former open pickling and degreasing operation. Eleven concrete and metal dip tanks and their associated drainage sumps were located here. The tanks were removed in 2001 (IT Corp. 2001a).

Twenty-three COCs (all VOCs) were identified for A-aquifer groundwater at RU-C2 based on the revised HHRA (Appendix C). No COECs were identified for A-aquifer groundwater at RU-C2 based on potential effects to the Bay (see Appendix G). Table 2-17 provides RU-C2-specific summaries for COCs.

Figures 2-31 through 2-37 show the maximum detected concentrations of PCE, TCE, cis-1,2-DCE, and vinyl chloride, 1,4-DCB, chlorobenzene and carbon tetrachloride, respectively, for samples collected in 2003 and 2004 in RU-C2. Concentration contours shown on these figures were developed considering reported analytical results of groundwater samples collected from 1990 to the second quarter 2007.

The highest concentration of PCE that has been detected in groundwater samples collected at RU-C2 is 140 µg/L. This concentration was detected in a sample collected from well IR28MW32B located northeast of Building 251 in 2005. Other samples from this well exhibited lower PCE concentrations of 16 and 23 µg/L. The areal extent of PCE in groundwater at RU-C2 is shown on Figure 2-31.

The highest concentration of TCE that has been detected in monitoring well samples collected from the A-aquifer at RU-C2 is 40 µg/L. This concentration was detected in a groundwater sample collected from well IR28MW300F in 1996 and in two samples collected from well IR28MW911A in 2001. TCE concentrations detected in groundwater samples collected from well IR28MW300F had decreased to 12 µg/L in 2004. As shown on Figure 2-28, TCE has been detected near both the sump and dip tank area (Building 251) and the pickling and degreasing operations (Building 258). TCE is currently present in both the Building 251 paint stripping area and the Building 258 pickling and degreasing operation area; the TCE plume has a greater areal extent than the cis-1,2 DCE and vinyl chloride plumes.

The highest concentration of cis-1,2-DCE that has been detected in monitoring well samples collected from the A-aquifer at RU-C2 is 3,600 µg/L. This concentration was detected in a groundwater sample collected from well IR58MW31A in 1998. This well is located north of Building 251, near the paint stripping area and a former solvent tank. Cis-1,2-DCE concentrations detected in samples from this well in 2004 ranged from 24 µg/L to 58 µg/L. The highest concentration of cis-1,2-DCE reported from sampling in 2004 is 230 µg/L. This high concentration was in a sample from well IR58MW33B, which is screened in both the A- and B-aquifers and located next to well IR58MW31A (see Figure 2-33).

The highest concentration of vinyl chloride that has been detected in monitoring well samples collected from the A-aquifer at RU-C2 is 1,700 µg/L. This concentration was detected in a groundwater sample collected from well IR58MW31A in September 2004. The areal extent of vinyl chloride in groundwater at RU-C2 is shown on Figure 2-34.

High concentrations, ranging from 110 to 940 µg/L, of 1,4-DCB have been detected in monitoring well samples collected from the A-aquifer at RU-C2. These concentrations were detected in groundwater samples collected from wells IR28MW909A, IR28MW911A, IR58MW31A, IR58MW35A, and IR28MW914A since 2000. These wells are located north of the Building 251 sump and dip tank area. The areal extent of 1-4-DCB in groundwater at RU-C2 is shown on Figure 2-35.

The highest concentration of chlorobenzene that has been detected in groundwater samples collected from the A-aquifer at RU-C2 is 9,900 µg/L. This concentration was detected in a sample collected from well IR28MW909A in 2001. High concentrations above 1,000 µg/L were also reported in samples from well IR58MW31A in 2004 and wells IR28MW914A and IR28MW911A in 2001. The areal extent of chlorobenzene is shown on Figure 2-36.

High concentrations, ranging from 150 to 400 µg/L, of trichlorofluoromethane (Freon 11) have been detected in samples collected from one monitoring well in the A-aquifer at RU-C2. These concentrations were detected in groundwater samples collected from well IR28MW188F, since 2002. This well is located northwest of Building 258 (Figure 2-26).

At this same well (IR28MW188F), high concentrations, ranging from 14 to 46 µg/L, of carbon tetrachloride have been detected in samples since 2000. High concentrations above 20 µg/L were also reported in samples from well IR28MW190F in 2004. Carbon tetrachloride has also been detected in well IR28MW397B east of Building 251 at concentrations ranging from 2 to 11 µg/L, and immediately north of Building 251 in well IR58MW31F ranging in concentrations from 0.76 to 5.4 µg/L. The estimated areal extent of carbon tetrachloride is shown on Figure 2-37.

VOCs (PCE, TCE, 1,2-DCE, vinyl chloride, and chlorobenzene) have been reported in several wells in the B-aquifer within RU-C2. The detections are reported in wells IR58MW33B, IR58MW32B, IR28MW397B, and IR28MW299B which are about the former sumps in and near Building 251. VOC concentrations in the B-aquifer are one to three orders of magnitude lower than the concentrations reported in the overlying A-aquifer. This location is in an area where the B-aquifer and A-aquifer are hydraulically, vertically interconnected. TDS concentrations in the B-aquifer in this area range from 1,370 to 9,770 mg/L.

PCE, TCE, cis-1,2-DCE and chlorobenzene have been reported at low concentrations (ranging from <0.5 to 12 µg/L) in wells IR28MW188F, IR28MW189F, IR28MW190F, IR28MW216F and IR28MW300F at RU-C2. These wells are located about Building 258 where the water table is within the F-WBZ. TDS concentrations in this area range from 700 to 4,160 mg/L.

Chromium VI, chromium, and zinc were not detected at concentrations above screening criteria at RU-C2.

2.4.3 Remedial Unit C4 Groundwater Summary

RU-C4 is located in southwestern Parcel C in IR-28, and covers portions of redevelopment blocks 18, 23, 24, 26, and COS-3. RU-C4 includes portions of a large number of buildings, including Buildings 270, 271, 272, and 281. The location of RU-C4 is shown on Figure 2-26.

Building 272 was the riggers shop. A sump located in the northeastern corner of Building 272 formerly drained into an oil and grease trap in the alley between Buildings 272 and 281. Building 281, identified as the Electronics-Weapons Precision Facility Machine Shop, contained a paint room with five steel dip tanks.

Two USTs containing solvents were removed (HPA-33 and HPA-34) from outside the north side of Building 281, and one UST (HPA-07) containing waste oil was removed from the southwest side of Building 281, in the alley between Buildings 281 and 272 (PRC 1994a). One additional UST was located in the RU-C4 vicinity, between the south end of Buildings 270 and 271, east of Building 272. Tank S-215 had contained paint thinner and was closed in place in 1991 (PRC 1994a).

Fifteen COCs were identified for the groundwater of the A-aquifer and F-WBZ at RU-C4 based on the revised HHRA (see Appendix C), and no COECs were identified for the groundwater of the A-aquifer and F-WBZ at RU-C4 based on potential effects to the Bay. Table 2-17 provides RU-C4-specific summaries for COCs. The impacts to groundwater occur in the area of Building 272 and the western portion of Building 281. The plume is principally in the F-WBZ but extends into the A-aquifer along the eastern portions of the plume. The sumps and dip tanks which constitute the source areas for these plumes are within the areas of both the F-WBZ and the A-aquifer. The RU-C4 plume approaches the western limit of the B-aquifer near Building 271, but generally, the B-aquifer does not exist within the RU-C4 plume area. TDS concentrations in the F-WBZ and A-aquifer in this area range from 200 to 24,800 mg/L, with the higher TDS levels being in the A-aquifer. The B-aquifer in the area of Building 271 has a TDS concentration in the range of 11,000 mg/L.

Figures 2-31 through 2-35 and 2-37 and 2-38 show the maximum detected concentrations of PCE, TCE, cis-1,2-DCE, vinyl chloride, 1,4-DCB, carbon tetrachloride, and 1,2-DCA, respectively, for samples collected in 2004 in RU-C4. Concentration contours shown on these figures were developed considering reported analytical results of groundwater samples collected from 1990 to the second quarter 2007.

Concentrations of PCE were detected at RU-C4 in monitoring well samples collected from wells IR28MW407and IR28MW360F at 270 and 140 µg/L, respectively, during 2002 and 2003. However, since that time PCE concentrations in wells in this area have decreased to between

5 and 30 µg/L. These wells are located in the northeast portion of Building 272 and south of Building 281. The areal extent of PCE in groundwater at RU-C4 is shown on Figure 2-31.

TCE has been detected in approximately 200 samples collected from the A-aquifer at RU-C4. As shown on Figure 2-32, the highest concentrations in 2003 and 2004 were reported in samples from wells located at the northern end of Building 272, with the TCE plume extending southward and slightly eastward. This plume is near the former floor drain and cleanout, which drained into an oil and grease trap and an underground tank in the alley between Building 272 and Building 281. At the southern edge of the plume, a concentration of 0.99 µg/L was reported during the June 2004 sampling event in a sample from well IR28MW272A. This well is approximately 80 feet from San Francisco Bay. The highest TCE concentration historically reported at RU-C4 is 76,000 µg/L, which was detected in a sample collected in November 2002 from well IR28MW211F. In 2004, TCE concentrations from three sampling events of this well ranged from 6.7 to 150 µg/L. Figure G-8 in Appendix G shows the trend of concentrations of TCE. The highest TCE concentration reported during 2003 to 2004 is 4,300 µg/L in well IR28MW407 (see Figure 2-32). In general, TCE concentrations have been decreasing in samples from the source area at the north end of Building 272. The treatability studies completed at RU-C4 have contributed to the reduction in concentrations of TCE.

Cis-1,2-dichloroethene, a degradation product of TCE, has been detected in 184 samples from the A-aquifer at RU-C4. The highest cis-1,2-DCE concentration (2,600 µg/L) was detected in 2003 at IR28MW407. During the sampling events in 2001 and 2002, cis-1,2-DCE was detected at concentrations ranging from 0.18 µg/L to 1,000 µg/L (detected in IR28MW211F). The highest detected cis-1,2-DCE concentration (1,200 µg/L) in 2004 was collected from IR28MW211F. The areal extent of cis-1,2-DCE in groundwater at RU-C4 is shown on Figure 2-33.

Vinyl chloride has been detected in samples from several wells, with the highest concentrations historically detected in samples from wells IR28MW407 and IR28MW211F. Figure 2-30 shows isoconcentration contours for the maximum vinyl chloride concentrations detected in 2003 and 2004 at RU-C4. The highest concentration detected was 440 µg/L. This concentration was detected in a sample collected in September 2003 from well IR28MW407. Samples from this well were also collected in 2004, with vinyl chloride concentrations ranging from 27 to 140 µg/L. Samples collected in 2004 from well IR28MW211F had vinyl chloride concentrations ranging from 6.5 to 52 µg/L. Compared with TCE and cis-1,2 DCE, vinyl chloride has the smallest areal extent and is currently present at the lowest concentrations.

The highest concentration of 1,4-DCB that has been detected in groundwater samples collected from RU-C4 is 50 µg/L. This concentration was detected in a sample collected from well IR28MW407 in 2004. This well is located between Buildings 272 and 281. The areal extent of 1,4-DCB in groundwater at RU-C5 is shown on Figure 2-35.

The highest concentration of carbon tetrachloride that has been detected in groundwater samples collected from RU-C4 is 520 µg/L. This concentration was detected in a sample collected from well IR28MW937F in 2001. This well is located in the northern portion of Building 272. The concentration of carbon tetrachloride at RU-C4 was significantly reduced by the treatability

study conducted in 2002. Current carbon tetrachloride concentrations range from 0.5 to above 10 µg/L in the north central area of Building 272. The estimated areal extent of carbon tetrachloride in groundwater at RU-C54 is shown on Figure 2-37.

The high concentrations of 1,2-DCA that have been detected in groundwater samples collected from RU-C4 ranged from 150 to 270 µg/L. These concentrations were detected in a sample collected from wells IR28MW410A, IR28MW409, and IR28MW408 between 2003 and 2005. These wells are located in the area between Buildings 272 and 281 near the floor drain cleanouts, former oil traps, and sumps. The areal extent of 1,2-DCA in groundwater at RU-C4 is shown on Figure 2-38.

Benzene was detected in groundwater samples collected from RU-C4 at concentrations ranging from 0.2 to 64µg/L. The highest detections were in the vicinity of Building 272. Because benzene was been detected in soil samples collected in the vicinity of Building 241, four groundwater wells were installed and sampled around Building 241 in 2002. Concentrations detected in three of these wells ranged from 0.1 to 6.4µg/L; benzene was not detected in the other well. Benzene was not detected in two subsequent rounds of sampling at the well with the highest concentration (IR30MW04F).

Chromium VI and zinc were not detected at concentrations above screening criteria at RU-C4.

2.4.4 Remedial Unit C5 Groundwater Summary

RU-C5 is located in northern Parcel C in IR-25 and IR-06, and covers portions of redevelopment blocks 10 and 11. RU-C5 includes Buildings 134 and extends slightly into Building 123 in Parcel B. The location of RU-C5 is shown on Figure 2-26. There are two groundwater plumes within RU-C5. The northern plume is in area IR25 and is associated with the sumps and separator in and near Building 134. The south plume is in area IR-06 and is associated with the tank farm and the related pipe lines. The water table at the IR-06 area is within both the A-aquifer and the F-WBZ. Analytical data shows the IR-06 is at significantly lower concentrations than the northern plume and is likely biodegrading.

Building 134 has contained offices, machine shops, a refrigeration repair shop, an industrial quality and reliability assurance laboratory, and storage facilities. A dip tank labeled "chlorinated materials" was built into the foundation and drained to a sump partially inside and partially outside of the building (PRC and others 1996). An oil and water separator that connects to the sump drains was located outside of Building 134. Sludge and oily waste were observed in the dip tank and sump in 1991; both the dip tank and sump have been removed. In one area of the machine shop, floor tile was observed saturated with, and deformed by, oil and corrosive material. A utility vault is present in the southwestern exterior of the building. Fuel distribution lines passed beneath the central part of Building 134; these lines have been removed. Fuel lines adjacent to the north and east of Building 134 were removed during removal actions at Parcel B in 2001.

Adjacent to Building 134 to the southwest was a fuel tank farm at IR-06. The 16 ASTs and two pumphouse buildings were removed in 1993 (PRC 1996a). Subsequent excavations of this area and the fuel lines from the former tank farm to IR-25 were completed during Parcel B removal actions.

An SVE system was installed and operated inside Building 134 in 2001. The cumulative VOC mass removal rate was between 0.05 and 0.12 pounds per day (IT Corp. 2001b). VOC vapors removed consisted of Freon-11 (trichlorofluoromethane), PCE, TCE, toluene, and xylenes. An anaerobic-aerobic sequential in-situ bioremediation (ISB) treatability study was conducted in the area of the former dip tank and sump in 2004 and 2005 (Shaw Environmental, Inc. 2005). Complete degradation of chlorinated ethenes was observed during the anaerobic stage. Reductive dechlorination of 1,2-DCB and 1,4-DCB to chlorobenzene was also observed. The injection of sodium lactate was hampered by low hydraulic conductivity soils, and thus was supplemented with hydrogen gas. The biodegradation of chlorobenzene and nonchlorinated organic chemicals was accomplished by the injection of oxygen. Low hydraulic conductivity soils hampered the delivery of oxygen, resulting in limited treatment areas. The study did not evaluate the potential for rebounding of chemical concentrations, which may occur.

The former dip tank and sump are the primary sources of solvents detected in groundwater at RU-C5. The former tank farm, fuel lines, dip tank, and machine shop operations are sources for metals, SVOCs, pesticides, PCBs, and petroleum hydrocarbons. Some metals also occur naturally in soils and bedrock at the site. A sample collected from the sludge in the sump area during the site investigation exhibited high concentrations of pentachlorophenol, as well as other VOCs, PCBs, and TPH (PRC 1994d). The sludge was later removed from the pit, and the dip tank and sump were cleaned (PRC 1996b). Results of subsequent soil samples collected when the sump was removed were nondetect for pentachlorophenol (Shaw Environmental, Inc. 2004).

Twenty COCs (all VOCs) were identified for A-aquifer groundwater at RU-C5 based on the HHRA (see Appendix C), and one COEC (chromium VI) were identified for A-aquifer groundwater at RU-C5 based on potential effects to the Bay (see Appendix G). Table 2-17 provides RU-C5-specific summaries for both COCs and COECs. At RU-C5, COCs were also developed for domestic use exposure for groundwater in the B-aquifer because the Water Board has not concurred with the Navy's determination that the B-aquifer is not a source of drinking water. Table 2-18 provides summary statistics for the COCs for the domestic use exposure at RU-C5.

In 2002, dense nonaqueous-phase liquid (DNAPL) was observed in RU-C5 near wells IR25MW15A2 (located about 5 feet east of IR25MW15A1), IR25MW19A, and IR25MW902B. Analysis of the DNAPL product collected from IR25MW19A indicated the presence of multiple VOCs dominated by PCE and chlorobenzene. During the 2004 RU-C5 treatability study, DNAPL was observed in a direct push monitoring point adjacent to IR25MW54A. The monitoring probe was installed to measure dissolved oxygen and other field parameters (Shaw Environmental, Inc. 2005). The presence of pockets of DNAPL at RU-C5 in the vicinity of IR25MW54A is consistent with the treatability results in this well

area. Significant reductions in concentrations of VOCs in this well area during the treatability study were not achieved, likely because of the presence of DNAPL in soil. Results of current groundwater monitoring have not identified any DNAPL (CE2-Kleinfelder 2007).

Figures 2-39 through 2-47, respectively, show the maximum detected concentrations of PCE, TCE, cis-1,2-DCE, vinyl chloride, 1,2-DCA, 1,4-DCB, 1,2-DCB, chlorobenzene and carbon tetrachloride for samples collected in 2004 in RU-C5. Concentration contours shown on these figures were developed considering reported analytical results of groundwater samples collected from 1990 to the second quarter 2007.

The highest concentration of PCE that has been detected in the A-aquifer at RU-C5 is 72,000 µg/L in a groundwater sample collected from well IR25MW19A in January 1998. The last sample collected from this well was in March 2001, and had a PCE concentration of 17,000 µg/L. PCE has been detected in 19 groundwater monitoring wells in RU-C5. The areal extent of the PCE plume to 0.5 µg/L is shown on Figure 2-31. Ten of the 15 groundwater monitoring wells are located within or outside Building 134 near the former dip tank and sump, and 4 of the 15 groundwater monitoring wells are located south of Building 134 near the former fuel tank farm.

The highest concentration of TCE that has been detected in the A-aquifer at RU-C5 is 18,000 µg/L in a groundwater sample collected from IR25MW19A in January 2001. Elevated concentrations of TCE have also been detected in groundwater samples collected from wells IR25MW15A1, IR25MW18A, and IR25MW902B. These four groundwater monitoring wells are the same wells that contain elevated PCE concentrations. TCE has been detected in 26 groundwater monitoring wells in RU-C5. The areal extent of the TCE plume shown on Figure 2-40 is nearly coincident with the PCE plume.

The highest concentration of cis-1,2-DCE that has been detected in the A-aquifer at RU-C5 is 58,000 µg/L in a groundwater sample collected from IR25MW15A1 in February 1998. Cis-1,2-DCE concentrations in groundwater samples collected from IR25MW15A1 remained elevated in the early 2000s, varying between 27,000 µg/L and 46,000 µg/L. Elevated concentrations of cis-1,2-DCE have also been detected in groundwater samples collected from IR25MW18A, IR25MW19A, and IR25MW902B. These are the same four groundwater monitoring wells that contain elevated PCE and TCE concentrations. Cis-1,2-DCE has been detected in 32 groundwater monitoring wells in RU-C5, primarily located within or outside Building 134 near the former dip tank and sump, or south of Building 134 near the former fuel tank farm. The areal extent of the cis-1,2-DCE plume is shown on Figure 2-41.

The highest concentration of vinyl chloride that has been detected in the A-aquifer at RU-C5 is 6,600 µg/L in a groundwater sample collected from IR25MW15A1 in October 1995. Vinyl chloride concentrations in IR25MW15A1 declined by the early 2000s, varying between 1,600 µg/L and 3,200 µg/L. Elevated concentrations of vinyl chloride are generally found in the same groundwater monitoring wells as PCE and TCE, plus in groundwater monitoring wells IR06MW59A1 and IR06MW59A2. Vinyl chloride has been detected in 25 groundwater monitoring wells in RU-C5. Nine of the groundwater monitoring wells are located within or

outside Building 134 near the former dip tank and sump, and six of the groundwater monitoring wells are located south of Building 134 near the former fuel tank farm. The areal extent of the vinyl chloride plume is shown on Figure 2-42.

High concentrations, ranging from 2,120 to 54,000 µg/L, of 1,2-DCA have been detected in groundwater samples collected from the A-aquifer at RU-C5. These concentrations were detected in samples collected from wells about the degreaser pits and separator in Building 134. These are the same wells that have high concentrations of PCE and TCE at Building 134. The areal extent of 1,2-DCA in groundwater at RU-C5 is shown on Figure 2-43.

High concentrations, ranging from 2,120 to 13,000 µg/L, of 1,4-DCB have been detected in groundwater samples collected from the A-aquifer at RU-C5. These concentrations were detected in samples collected from wells about the degreaser pits and separator in Building 134. The areal extent of 1,4-DCB in groundwater at RU-C5 is shown on Figure 2-44.

High concentrations, ranging from 4,300 to 39,000 µg/L, of 1,2-DCB have been detected in groundwater samples collected from the A-aquifer at RU-C5. These concentrations were detected in samples collected from wells about the degreaser pits and separator in Building 134. The areal extent of 1,2-DCB in groundwater at RU-C5 is shown on Figure 2-45.

High concentrations, ranging from 110 to 3,970 µg/L, of chlorobenzene have been detected in groundwater samples collected from the A-aquifer at RU-C5. These concentrations were detected in samples collected from wells about the degreaser pits and separator in Building 134. The areal extent of chlorobenzene in groundwater at RU-C5 is shown on Figure 2-46.

High concentrations, ranging from 510 to 5,900 µg/L, of trichlorofluoromethane (Freon 11) have been detected in samples collected from one monitoring well in the A-aquifer at RU-C5. These concentrations were detected in groundwater samples collected from well IR25MW52A since 2002. This well is located north of Building 134 (Figure 2-26).

The highest concentration of carbon tetrachloride that has been detected in groundwater samples collected from RU-C5 is 28 µg/L from well IR06MW55F in 1993. This well is located in the eastern portion of IR06. Detections of carbon tetrachloride in this area in 2007 and 2008 are less than 1 µg/L at IR06MW55F and between 4 and 5 µg/L at IR06MW54F. A concentration of 13 µg/L was reported for samples collected in 2005 from wells IR25MW53A, IR25MW56A, and IR25MW902B from about the sump location in the north end of Building 134. A concentration of 11 µg/L was detected during May 2007 in a sample from well IR06MW59A1; analyses of samples from this well both before and since have not detected carbon tetrachloride. The estimated areal extent of carbon tetrachloride in groundwater at RU-C5 is shown on Figure 2-47.

LNAPL has been historically reported at RU-C5, as discussed in Appendix G and shown in the table below. Residual LNAPL will be addressed under the TPH program.

COCs identified for domestic use exposure at RU-C5 are listed in Table 2-18. Most of these COCs are VOCs that are also identified as COCs for vapor intrusion exposure. COCs identified for domestic use only consist of VOCs (1,3 dichlorobenzene, 2-methylnaphthalene, 2-methylphenol), SVOCs(bis[2-ethylhexyl]phthalate, dibenzofuran, hexachloroethane), pesticides (aldrin, alpha-BHC, carbazole, dieldrin, heptachlor epoxide, heptachlor epoxide A) and metals (antimony, arsenic, chromium VI, iron, manganese and thallium).

Several of the COCs were identified based on the potential for contamination from the A-aquifer, but were not detected in the B-aquifer in the HHRA data set. The following wells are completed in the B-aquifer at RU-C5: IR25MW15A2, IR25MW41A, IR06MW59A2, IR25MW42B, IR25MW37B, IR25MW38B, IR25MW900B, IR25MW901B, IR25MW903B, IR25MW904B. The COCs that were not detected in these wells are aldrin, alpha-BHC, antimony, arsenic, bis(2-ethylhexyl)phthalate, carbazole, dieldrin, heptachlor epoxide A and hexachlorobenzene.

Of the VOCs that were identified as COCs for domestic use only, all were detected infrequently in the B-aquifer. 2-Methylphenol was detected only in 1994. 2-Methylnaphthalene was detected only once since 1994. 1,3 Dichlorobenzene was detected in three wells, with a maximum concentration of 62 µg/L in IR25MW901B in 2002.

None of the metal COCs detected in the B-aquifer were consistently detected above remediation goals. Chromium VI was detected once during the bioremediation treatability study just above the detection limit (11 µg/L), with chromium VI not detected in the subsequent sampling event. Manganese and thallium were detected at values below the HPAL since 1995. Iron was only detected below the remediation goal.

Similarly, pesticide and SVOC detections were infrequent and below remediation goals. Heptachlor expoxide A, the only pesticide detected in the B-aquifer, was detected only once very close to the detection limit and below the remediation goal. Dibenzofuran, the only SVOC detected in the B-aquifer, was detected in one well below the remediation goal.

2.4.5 Nonplume Wells Groundwater Summary

This section discusses areas of Parcel C that have not been classified as RUs. Contamination outside of the RUs is not attributed to known sources and not associated with contaminant plumes.

Three VOCs were identified as COCs in the A-aquifer for nonplume wells based on the potential for risk to human health from vapor inhalation (see Section 3.0). These chemicals are carbon tetrachloride, chloroform, and TCE. No COECs were identified for nonplume wells (see Appendix G). No COCs were identified for nonplume wells for the B-aquifer or the F-WBZ.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
13	Chromium VI and zinc	Section 2.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 2.4.1 through 2.4.4, pages 2-28, 2-30, 2-33, 2-35, 2-36, 2-39, and 2-40.

The following subsections summarize the nature and extent of A-aquifer groundwater contamination by RU, followed by a subsection summarizing data for wells not located within an RU. Each RU has a unique list of COCs and COECs. Both were developed based on the area-specific analysis. The planned reuse also affects the determination of COCs from the vapor intrusion pathway.

2.4.1 Remedial Unit C1 Groundwater Summary

RU-C1 is located in the eastern portion of Parcel C and covers portions of redevelopment blocks COS-2, COS-3, 20B, 22, 24, and 25. This area was formerly referred to as IR-28, and includes Buildings 231, 211, 218, 219, and 253. The location of RU-C1 is shown on Figure 2-26.

Buildings 218 and 219 are located next to each other. Building 218 was used as a latrine, and no actions have been taken at that building (Tetra Tech FW, Inc. 2004). Building 219 was an electrical substation that housed six PCB-containing transformers, three 55-gallon drums of PCB-containing oil, six cardboard drums of unknown solids, and miscellaneous electrical equipment. A sump was also located on the north exterior of the building. The primary concerns at Building 219 were the PCB-containing transformers and the sump (PRC 1997).

Buildings 211 and 253 were used for machining, welding, assembly, painting, repair, and fabrication of a variety of electronic, optical, and ordnance-related equipment. The buildings share a common production floor, one large and two small paint booths, two large dip tanks, one large vapor degreaser, resin impregnation tanks, and a parts washer. Two sumps are located inside Building 253. Nine former USTs are associated with Buildings 211 and 253; these tanks were removed between 1991 and 1993 (PRC 1994a). The tanks primarily stored gasoline and diesel fuel, although results for samples from some of the tanks also indicated they stored solvents (Tetra Tech 2004a).

Building 231, located immediately north of Buildings 211 and 253 and south of Dry Dock 2, was historically used for heavy industrial machining. The building housed several air treatment systems, sumps, sandblasting rooms, a boiler, and subfloor trenches and piping. Five former USTs are located north and east of Building 231; three of these were removed in 1991 and the remaining two were closed in place. The tanks stored diesel and fuel oil (Tetra Tech 2004a).

Ten COCs were identified for RU-C1: 1,1-DCA, 1,2 DCE, 1,4-DCB, benzene, chloroform, cis-1,2-DCE, naphthalene, PCE, TCE, and vinyl chloride. Chromium VI and zinc were identified as COECs in A-aquifer groundwater at RU-C1 based on potential effects to the Bay. Table 2-17 provides RU-C1-specific summaries for both COCs and COECs.

liquid (LNAPL) has been reported at RU-C1 (near the boundary of redevelopment blocks 22 and 25), as discussed in Appendix G. Reported LNAPL measurements are provided below.

Well	Reported Thickness (feet)	Date
IR28MW129A	Reported as visual and not measured	11/02/1995
	>1	6/4/ 2000
	13.05	8/1/2002
	>1 and viscous	2/16/2007
IR28MW353A	0.02	4/2000
	0.02	8/9/2002

Source: (Tetra Tech 2002b; CE2 Kleinfelder 2007).

The appearance of viscous LNAPL in 2000 at IR28MW129A may be a function of movement along preferential pathways below the surface. The source of the LNAPL at this well may be related to either industrial activities in Building 231 or one of the former USTs, located north of Building 231 that contained diesel. However, LNAPL has never been observed in well IR28MW155, which is closer to the USTs than IR28MW129A. LNAPL will be addressed under the TPH program. However, LNAPL may be addressed in conjunction with alternatives developed in this report if the technology designed to remediate other COCs also remediates LNAPL. For example, in areas where excavation is planned and LNAPL is present, the excavation would be designed to also remove the LNAPL.

Chromium VI and zinc were detected at RU-C1, at concentrations exceeding surface water criteria (Appendix G). Chromium VI concentrations at well IR28MW125A, adjacent to Dry Dock 2, ranged from 10 µg/L to 260 µg/L. Zinc was detected inconsistently at two wells (IR28MW124A and IR28MW126A) in RU-C1. Sources of chromium VI and zinc in soil were not identified during the RI or during subsequent investigations. Industrial activities at Buildings 231 and 253 are potential sources of contamination.

2.4.2 Remedial Unit C2 Groundwater Summary

RU-C2 is located in northwestern Parcel C and covers portions of redevelopment blocks 20A, 20B, and 24; portions of IR-28 and IR-58; and all or part of Buildings 251, 252, 258, and 281, as shown on Figure 2-26.

Building 251 housed a paint stripping operation and was used as a tool storage area and an industrial relations office. Dip tanks and sumps are located in the northern portion of the building. The dip tanks contained TCE that was used to strip paint from metal. A paint room in the north-central portion of the building contains floor sumps that were used for compressed-air spray painting. A solvent dispenser pump was located in the southeastern corner of this room. The eastern third of the building was used for storage and office space.

Chromium VI, chromium, and zinc were not detected at concentrations above screening criteria at RU-C2.

2.4.3 Remedial Unit C4 Groundwater Summary

RU-C4 is located in southwestern Parcel C in IR-28, and covers portions of redevelopment blocks 18, 23, 24, 26, and COS-3. RU-C4 includes portions of a large number of buildings, including Buildings 270, 271, 272, and 281. The location of RU-C4 is shown on Figure 2-26.

Building 272 was the riggers shop. A sump located in the northeastern corner of Building 272 formerly drained into an oil and grease trap in the alley between Buildings 272 and 281. Building 281, identified as the Electronics-Weapons Precision Facility Machine Shop, contained a paint room with five steel dip tanks.

Two USTs containing solvents were removed (HPA-33 and HPA-34) from outside the north side of Building 281, and one UST (HPA-07) containing waste oil was removed from the southwest side of Building 281, in the alley between Buildings 281 and 272 (PRC 1994a). One additional UST was located in the RU-C4 vicinity, between the south end of Buildings 270 and 271, east of Building 272. Tank S-215 had contained paint thinner and was closed in place in 1991 (PRC 1994a).

Fifteen COCs were identified for the groundwater of the A-aquifer and F-WBZ at RU-C4 based on the revised HHRA (see Appendix C), and no COECs were identified for the groundwater of the A-aquifer and F-WBZ at RU-C4 based on potential effects to the Bay. Table 2-17 provides RU-C4-specific summaries for COCs. The impacts to groundwater occur in the area of Building 272 and the western portion of Building 281. The plume is principally in the F-WBZ but extends into the A-aquifer along the eastern portions of the plume. The sumps and dip tanks which constitute the source areas for these plumes are within the areas of both the F-WBZ and the A-aquifer. The RU-C4 plume approaches the western limit of the B-aquifer near Building 271, but generally, the B-aquifer does not exist within the RU-C4 plume area. TDS concentrations in the F-WBZ and A-aquifer in this area range from 200 to 24,800 mg/L, with the higher TDS levels being in the A-aquifer. The B-aquifer in the area of Building 271 has a TDS concentration in the range of 11,000 mg/L.

Figures 2-31 through 2-35 and 2-37 and 2-38 show the maximum detected concentrations of PCE, TCE, cis-1,2-DCE, vinyl chloride, 1,4-DCB, carbon tetrachloride, and 1,2-DCA, respectively, for samples collected in 2004 in RU-C4. Concentration contours shown on these figures were developed considering reported analytical results of groundwater samples collected from 1990 to the second quarter 2007.

Concentrations of PCE were detected at RU-C4 in monitoring well samples collected from wells IR28MW407and IR28MW360F at 270 and 140 µg/L, respectively, during 2002 and 2003. However, since that time PCE concentrations in wells in this area have decreased to between

study conducted in 2002. Current carbon tetrachloride concentrations range from 0.5 to above 10 µg/L in the north central area of Building 272. The estimated areal extent of carbon tetrachloride in groundwater at RU-C54 is shown on Figure 2-37.

The high concentrations of 1,2-DCA that have been detected in groundwater samples collected from RU-C4 ranged from 150 to 270 µg/L. These concentrations were detected in a sample collected from wells IR28MW410A, IR28MW409, and IR28MW408 between 2003 and 2005. These wells are located in the area between Buildings 272 and 281 near the floor drain cleanouts, former oil traps, and sumps. The areal extent of 1,2-DCA in groundwater at RU-C4 is shown on Figure 2-38.

Benzene was detected in groundwater samples collected from RU-C4 at concentrations ranging from 0.2 to 64µg/L. The highest detections were in the vicinity of Building 272. Because benzene was been detected in soil samples collected in the vicinity of Building 241, four groundwater wells were installed and sampled around Building 241 in 2002. Concentrations detected in three of these wells ranged from 0.1 to 6.4µg/L; benzene was not detected in the other well. Benzene was not detected in two subsequent rounds of sampling at the well with the highest concentration (IR30MW04F).

Chromium VI and zinc were not detected at concentrations above screening criteria at RU-C4.

2.4.4 Remedial Unit C5 Groundwater Summary

RU-C5 is located in northern Parcel C in IR-25 and IR-06, and covers portions of redevelopment blocks 10 and 11. RU-C5 includes Buildings 134 and extends slightly into Building 123 in Parcel B. The location of RU-C5 is shown on Figure 2-26. There are two groundwater plumes within RU-C5. The northern plume is in area IR25 and is associated with the sumps and separator in and near Building 134. The south plume is in area IR-06 and is associated with the tank farm and the related pipe lines. The water table at the IR-06 area is within both the A-aquifer and the F-WBZ. Analytical data shows the IR-06 is at significantly lower concentrations than the northern plume and is likely biodegrading.

Building 134 has contained offices, machine shops, a refrigeration repair shop, an industrial quality and reliability assurance laboratory, and storage facilities. A dip tank labeled "chlorinated materials" was built into the foundation and drained to a sump partially inside and partially outside of the building (PRC and others 1996). An oil and water separator that connects to the sump drains was located outside of Building 134. Sludge and oily waste were observed in the dip tank and sump in 1991; both the dip tank and sump have been removed. In one area of the machine shop, floor tile was observed saturated with, and deformed by, oil and corrosive material. A utility vault is present in the southwestern exterior of the building. Fuel distribution lines passed beneath the central part of Building 134; these lines have been removed. Fuel lines adjacent to the north and east of Building 134 were removed during removal actions at Parcel B in 2001.

Adjacent to Building 134 to the southwest was a fuel tank farm at IR-06. The 16 ASTs and two pumphouse buildings were removed in 1993 (PRC 1996a). Subsequent excavations of this area and the fuel lines from the former tank farm to IR-25 were completed during Parcel B removal actions.

An SVE system was installed and operated inside Building 134 in 2001. The cumulative VOC mass removal rate was between 0.05 and 0.12 pounds per day (IT Corp. 2001b). VOC vapors removed consisted of Freon-11 (trichlorofluoromethane), PCE, TCE, toluene, and xylenes. An anaerobic-aerobic sequential in-situ bioremediation (ISB) treatability study was conducted in the area of the former dip tank and sump in 2004 and 2005 (Shaw Environmental, Inc. 2005). Complete degradation of chlorinated ethenes was observed during the anaerobic stage. Reductive dechlorination of 1,2-DCB and 1,4-DCB to chlorobenzene was also observed. The injection of sodium lactate was hampered by low hydraulic conductivity soils, and thus was supplemented with hydrogen gas. The biodegradation of chlorobenzene and nonchlorinated organic chemicals was accomplished by the injection of oxygen. Low hydraulic conductivity soils hampered the delivery of oxygen, resulting in limited treatment areas. The study did not evaluate the potential for rebounding of chemical concentrations, which may occur.

The former dip tank and sump are the primary sources of solvents detected in groundwater at RU-C5. The former tank farm, fuel lines, dip tank, and machine shop operations are sources for metals, SVOCs, pesticides, PCBs, and petroleum hydrocarbons. Some metals also occur naturally in soils and bedrock at the site. A sample collected from the sludge in the sump area during the site investigation exhibited high concentrations of pentachlorophenol, as well as other VOCs, PCBs, and TPH (PRC 1994d). The sludge was later removed from the pit, and the dip tank and sump were cleaned (PRC 1996b). Results of subsequent soil samples collected when the sump was removed were nondetect for pentachlorophenol (Shaw Environmental, Inc. 2004).

Twenty COCs (all VOCs) were identified for A-aquifer groundwater at RU-C5 based on the HHRA (see Appendix C), and one COEC (chromium VI) were identified for A-aquifer groundwater at RU-C5 based on potential effects to the Bay (see Appendix G). Table 2-17 provides RU-C5-specific summaries for both COCs and COECs. At RU-C5, COCs were also developed for domestic use exposure for groundwater in the B-aquifer because the Water Board has not concurred with the Navy's determination that the B-aquifer is not a source of drinking water. Table 2-18 provides summary statistics for the COCs for the domestic use exposure at RU-C5.

In 2002, dense nonaqueous-phase liquid (DNAPL) was observed in RU-C5 near wells IR25MW15A2 (located about 5 feet east of IR25MW15A1), IR25MW19A, and IR25MW902B. Analysis of the DNAPL product collected from IR25MW19A indicated the presence of multiple VOCs dominated by PCE and chlorobenzene. During the 2004 RU-C5 treatability study, DNAPL was observed in a direct push monitoring point adjacent to IR25MW54A. The monitoring probe was installed to measure dissolved oxygen and other field parameters (Shaw Environmental, Inc. 2005). The presence of pockets of DNAPL at RU-C5 in the vicinity of IR25MW54A is consistent with the treatability results in this well

Well	Reported Thickness (feet)	Date
IR25MW11A	Reported as visual and not measured	11/02/1995
	0.2	8/15/2000
	0.25	11/21/2006
IR25MW19A	Reported as visual and not measured	03/31/2001
IR25MW22A	Reported as visual and not measured	08/16/2000
IR25MW11A	Reported as visual and not measured	11/02/1995

In 2006, CE2 Corporation prepared a technical memorandum to document the further delineation of subsurface contamination at RU-C5. The investigation used passive gas sampling, hydropunch groundwater sampling, and monitoring well sampling to assess the lateral extent of dissolved-phase VOCs in shallow groundwater (the A-aquifer) along the boundary between Parcels B and C near RU-C5. Also, the investigation assessed whether dissolved-phase VOCs from RU-C5 had migrated across the boundary into Parcel B and delineated the resulting lateral extent in shallow groundwater in Parcel B. Lastly, the investigation evaluated the lateral extent of VOCs as DNAPLs, if present.

The investigation concluded dissolved-phase VOCs have migrated into Parcel B from Parcel C in the A-aquifer at some shallow hydropunch® sampling locations. The concentrations detected along the Parcel B/C boundary were low and did not exceed California MCLs. The concentrations of chemicals detected in deep groundwater samples collected at the interface between the unconsolidated sediments and bedrock were low, did not exceed California MCLs, and are not indicative of the presence of DNAPLs at the sampling locations. The data did not indicate migration of DNAPLs along the bedrock to the sampling locations. The technical memorandum recommended no additional site investigation work is needed to delineate subsurface contamination near the Parcels B and C boundary, but that additional wells should be considered for inclusion in the basewide groundwater monitoring program (CE2 Corporation 2006).

Unfortunately, the designation in the names of some wells at RU-C5 does not accurately designate in which groundwater unit the wells are completed. The 900-series treatability study wells that were installed in 2000 at Building 134 were in some cases mislabeled with the wrong unit designation. PCE at 1.1 µg/L and 1,2-dichlorobenzene at 2.9 µg/L have been reported in B-aquifer well IR25MW38B. VOCs have not been reported in B-aquifer wells IR25MW37B, IR25MW39B, and IR25MW42B. No VOCs have been detected in F-WBZ well IR25MW15F.

Chromium VI has been detected consistently at RU-C5 near IR-06 at concentrations exceeding the surface water criterion (Appendix G). Historically, zinc has been detected infrequently at concentrations exceeding the surface water criterion. Sources of chromium VI and zinc in soil were not identified during the RI or during subsequent investigations.

COCs identified for domestic use exposure at RU-C5 are listed in Table 2-18. Most of these COCs are VOCs that are also identified as COCs for vapor intrusion exposure. COCs identified for domestic use only consist of VOCs (1,3 dichlorobenzene, 2-methylnaphthalene, 2-methylphenol), SVOCs(bis[2-ethylhexyl]phthalate, dibenzofuran, hexachloroethane), pesticides (aldrin, alpha-BHC, carbazole, dieldrin, heptachlor epoxide, heptachlor epoxide A) and metals (antimony, arsenic, chromium VI, iron, manganese and thallium).

Several of the COCs were identified based on the potential for contamination from the A-aquifer, but were not detected in the B-aquifer in the HHRA data set. The following wells are completed in the B-aquifer at RU-C5: IR25MW15A2, IR25MW41A, IR06MW59A2, IR25MW42B, IR25MW37B, IR25MW38B, IR25MW900B, IR25MW901B, IR25MW903B, IR25MW904B. The COCs that were not detected in these wells are aldrin, alpha-BHC, antimony, arsenic, bis(2-ethylhexyl)phthalate, carbazole, dieldrin, heptachlor epoxide A and hexachlorobenzene.

Of the VOCs that were identified as COCs for domestic use only, all were detected infrequently in the B-aquifer. 2-Methylphenol was detected only in 1994. 2-Methylnaphthalene was detected only once since 1994. 1,3 Dichlorobenzene was detected in three wells, with a maximum concentration of 62 µg/L in IR25MW901B in 2002.

None of the metal COCs detected in the B-aquifer were consistently detected above remediation goals. Chromium VI was detected once during the bioremediation treatability study just above the detection limit (11 µg/L), with chromium VI not detected in the subsequent sampling event. Manganese and thallium were detected at values below the HPAL since 1995. Iron was only detected below the remediation goal.

Similarly, pesticide and SVOC detections were infrequent and below remediation goals. Heptachlor expoxide A, the only pesticide detected in the B-aquifer, was detected only once very close to the detection limit and below the remediation goal. Dibenzofuran, the only SVOC detected in the B-aquifer, was detected in one well below the remediation goal.

2.4.5 Nonplume Wells Groundwater Summary

This section discusses areas of Parcel C that have not been classified as RUs. Contamination outside of the RUs is not attributed to known sources and not associated with contaminant plumes.

Three VOCs were identified as COCs in the A-aquifer for nonplume wells based on the potential for risk to human health from vapor inhalation (see Section 3.0). These chemicals are carbon tetrachloride, chloroform, and TCE. No COECs were identified for nonplume wells (see Appendix G). No COCs were identified for nonplume wells for the B-aquifer or the F-WBZ.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
14	Radiologically impacted sites	Section 2.3	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Section 2.1.1, pages 2-1 and 2-2. Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939 – 2003, Hunters Point Shipyard, San Francisco, California. Naval Sea Systems Command. August 31, 2004. Section 8.3.3, pages 8-50 to 8-73.

2.1 BACKGROUND

HPS is a former DON shipyard situated on an irregular promontory extending into San Francisco Bay in the extreme southeast quadrant of the City and County of San Francisco, California (Figure 2-1). A summary of the history of HPS, physical descriptions of the site, and discussions of hydrogeology and geology are included in the Revised FS for Parcel C (SulTech, 2007).

Figure 2-2 shows the division of HPS into six parcels and outlines Parcel C, the focus of this Addendum. Figure 2-3 shows the proposed reuses and the impacted buildings in Parcel C. Figure 2-4 shows the impacted Parcel C storm water and sanitary sewer lines.

2.1.1 HPS and Parcel C Radiological History

Parcel C is located in the northeast-central quadrant of HPS (Figure 2-2). It includes 79 acres of shoreline and lowlands and is described in detail in the Revised FS for Parcel C (SulTech, 2007). Following the acquisition of HPS by the Navy in 1939, operation at HPS involved the use of radioactive materials in buildings throughout the site, including Parcel C. Radiological operations in Parcel C included burning of contaminated fuel from three OPERATION CROSSROADS ships in the Power House (Building 203), pumping potentially contaminated water from Drydock 2, contractor low-level radioactive waste (LLRW) storage, the Naval Radiological Defense Laboratory (NRDL) Health Physics counting room, storage of samples from atomic weapons testing, use of firebrick containing naturally radioactive materials, radiography source operations, potential radium paint use, and the maintenance and storage of radioluminescent devices. According to San Francisco's Redevelopment Plan (San Francisco Redevelopment Agency, 1997), once transferred, Parcel C will be subdivided into blocks and zoned for educational, cultural, mixed use, research and development, industrial, maritime-industrial, and open spaces. The city's proposed reuse areas for Parcel C are shown in Figure 2-3.

Immediately after the end of World War II and prior to the beginning of atomic weapons testing at sea, the DON used the berthing facilities at HPS for anchorage of reserve fleet ships returning from the Pacific. In 1946, berths and drydocks were used for the decontamination of radiologically-contaminated target and support ships returning from the OPERATION CROSSROADS atomic tests conducted at Bikini Atoll in the Marshall Islands. The Navy also experimented with chemical and physical ship decontamination techniques to evaluate their

effectiveness. HPS also used these facilities for the decontamination of other ships that participated in subsequent atomic weapons tests (NAVSEA, 2004).

The Chief of Naval Operations (CNO) recognized the need to study the effects of atomic weapons and ordered as the formation of the Radiological Safety Section (RSS) at HPS in 1946. The RSS became known as the Radiation Laboratory (RADLAB) and on April 21, 1948, the RADLAB became the Naval Radiological Defense Laboratory (NRDL) (NAVSEA, 2004). The NRDL conducted extensive radiological operations at HPS in support of its mission until it was disestablished in 1969. In addition to its naval mission, these operations included managing the receipt and packaging of radioactive waste for deep sea disposal. These wastes were generated at HPS and at other sites around the Bay area.

Historical radiological operations at HPS included the following (NAVSEA, 2004):

- Repair, use, and disposal of radioluminescent commodity items (dials, gauges, and deck markers).
- Use of radioactive sources for gamma radiography for non-destructive testing metal and weld integrity.
- Use of radioactive sources for calibration laboratory operations to ensure radiation survey instrument accuracy.
- Decontamination of and research on ships contaminated during atomic weapons testing.
- Use of various radionuclides for research by the NRDL and its predecessors.
- Receipt and packaging of radioactive waste for deep sea disposal.

The impacted Parcel C areas, including buildings (203, 205 and its discharge channel, 211, 214, 224, 241, 253, 271, and 272) and storm water and sanitary sewer systems, are described with a synopsis of their use in Table 2-1 (NAVSEA, 2004).

2.1.2 Historical Radiological Assessments and Results

Throughout its history, HPS has been assessed for residual contamination from its radiological operations. Assessments were performed by the DON, DON contractors, and federal, state, and local regulatory agencies. These investigations and surveys undertaken at the HPS site include (NAVSEA, 2004):

- 1946 through 1948 Radiation Safety Section (RSS), RADLAB and NRDL decontaminated and surveyed OPERATION CROSSROADS ships and HPS berths and drydocks. There are no surveys for Parcel C sites reported for this period.
- 1955 NRDL surveys to decommission NRDL buildings at HPS. There are no surveys for Parcel C sites reported.

8.3.3 Parcel C Impacted Sites

8.3.3.1 Building 203

Site Description: Building 203 is a large reinforced concrete building housing a power plant (HRA-2963). Constructed in 1943 and extended in 1945, the building measures 152 feet by 137 feet (HRA-1118, p 58). The building is also referred to as Substation H (HRA-4667). It has a flat reinforced concrete roof with a slight overhang. The building includes a major addition that is sided in corrugated metal, likely the 1945 extension. A building site plan is provided in Figure 8.3.3.1, and a floor plan is provided in Figure 8.3.3.1FP.

Former Uses: Power Plant (HRA-1118, p 58; HRA-2963; HRA-4667). This is one of two sites suspected of burning of fuel oil from three OPERATION CROSSROADS target ships.

Current Uses: Unoccupied.

Radionuclides of Concern: Cs-137, Sr-90, Pu-239, and Ra-226.

Previous Radiological Investigations: None.

Contamination Potential: Unlikely.

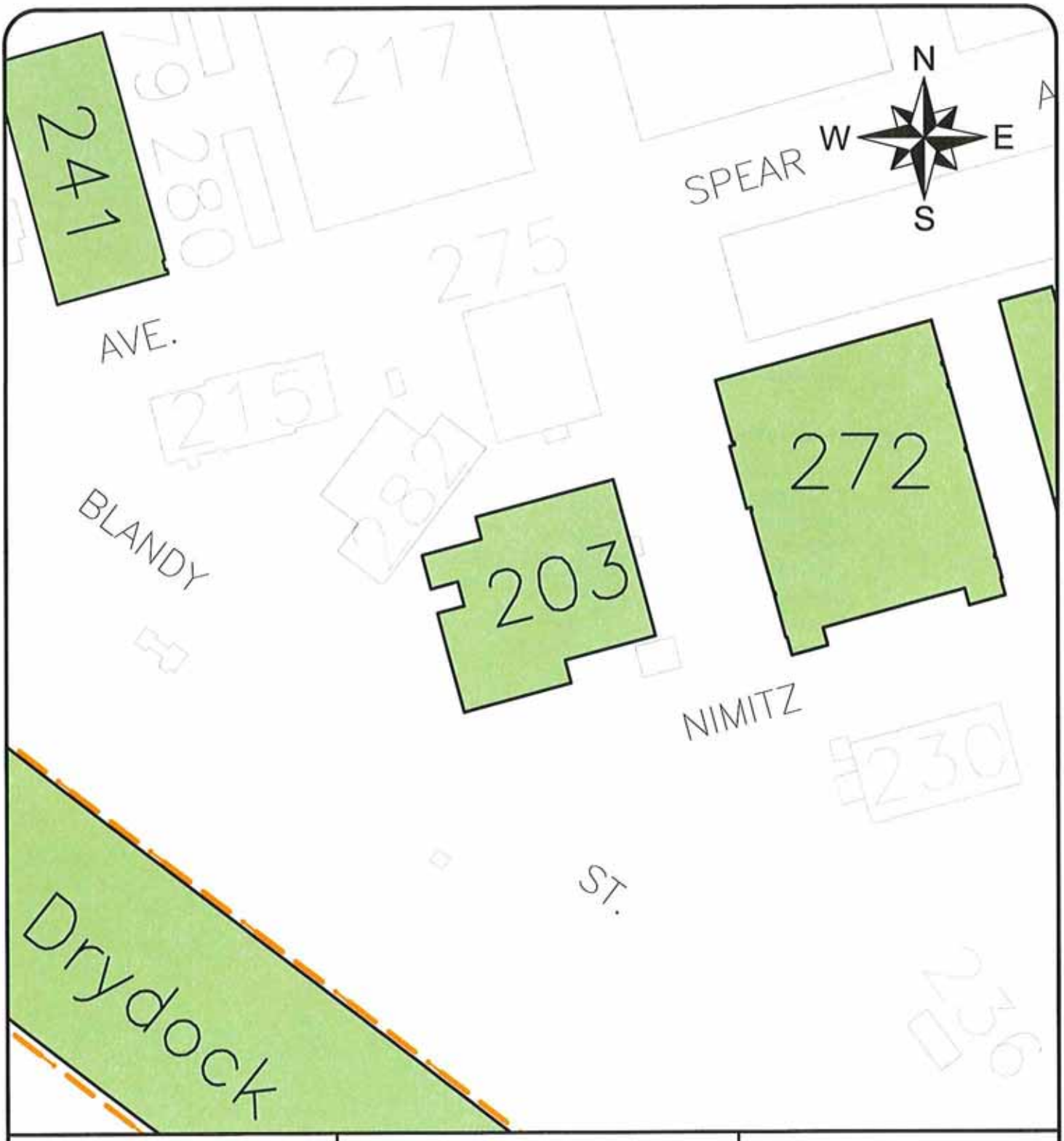
Contaminated Media:

Surface Soil: Low
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Potential Migration Pathways:

Surface Soil: Low
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Recommended Actions: Scoping Survey. Characterization and remediation if contamination is found. Final Status Survey.



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100 0 100
Scale in Feet

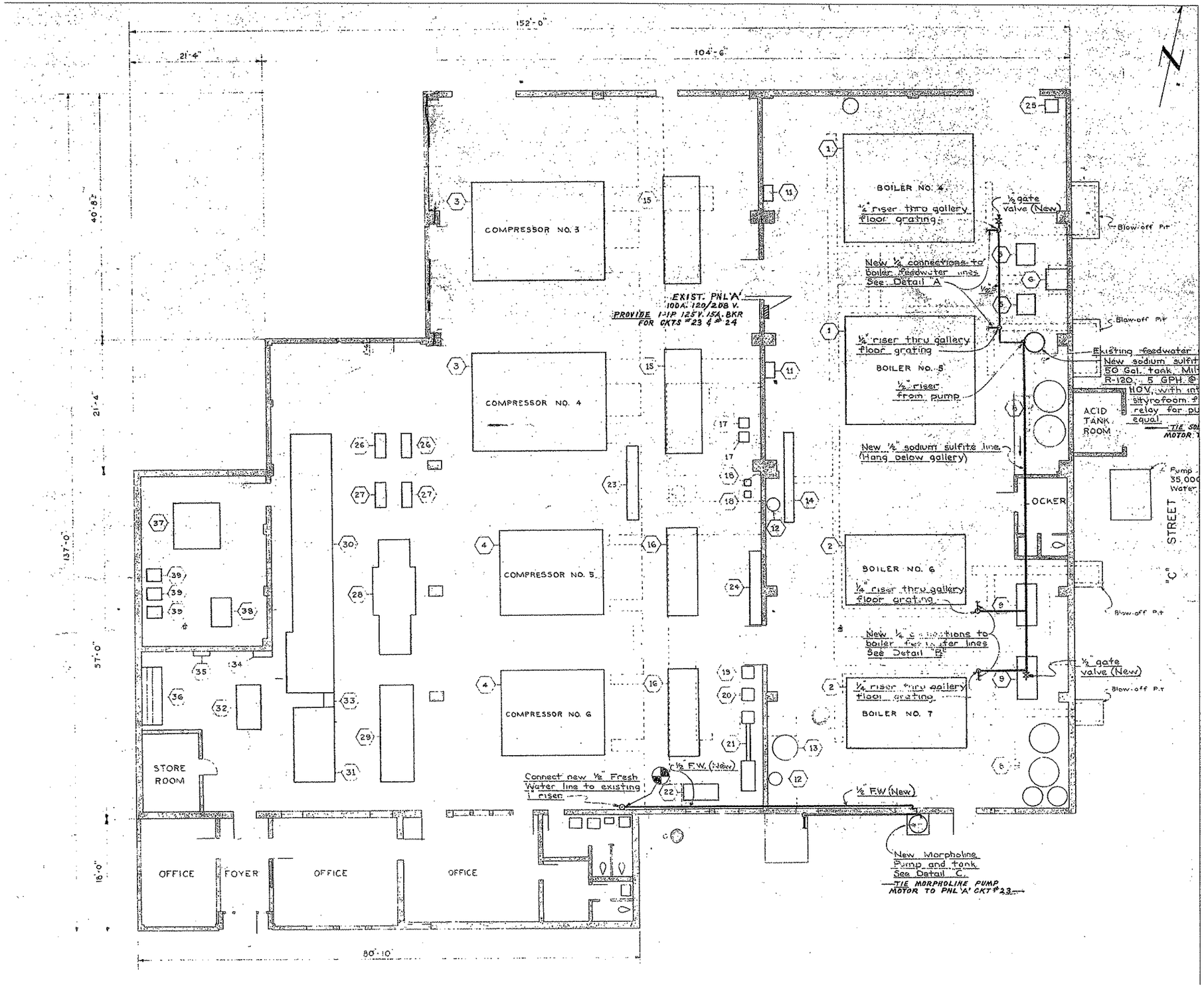
- Impacted Site with Designation
- Impacted Site with Designation (Demolished)
- IR Site w/ Designation
- Non - Impacted Building
- Non-Impacted Building (Demolished)
- Topographic Feature
- Parcel Boundary

Hunters Point Naval Shipyard
San Francisco CA
Historical Radiological Assessment

Bldg. 203 Site Plan

January, 2004

Figure 8.3.3.1



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Scale in Feet

Notes:

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Historical Radiological Assessment

August, 2004

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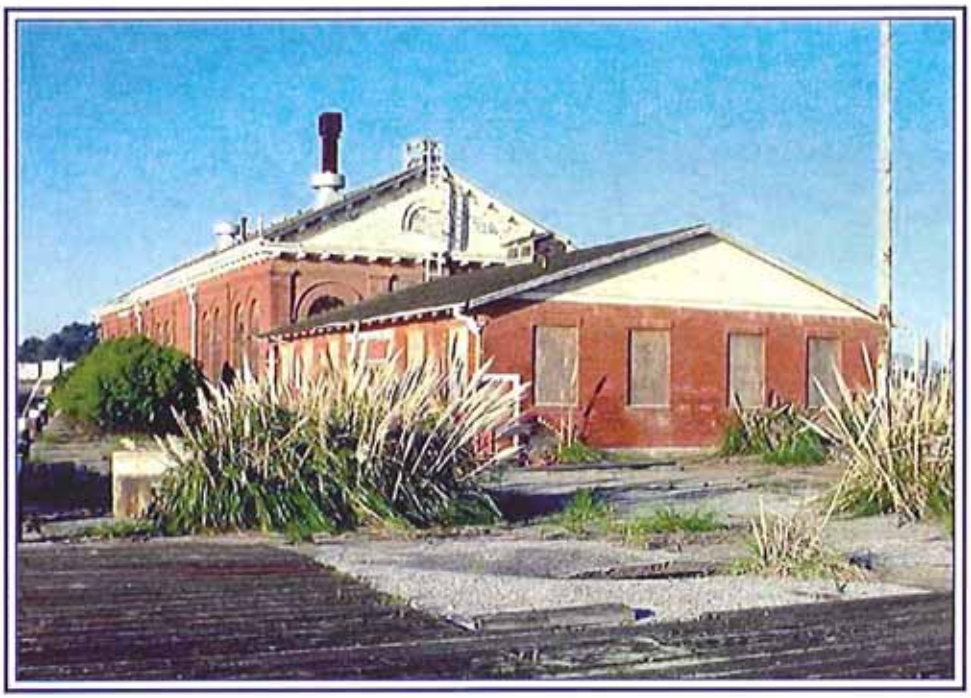
Figure 8.3.3.1 FP
Building 203 - Floor Plan

8.3.3.2 Building 205 and Discharge Channel



Site Description: Building 205 is a single-story L-shaped brick building, measuring 211 by 61 feet. Two WW II era additions were made to the rear of the original building. The building houses the pumping machinery for Drydock 2 (HRA-1119, p 54; HRA-4667). A discharge tunnel connects the building to the drydock. There is also a channel connecting the building to Drydock 3 (HRA-4686). A site plan is provided in Figure 8.3.3.2.

Former Uses: Pumphouse for Drydock 2.

Current Uses: Unoccupied.

Radionuclides of Concern: Cs-137, Pu-239, Sr-90, and Ra-226.

Previous Radiological Investigations: None.

Contamination Potential: Unlikely.

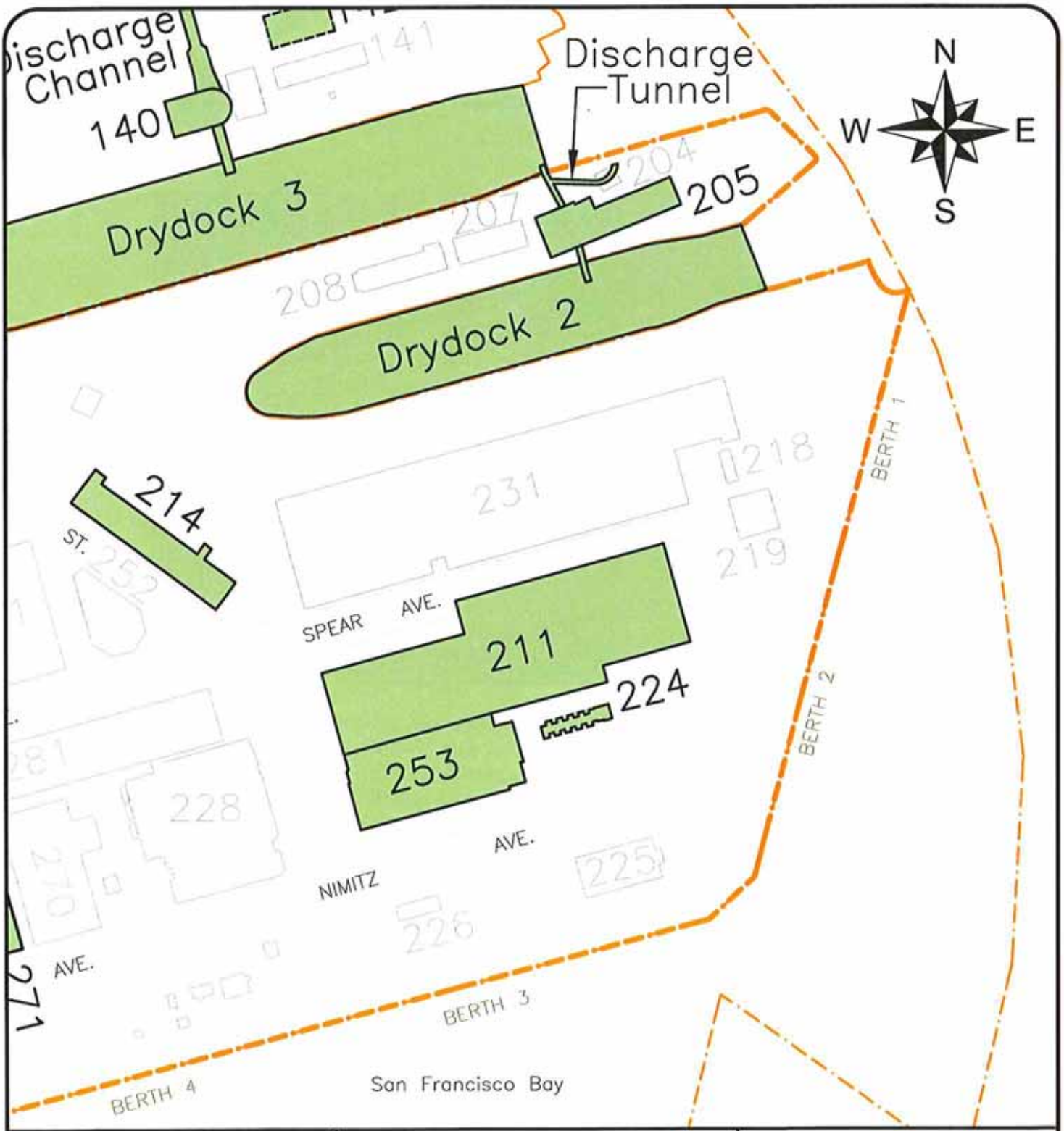
Contaminated Media:

Surface Soil: None
Subsurface Soil: None
Sediment: Low
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: Low

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: None
Sediment: Low
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: Low

Recommended Actions: Scoping Survey. Characterization and remediation if contamination is found. Final Status Survey.



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200 0 200
Scale in Feet

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- Impacted Site with Designation (Demolished)
- Impacted IR Site w/ Designation
- Non - Impacted Building
- Non-Impacted Building (Demolished)
- Topographic Feature
- Parcel Boundary

All Berths shown are Impacted

Hunters Point Naval Shipyard
San Francisco CA
Historical Radiological Assessment

Bldg. 205, 211, 214, 224, 253
Site Plan
January, 2004

Figure 8.3.3.2

8.3.3.3 Building 211

Site Description: Building 211 is a three-story concrete-framed, curtain-walled building that was built in 1942 (HRA-1118, p 92). It is a large warehouse-type building, with a large gantry for craning materials to the upper stories. Building 211 is attached to Building 253 (HRA-1118, p 94). A building site plan is provided in Figure 8.3.3.2 above.

Former Uses: Machinery and electrical test/repair shop (HRA-2963; HRA-4667) and contractor LLRW storage site.

Current Uses: Unoccupied.

Radionuclides of Concern: Cs-137, Ra-226, and Th-232.

Previous Radiological Investigations: NWT Phase V investigation. There is a small area of Th-232 contamination on the concrete floor.

Contamination Potential: Known-Continued Access: Th-232 from refractory compound and welding electrodes.

Contaminated Media:

Surface Soil: None
Subsurface Soil: None
Sediment: Low
Surface Water: None
Groundwater: None
Air: None
Structures: Moderate
Drainage Systems: Low (common drains with Building 253)

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: None
Sediment: Low
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: Low (common drains with Building 253)

Recommended Actions: Remediate area of Th-232 contamination. Final Status Survey following remediation.

8.3.3.4 Building 214

Site Description: Building 214 is of typical wooden WW II era administration building design, built from standardized Bureau of Yards and Docks plans (HRA-1118, p 108). A building site plan is provided in Figure 8.3.3.2 above.

Former Uses: Combat Weapons Systems Office (HRA-4667), administrative offices (HRA-2963), Accounting and Bond Office, Triple A office space, and NRDL Health Physics counting room in Room 105 (HRA-3052 Encl 3).

Current Uses: Unoccupied.

Radionuclides of Concern: Cs-137, Pu-239, Ra-226, and Sr-90.

Previous Radiological Investigations:

2002 NWT Phase V investigation. Surveys completed.

1996 PRC – survey found no detectable activity in building.

1974 Shipyard closure survey. No detectable activity.

Contamination Potential: Unlikely.

Contaminated Media:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Recommended Actions: Review Final Status Survey Report.

8.3.3.5 Building 224

Site Description: Building 224 is a reinforced concrete bomb shelter (in foreground) that was built in the main industrial area of HPS in 1944. The building is mostly underground, rising only 3 feet out of the ground (HRA-1118, p 86). Metal doors and stairwells lead to a series of small rooms. A building site plan is provided in Figure 8.3.3.2 above.

Former Uses: Air raid shelter and OPERATIONS CROSSROADS and GREENHOUSE sample storage (HRA-405; HRA-4667).

Current Uses: Unoccupied.

Radionuclides of Concern: Cs-137, Pu-239, and Sr-90.

Previous Radiological Investigations:

2002 NWT Phase V investigation. Survey complete. One sample from cell showed Cs-137 levels slightly exceeding the release criteria. The contamination was apparently removed with the sampling, as it cannot be located again. Survey results currently under review.

Contamination Potential: Unlikely.

Contaminated Media:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Recommended Actions: Review Final Status Survey Report.

8.3.3.6 Building 241

Site Description: Building 241 is a large wood-framed, monitored (lights and ventilation) shop building, including a shallow, almost flat, gabled roof with monitors and shallow shed-roofed forms at either side. A building site plan is provided in Figure 8.3.3.6.

Former Uses: Forge Shop (HRA-2963).

Current Uses: Unoccupied.

Radionuclides of Concern: Naturally occurring thorium from firebrick and known use of potassium nitrate.

Previous Radiological Investigations: 2002 NWT Phase V investigation. Survey completed. Potassium nitrate and firebrick removed and disposed of off site.

Contamination Potential: Unlikely.

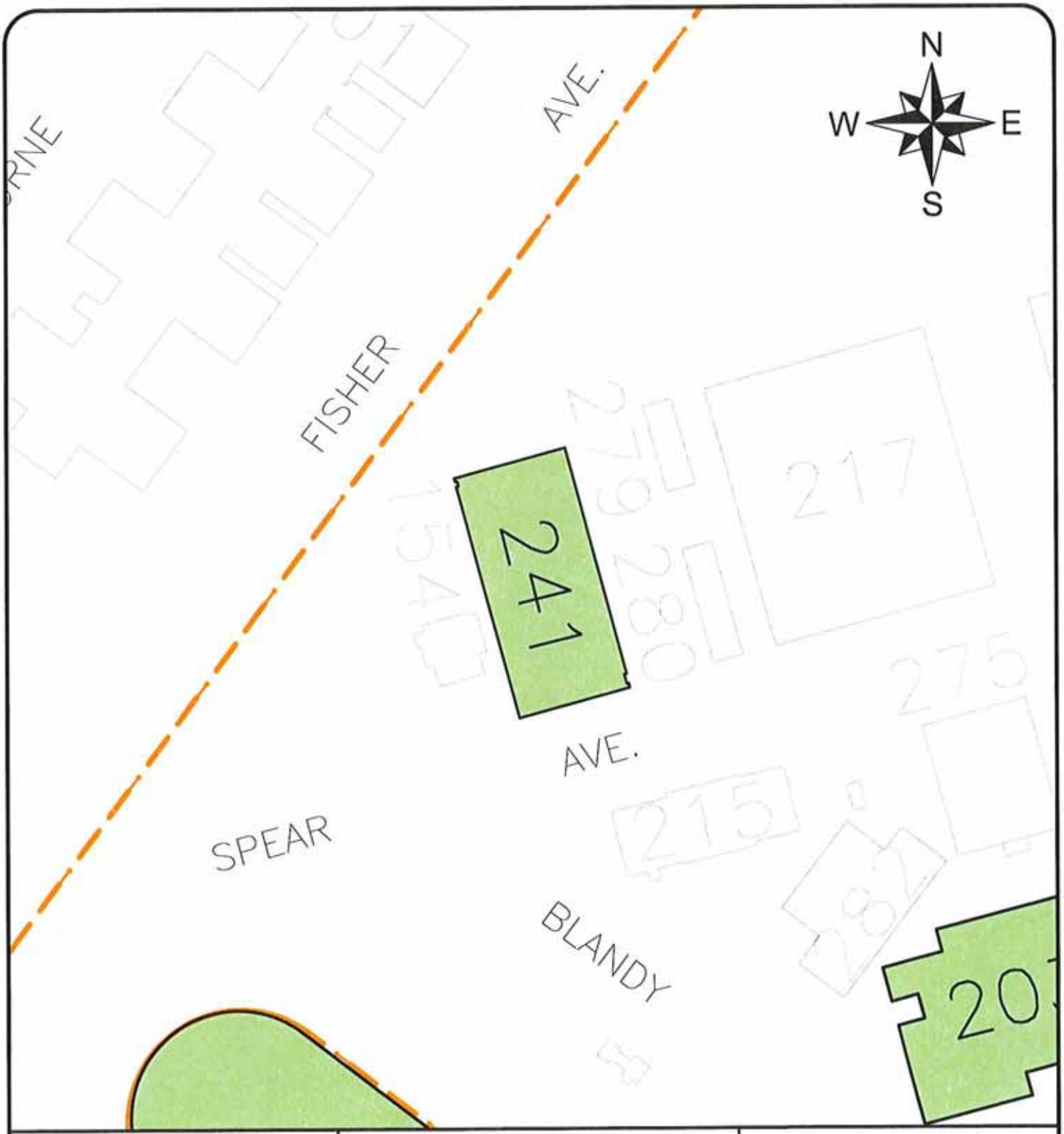
Contaminated Media:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Recommended Actions: Review Final Status Survey Report.



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100 0 100
Scale in Feet

- Impacted Site with Designation
- Impacted Site with Designation (Demolished)
- IR Site w/ Designation
- Non - Impacted Building
- Non-Impacted Building (Demolished)
- Topographic Feature
- Parcel Boundary

Hunters Point Naval Shipyard
San Francisco CA
Historical Radiological Assessment

Bldg. 241 Site Plan

January, 2004

Figure 8.3.3.6

8.3.3.7 Building 253

Site Description: Building 253 is a six-story concrete-framed, glass curtain-walled building built between 1944 and 1947. The building has a large gantry for the craning of equipment to the upper stories and a periscope tower extending vertically from the roof. Building 253 is attached to Building 211 (HRA-1118, pp 94-96). The glazing for Building 253 is standard glass. A building site plan is provided in Figure 8.3.3.2 above, and a floor plan (first floor) is provided in Figure 8.3.3.7FP.

Former Uses: Radiography and instrument calibration through 1974 (HRA-601, p 9); Gauge Shop (HRA-601, p 10); Electronics, Optical, and Ordnance Shops (HRA-2963); Weapons Shop (HRA-372, p 14); Electrical Shop (HRA-372, p 17); storage of equipment from OPERATION CROSSROADS ships; Maritime Administration Ship Parts Storage (1994); and probable location of radium paint activities (Gauge Shop).

Current Uses: Unoccupied.

Radionuclides of Concern: Cs-137, Pu-239, Ra-226, Sr-90, and Th-232.

Previous Radiological Investigations:

2003 NWT partial building Characterization Survey.

2002 NWT Phase V investigation. Extensive low-level contamination (Cs-137 and Ra-226) found in and on the building and in the building ventilation system. Remediation completed on roof.

1974 Shipyard closure survey of sixth floor. No detectable activity based on limits for the period.

Contamination Potential: Known-Restricted Access.

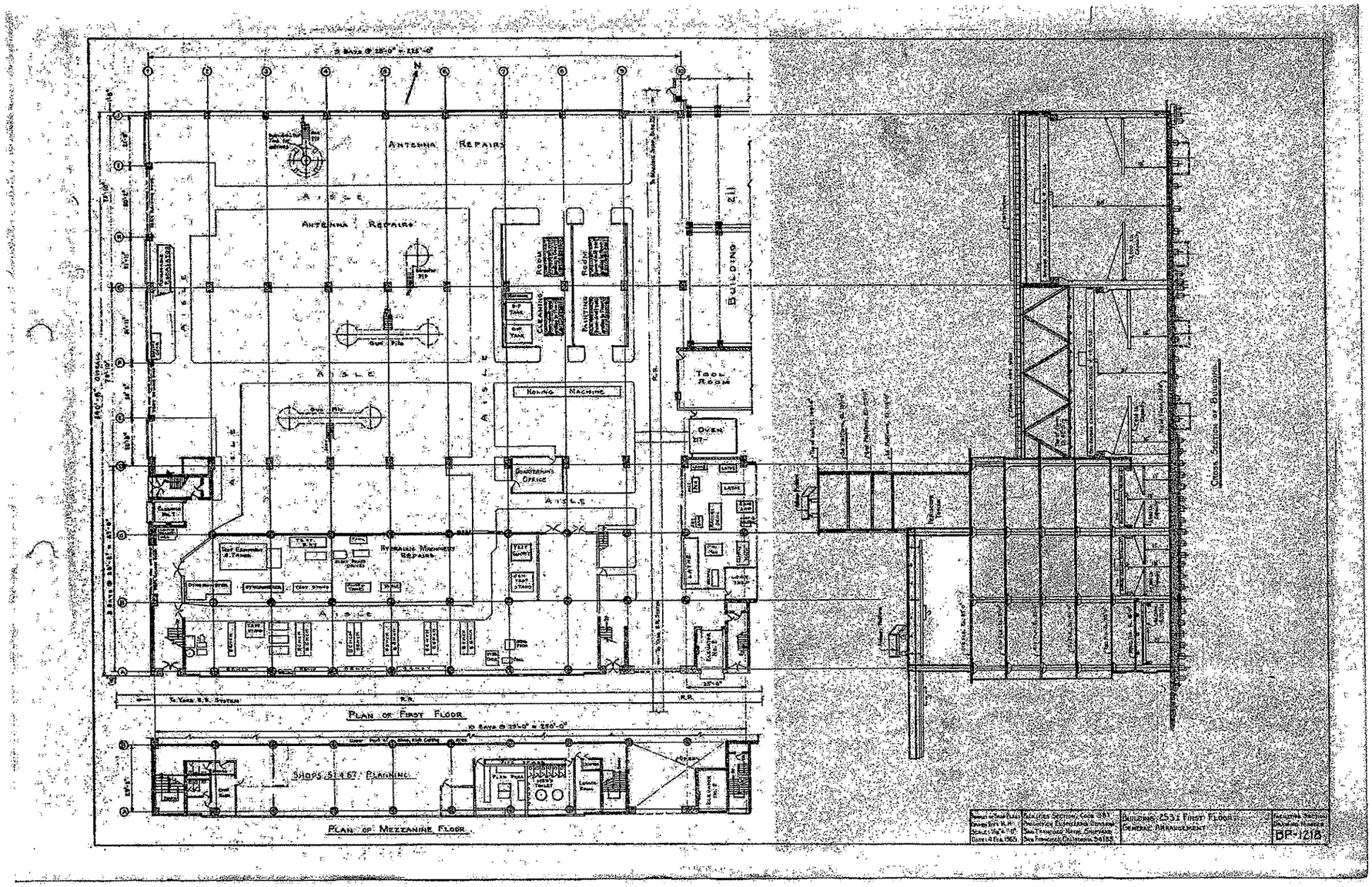
Contaminated Media:

Surface Soil: None
Subsurface Soil: Moderate from drain line leakage
Sediment: High
Surface Water: None
Groundwater: None
Air: None
Structures: High
Drainage Systems: High

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: Low
Sediment: Moderate
Surface Water: None
Groundwater: None
Air: None
Structures: Moderate
Drainage Systems: Moderate

Recommended Actions: Complete Characterization Survey and remediate known areas of contamination. Final Status Survey once remediation is completed.



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Scale in Feet

Notes:

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Historical Radiological Assessment

August, 2004

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Figure 8.3.3.7 FP
Building 253 - Floor Plan

8.3.3.8 Building 271

Site Description: Building 271 is a single-width, metal-sided shop building that was built in 1947 and manufactured by the Butler Company or in the manner of Butler Company buildings. This prefabricated, standard building was used on military bases due to limited budgets (HRA-1118, p 106). A building site plan is provided in Figure 8.3.3.8.

Former Uses: Spray Painting (HRA-171, p 16), Paint Shop Annex (HRA-2963), and Equipment Storage/Barge Services Office (Supervisor of Shipbuilding, Conversion, and Repair [SUPSHIP]) (1994).

Current Uses: Unoccupied.

Radionuclides of Concern: Ra-226.

Previous Radiological Investigations:

2002 NWT Phase V investigation. Low-level Ra-226 contamination found. Remediation and disposal completed. Resurvey complete.

Contamination Potential: Likely.

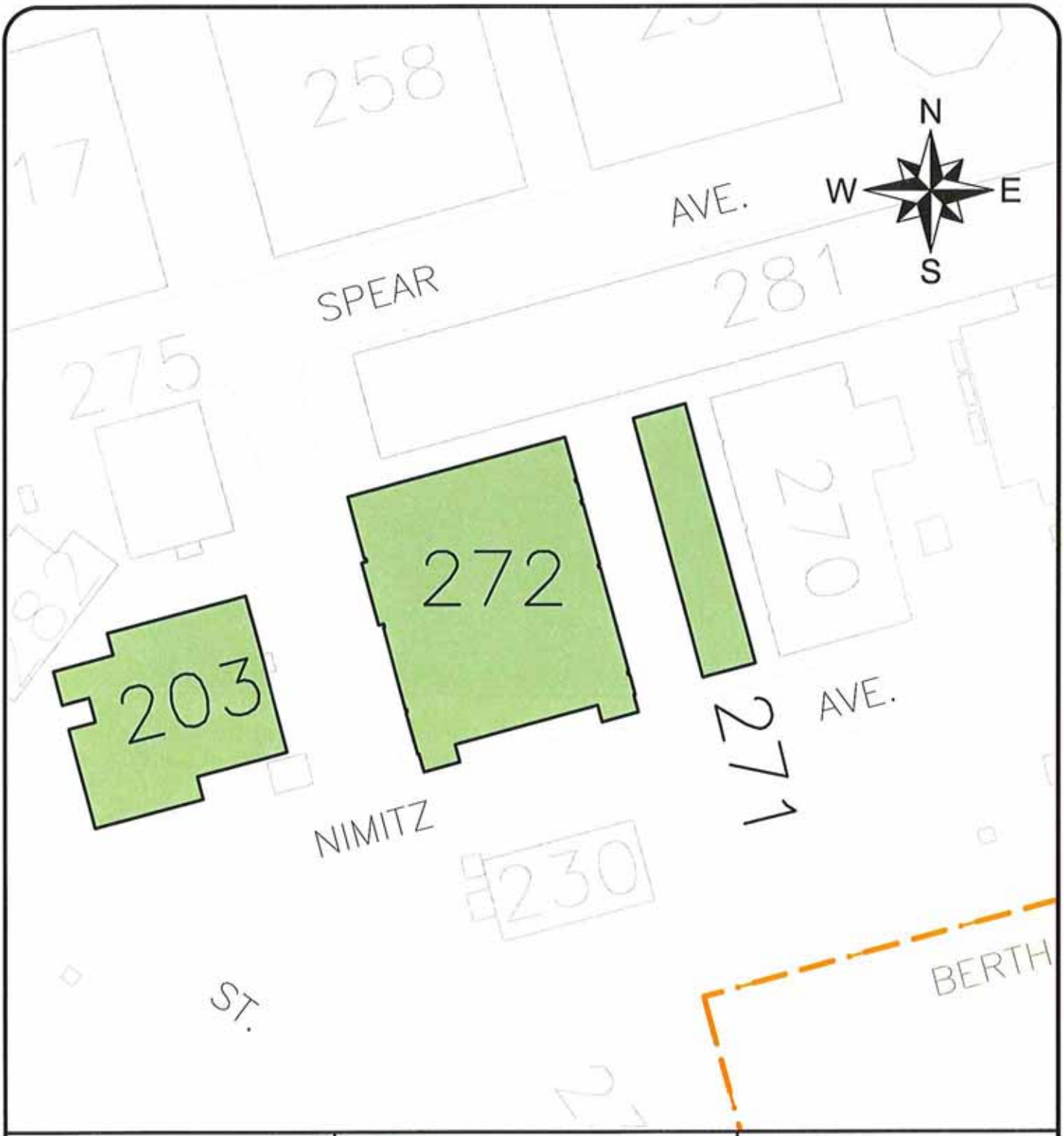
Contaminated Media:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Recommended Actions: Review Final Status Survey Report.



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Scale in Feet

- Impacted Site with Designation
- Impacted Site with Designation (Demolished)
- IR Site w/ Designation
- Non - Impacted Building
- Non-Impacted Building (Demolished)
- Topographic Feature
- Parcel Boundary

Hunters Point Naval Shipyard
San Francisco CA
Historical Radiological Assessment

Bldg. 271 & 272 Site Plan

January, 2004

Figure 8.3.3.8

8.3.3.9 Building 272

Site Description: Building 272 is a large wood-framed shop building that includes a shallow, almost flat, gabled roof with monitors and with shallow shed-roofed forms at either side. A building site plan is provided in Figure 8.3.3.8 above.

Former Uses: Machine shop (HRA-1118, p 139); manufacture and repair of machine tools (HRA-372, p 10); Paint Shop Service Group offices (HRA-4667); riggers tooling storage and issue; Riggers and Laborers Shop (HRA-20, p 2-50-3); and possible radiography.

Current Uses: Unoccupied.

Radionuclides of Concern: Co-60, Cs-137, and Ra-226.

Previous Radiological Investigations:

2002 NWT Phase V investigations. Survey complete.

Contamination Potential: Unlikely.

Contaminated Media:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Potential Migration Pathways:

Surface Soil: None
Subsurface Soil: None
Sediment: None
Surface Water: None
Groundwater: None
Air: None
Structures: Low
Drainage Systems: None

Recommended Actions: Review Final Status Survey Report.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
15	Reuses	Section 2.4	Hunters Point Shipyard Redevelopment Plan. City and County of San Francisco. Section II.B and Map 1. San Francisco Redevelopment Agency. July 14, 1997.

II. PROJECT PLAN

A. Objectives

The objectives of the actions proposed by the Plan are to:

1. Foster employment, business, and entrepreneurial opportunities in the rehabilitation, construction, operations, and maintenance of facilities in the Project Area.

2. Stimulate and attract private investments, thereby improving the City's economic health, tax base, and employment opportunities.

3. Provide for the development of economically vibrant and environmentally sound districts for mixed use; cultural, educational and arts activities; research, industrial and training activities; and hilltop housing.

4. Provide for the development of mixed-income housing:

   With regard to this objective, the project-wide aggregate income-mix goal includes 15% of the housing for persons and families of low or moderate income.

   The term "persons and families of low or moderate income" has the same meaning as defined in Section 50093 of the California Health and Safety Code.

5. Retain, improve, and re-use historic structures as part of a program to feature the history of people, buildings, and uses at the Shipyard.

6. Provide for infrastructure improvements, including: streets and transportation facilities; open space and recreation areas; and utilities for water, sewer, gas, and electricity.

7. Remove conditions of blight in the form of buildings, site improvements, and infrastructure systems which are substandard and serve as impediments to land development.

8. Encourage use of the most cost-effective, energy-efficient measures feasible.

9. Retain those existing viable industries and businesses currently located in the Project Area.

B. Land Use Plan

The Project Area shall be redeveloped in accordance with the text and maps of this Plan. The use of land and buildings shall be in accordance with this Plan and with the standards and guidelines which may be set from time to time and set forth by the Agency.

The maximum basic height of buildings shall range between 32 and 60 feet. Building types shall be those permitted by the San Francisco Building Code. The total number of buildings within the Project Area shall not exceed 500. The number of land parcels will determine the size of the buildings in the Project Area.

The specific use of the buildings will be controlled by the Land Use Plan and the Land Use Map.

If fully developed under this Plan, the residential areas will contain approximately 800 to 1,300 dwelling units. Public rights-of-way and land use boundaries shall be generally as indicated on Map 1, **Land Use Plan**, and are subject to adjustment by the Agency at the time of detailed engineering studies.

The location of planned land uses are identified on Map 1. The categories of land use include the following:

1. **Industrial**

Uses permitted shall be limited to light industrial development and may include the following and similar uses:

manufacturing, processing, fabricating, and assembly of:

* medicinal and botanical products
* biological products
* food products
* chemicals and allied products
* primary and fabricated metal products
* electrical/electronic equipment and parts

trucking and courier services
wholesale sales
equipment leasing
airport-related ground transportation services
auto-related services
motion picture production
printing and publishing
warehousing and distribution
artist and artisan studios

2. **Research and Development**

Uses permitted shall be limited to research and development firms and to light industrial development and may include the following and similar uses:

manufacturing, processing, fabricating, and assembly of:

* surgical and medical appliances and supplies
* ophthalmic goods
* X-ray apparatus and tubes
* diagnostic substances
* electromedical equipment
* precision instruments

data processing
telecommunication services
artist and artisan studios
live/work spaces

3. **Mixed Use**

Uses permitted shall be limited to a mix of the following and similar uses:

artist studios
live/work spaces
residential
galleries
recording studios
research and development firms
education and health services
warehousing and distribution
business and arts services
real estate and insurance offices
hotel and conference facilities
local-serving retail sales

4. **Cultural and Educational**

Uses permitted shall be limited to the following cultural and educational, and similar uses:

education and training facilities
museums
theaters
specialty retail sales
restaurants
galleries
conference facilities
artist studios

5. **Residential**

Uses permitted shall be limited to the following:

mixed-income housing ranging from single-family to multi-family residential developments

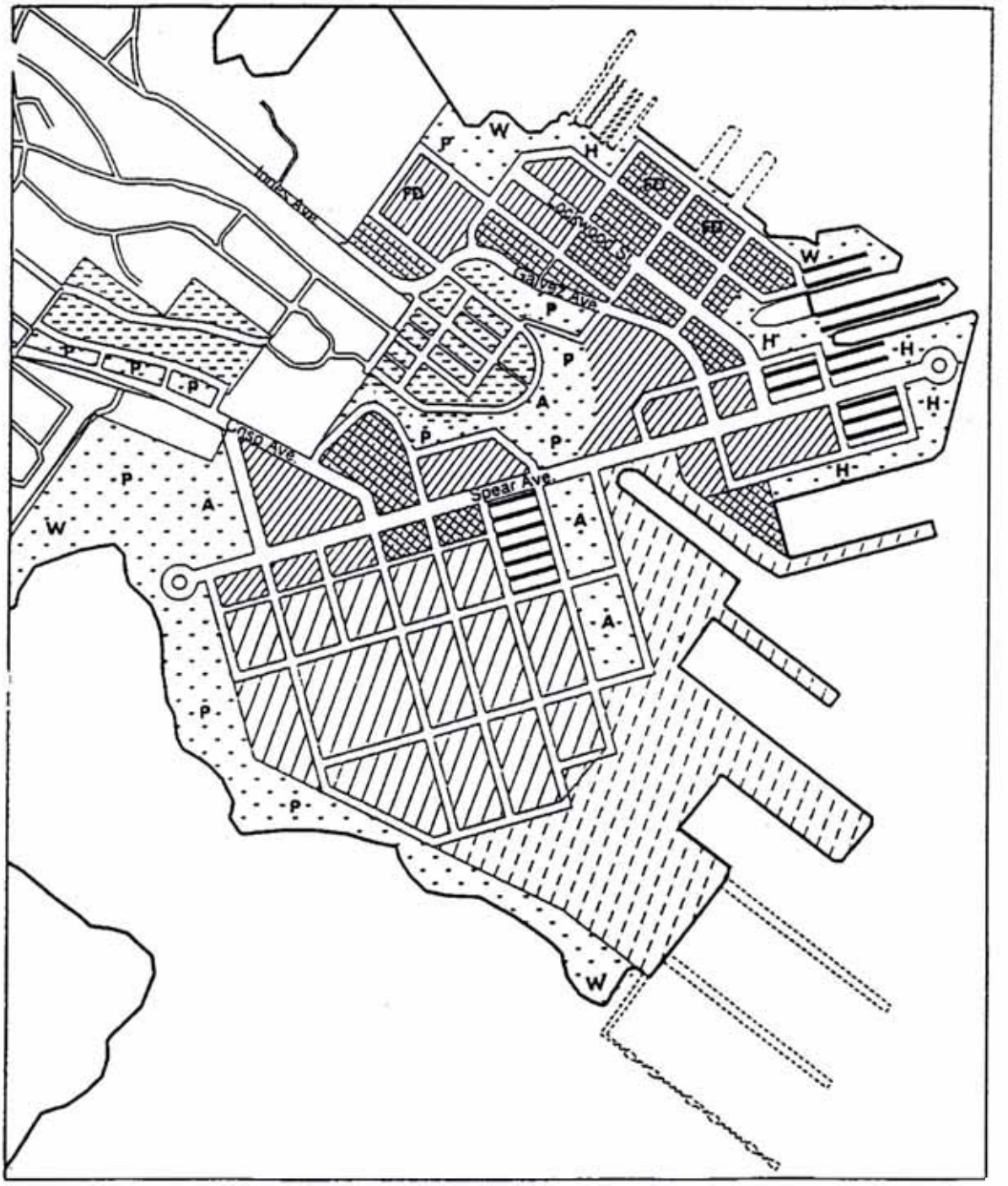
neighborhood commercial, to be concentrated at the street corners along Innes Avenue

6. **Open Space**

Uses permitted shall be limited to the following:

active recreation
passive recreation
plazas and promenades
wetlands restoration
ancillary commercial uses

MAP 1: Land Use Plan



Educational/Cultural

Mixed Use

Open Space

P Passive
A Active
H Hard Surface
W Possible Wetland Restoration

Industrial

Maritime Industrial

Research & Development

Residential

FD Future Development

SCALE: 1"=1000'

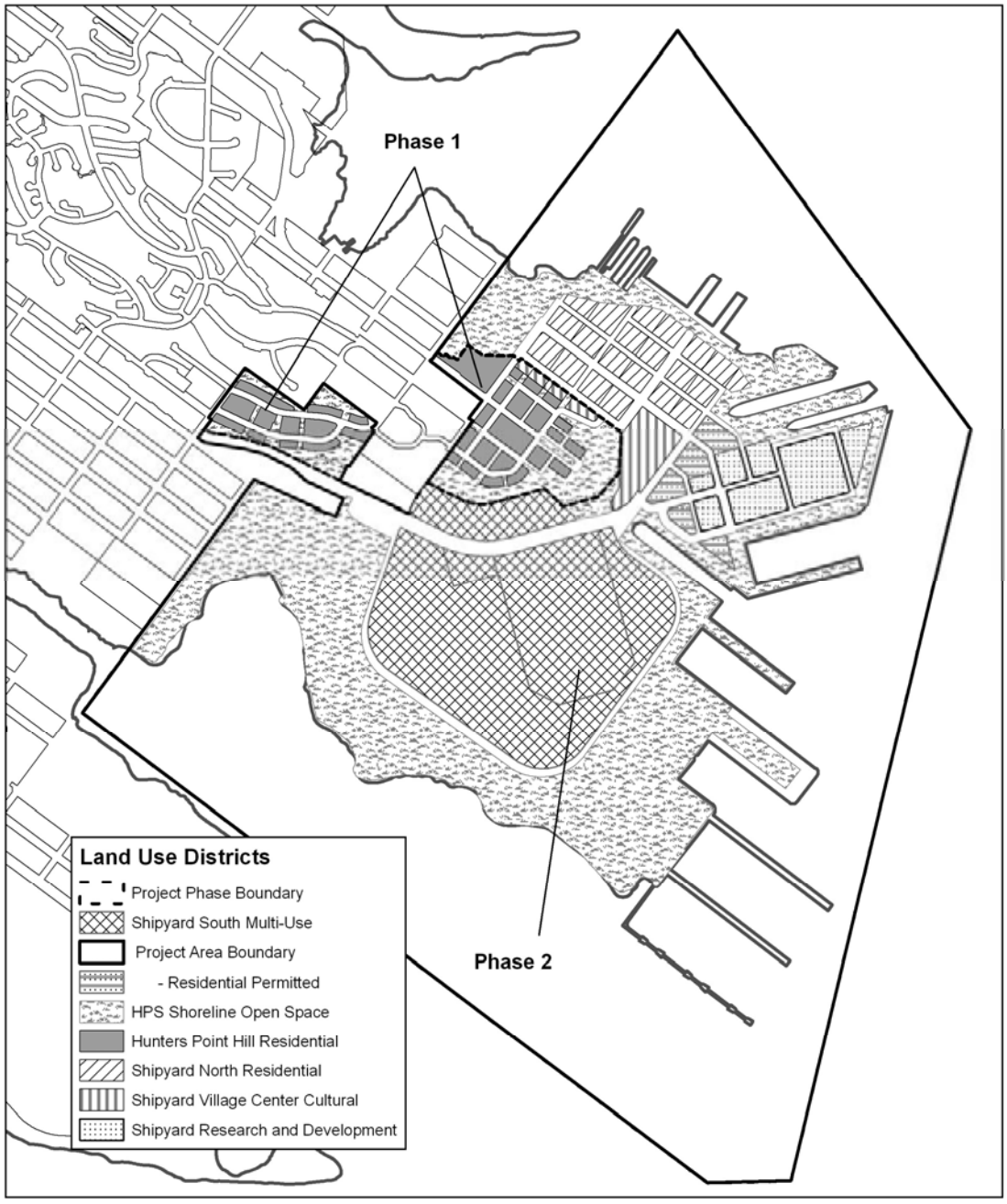
NORTH

HUNTERS POINT SHIPYARD REDEVELOPMENT PROJECT

January 7, 1997

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
16	2010 amended land use	Section 2.4	Hunters Point Shipyard Redevelopment Plan. City and County of San Francisco. Map 2, titled "Land Use Districts Map," July 14, 1997, Amended , 2010," dated May 27, 2010

Map 2: Land Use Districts Map

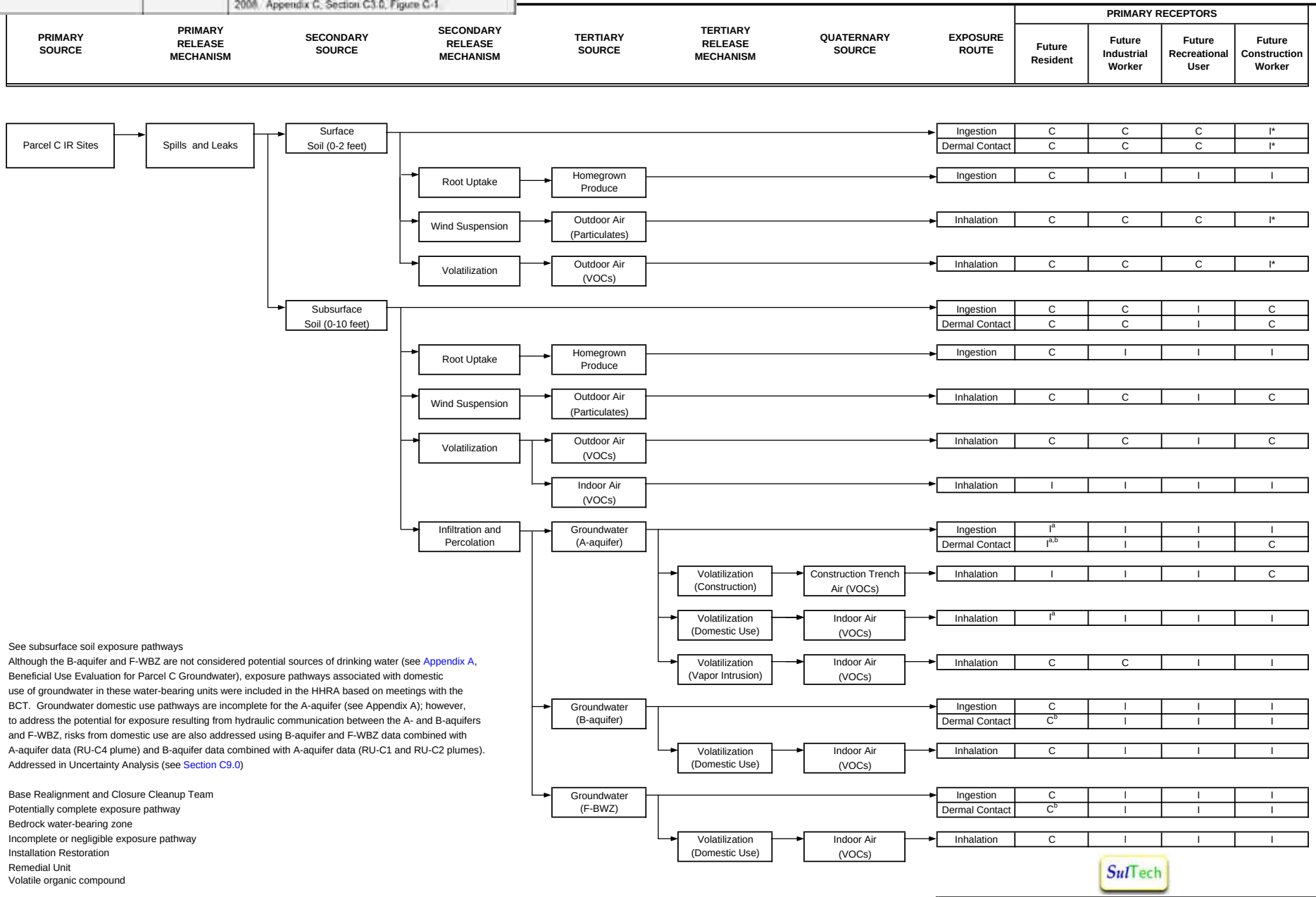


Map 2: Land Use Districts Map
Hunters Point Shipyard Redevelopment Plan
San Francisco Redevelopment Agency
2010

1,000 500 0 1,000 Feet

N W E S

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
17	Human health CSM	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C3.0, Figure C-1



Notes:

* See subsurface soil exposure pathways

a Although the B-aquifer and F-WBZ are not considered potential sources of drinking water (see Appendix A, Beneficial Use Evaluation for Parcel C Groundwater), exposure pathways associated with domestic use of groundwater in these water-bearing units were included in the HHRA based on meetings with the BCT. Groundwater domestic use pathways are incomplete for the A-aquifer (see Appendix A); however, to address the potential for exposure resulting from hydraulic communication between the A- and B-aquifers and F-WBZ, risks from domestic use are also addressed using B-aquifer and F-WBZ data combined with A-aquifer data (RU-C4 plume) and B-aquifer data combined with A-aquifer data (RU-C1 and RU-C2 plumes).

b Addressed in Uncertainty Analysis (see Section C9.0)

BCT Base Realignment and Closure Cleanup Team
C Potentially complete exposure pathway
F-WBZ Bedrock water-bearing zone
I Incomplete or negligible exposure pathway
IR Installation Restoration
RU Remedial Unit
VOC Volatile organic compound

SulTech

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

FIGURE C-1
CONCEPTUAL SITE MODEL

Feasibility Study Report for Parcel C

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
18	HHRA	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C5.0, pages C-16 to C-24.

Hunters Point groundwater ambient levels (HGAL) have been developed for groundwater in the A-aquifer at HPS (PRC 1996), and are likely applicable for groundwater in the B-aquifer. However, data for inorganic chemicals in the B-aquifer were not compared with HGALs in the HHRA as a conservative approach and incremental risks were not assessed for the groundwater domestic use evaluation.

Two sets of COPCs for groundwater were identified for each of the A-aquifer plume-based exposure areas, and for each residential and industrial grid associated with nonplume wells. The first set of COPCs for groundwater was limited to all detected volatile chemicals to evaluate the groundwater vapor intrusion exposure pathway for residential and industrial receptors. Volatile chemicals are defined for this HHRA as chemicals with a molecular weight less than 200 grams per mole and Henry's law constant greater than 10^{-5} atmosphere-cubic meters per mole (EPA 2004d). A second set of COPCs for groundwater was also identified using the first two steps outlined above and includes both volatile and nonvolatile chemicals to evaluate exposures to groundwater by the construction worker in the A-aquifer.

As recommended by Cal/EPA (1993), data for specific total petroleum hydrocarbon indicator chemicals (for example, benzene, benzo[a]pyrene, and toluene) were used to assess potential human health risk from total petroleum hydrocarbons contamination. Nonchemical-specific data for total petroleum hydrocarbons should be excluded from evaluation in the risk assessment because they are considered inadequate and insufficient to evaluate risk from total petroleum hydrocarbon contamination (Cal/EPA 1993); therefore, nonspecific total petroleum hydrocarbon compounds were not identified as COPCs for this HHRA.

Tables C1-1, C1-2, C1-3, and C1-4 of Attachment C1 present analytical data summary statistics for each COPC in soil evaluated for total risk. Tables C2-1, C2-2, C2-3, and C2-4 of Attachment C2 present analytical data summary statistics for each COPC in soil evaluated for incremental risk. Tables C3-1 through C3-16 of Attachment C3 list the COPCs for groundwater and present summary statistics for analytical data for each groundwater COPC.

C5.0 EXPOSURE ASSESSMENT

An exposure assessment identifies potential human receptors that could be exposed to site-related chemicals, as well as the routes, magnitude, frequency, and duration of the potential exposures. The principal objective of this evaluation is to identify reasonable maximum exposures (RME). As defined by EPA (1989), the RME is the maximum exposure that is reasonably expected to occur at a site. The potential human receptors and potentially complete exposure pathways for the receptors identified were presented in Section C3.0, Conceptual Site Model. The remainder of this section describes the process used to estimate EPCs and to quantify pathway-specific RME chemical intakes for each receptor. Central tendency exposures, as defined in EPA (1989), were not evaluated in this baseline HHRA.

C5.1 EXPOSURE POINTS AND EXPOSURE POINT CONCENTRATIONS

Potential exposure points are identified on the basis of anticipated population activity patterns and the relationship of the activities to the presence of contaminated media. A location is identified as an exposure point if a human might contact (for example, ingest) a contaminated medium (for example, soil) at that location. Each residential and industrial grid was considered a separate exposure point for this HHRA to evaluate exposures to soil and exposure to groundwater not associated with plumes. The area encompassed by each plume (see Attachment C3 to this appendix) was considered a separate groundwater exposure point for each of the groundwater plumes (RU-C1, RU-C2, RU-C4, and RU-C5). Potential exposure to COPCs is assumed to occur uniformly throughout each exposure point.

The concentration in the medium (for example, subsurface soil) that a human receptor may be exposed to is called the EPC. EPCs were calculated for all COPCs in all media sampled: surface soils (0 to 2 feet bgs), subsurface soils (0 to 10 feet bgs), A-aquifer groundwater, B-aquifer groundwater, and F-WBZ groundwater. The methods used to calculate EPCs for soil and groundwater are described below in Sections C5.1.1 and C5.1.2, respectively.

As shown in the conceptual site model (see Figure C-1), chemicals in soil may be transferred to outdoor air from wind erosion or volatilization, or to vegetation from root uptake. Chemicals in groundwater may be transferred to outdoor air in a construction trench from volatilization, indoor air from vapor intrusion, and indoor air from volatilization of groundwater during domestic use. Data for outdoor and indoor air and vegetation were not available for Parcel C. EPCs in outdoor air (from volatile and particulate chemicals in soil), outdoor air in a construction trench (from volatile chemicals in groundwater), indoor air (from groundwater vapor intrusion), and homegrown produce (from root uptake of chemicals in soil) were therefore estimated using the methods described in Section C5.1.3.

C5.1.1 EPCs for Soil

The 95 percent upper confidence limit (95UCL) of the arithmetic mean was used as the EPC for each COPC in soil unless the maximum value was less than the 95UCL, in which case the maximum concentration was used as the EPC. The 95UCL for each COPC in soil in each grid was calculated using the following methods. These methods are consistent with the approach used for the HHRA for soil in the Draft Final RI Report for Parcel C (PRC and others 1997) and follow the methods established for soil HHRAs for HPS (Tetra Tech 2003; Navy 2004):

- Statistical testing was conducted to determine data distribution for sample sizes with a minimum of four samples and four detections. The Shapiro-Wilk W-test was used to determine the distribution of the data for samples sizes less than 50 with at least 4 detections. Conversely, the D'Agostino test was used to determine the distribution of the data for sample sizes greater than or equal to 50 with at least 4 detections.

- The 95UCLs were calculated using EPA (1992) guidance for data found to be normally or lognormally distributed.

- If distribution testing showed that data followed a nonparametric distribution, then a 95UCL was calculated for both a normal and lognormal distribution in accordance with EPA guidance (EPA 1992). In this case, the higher of the two 95UCLs was selected as the representative 95UCL. Nondetected results for COPCs were incorporated into the calculation of 95 UCL concentrations by using one-half of the sample quantitation limit as a proxy concentration for nondetected results (EPA 1989).

- Distribution testing was not conducted for samples sizes with less than four samples, and the maximum concentration was used as the EPC.

EPCs for each COPC in surface soil and subsurface soil in the total risk assessment are shown in Tables C1-1, C1-2, C1-3, and C1-4 of Attachment C1. EPCs for each COPC in surface soil and subsurface soil for the incremental risk assessment are shown in Tables C2-1, C2-2, C2-3, and C2-4 of Attachment C2. These tables also present the results of the distribution testing for each COPC and the calculated 95UCLs.

Although more recent guidance on calculation of EPCs is available (see Section C5.1.2), the previous guidance provided by EPA (1992) was used to calculate EPCs for soil in this HHRA in accordance with the methods established for soil HHRAs for HPS (Tetra Tech 2003; Navy 2004). In many cases, the maximum concentration is used as the EPC because of the relatively few sample locations and detections for each grid (that is, less than four samples and four detected results), resulting in a conservative estimate of potential risks.

C5.1.2 EPCs for Groundwater

Separate EPCs for groundwater were developed to evaluate exposure grids associated with plumes and exposure grids that are not associated with plumes (see Section C4.3.2). The lesser of the 95UCL or maximum concentration was used as the EPC for each COPC in each plume to evaluate exposures associated with the RU-C1, RU-C2, RU-C4, and RU-C5 plumes. The methods used to calculate 95UCLs for each plume are described below. Tables C3-1 through C3-4, C3-7, C3-8, C3-10 and C3-11 of Attachment C3 present summary statistics for analytical data for each plume-based exposure area.

The maximum detected concentration was used as the EPC for exposure grids that are not associated with plumes (that is, for areas with monitoring wells that do not fall within the plume boundaries delineated in Attachment C3). Tables C3-12 through C3-16 of Attachment C3 present summary statistics for analytical data, including maximum concentrations (EPCs), for exposure grids that are not associated with plumes.

The methods used to calculate EPCs for groundwater associated with plumes is based on a more recent EPA method (*ProUCL Version 3.0 User Guide* [EPA 2004a]). This method incorporates

the Lilliefors Test, rather than the D'Agostino Test, to evaluate distributions for data sets exceeding 50 samples. Only detected results were used to calculate the EPCs for groundwater associated with plumes. Nondetected results (that is, U- and UJ-qualified data), were not included in the EPC calculation.

Statistical estimations lack statistical power and cannot be confidently estimated for data sets with fewer than six samples (EPA 2000). As discussed above, only detected results were used to calculate EPCs for groundwater for plume-based exposure areas; the maximum detected concentration was used as the EPC for data sets with fewer than six detections, rather than with six samples. A 95UCL was used as the EPC for COPCs in groundwater associated with plumes for data sets consisting of six or more detections. The following methods were used to calculate the underlying distribution for each chemical, population summary statistics, and EPCs.

Distribution tests: Distribution testing was conducted for all samples with at least six detections. Formal tests were conducted using well-established goodness-of-fit tests. The Shapiro-Wilk W-Test ($n < 50$) and Lilliefors Test ($n > 50$) were used to evaluate normal and lognormal distributions. The Anderson-Darling and Kolmogorov-Smirnov Test were used to evaluate gamma distributions (EPA 2004a, 2002b). A Type I error rate (α) of 0.05 (equivalent to 5 percent) was used to interpret the significance of each test. A Type I error rate of 0.05 means that there is a 5 percent chance that the null hypothesis will be rejected when it is true, leading to the false conclusion.

Chemical data confirmed as following a normal, lognormal, or gamma distribution based on the outcome of the two goodness-of-fit tests are listed as "normal (N)", "lognormal (L)," or "gamma (G)" in the summary tables (see Tables C3-1, C3-2, C3-3, and C3-4 of Attachment C3). Chemical data that were not confirmed as following one of these three distributions are listed as "nonparametric (NP)" in the summary tables.

Calculation of Population Parameters and Selection of the EPC: The one-sided UCLs on the mean were calculated for chemicals with at least six samples. Recommendations in EPA (2004a) are based on three properties measured for individual samples: (1) best-fit distribution, (2) relative degree of skewness, and (3) relative sample size. The recommendations for calculating an EPC for normal, gamma, lognormal, and nonparametric distributions are provided by the ProUCL software (EPA 2004a). EPCs for data that follow a normal distribution or that exhibit low skewness (standard deviation of the natural logarithms of the data less than 0.50) are based on a UCL calculated using the Student's t-statistic. After a sample-by-sample evaluation of the three properties described above, a UCL is calculated based on one of the parametric or nonparametric methods listed below.

Parametric Methods	Nonparametric Methods	
Student's t UCL	Chebyshev inequality UCL	Central limit theorem
Approximate gamma UCL	Bootstrap t UCL	Modified-t statistic
Adjusted gamma UCL	Hall's bootstrap UCL	Adjusted-CLT
Land's H-UCL	Modified-t UCL	Percentile bootstrap
Minimum variance	Standard bootstrap UCL	Jackknife UCL
Unbiased estimator (MVUE) Chebyshev UCL		

Notes:

MVUE Minimum variance unbiased estimator

The UCL calculated using the MVUE Chebyshev or nonparametric Chebyshev method can be based on a 95, 97.5, or 99 percent one-sided UCL. The 95UCLs calculated for groundwater for plume-based exposure areas are shown in Tables C3-1 through C3-11 of Attachment C3. These tables also present the results of the distribution testing for each chemical. If the calculated 95UCL was greater than the maximum concentration, then the maximum concentration was used as the EPC.

C5.1.3 Exposure Point Concentrations for Media Not Sampled

As discussed in Sections C3.0 and C5.1, COPCs in soil and groundwater may be transferred to outdoor air, indoor air, and vegetation (homegrown produce) from the following mechanisms:

- Wind erosion of particulate chemicals from soil to outdoor air
- Volatilization from soil to outdoor air
- Vapor intrusion from groundwater to indoor air
- Volatilization from groundwater to indoor air during domestic use
- Volatilization from groundwater to outdoor air in a construction trench
- Uptake of chemicals in soil through plant roots into homegrown produce

Samples were not collected of outdoor air, indoor air, or vegetation at Parcel C. In the absence of direct measurements of chemical concentrations in air and vegetation, models were used to estimate EPCs in outdoor air, indoor air, and homegrown produce as a result of the transfer mechanisms. These models are discussed below. EPCs for indoor air as a result of vapor intrusion of groundwater and volatilization from domestic use of groundwater were not calculated because a risk-based screening assessment was used to quantify risks from exposure to COPCs in groundwater (see Section C7.2).

C5.1.3.1 Outdoor Air – Particulate COPCs Released from Soil

EPCs of particulates released from soil to outdoor air were estimated using EPCs for soil as the source term and the methodology provided by EPA Region 9 in its memorandum that describes the derivation of PRGs (EPA 2004d). To derive the EPCs in outdoor air, the EPC for soil was multiplied by the reciprocal of the EPA (2004d) default particulate emission factor of 1.316E+09 cubic meters per kilogram, which is a nonchemical-specific value that relates chemical concentrations in soil to airborne concentrations that may be inhaled.

C5.1.3.2 Outdoor Air – Volatile COPCs Released from Soil

Chemical-specific volatilization factors, which relate concentrations of volatile chemicals in soil to airborne concentrations that may be inhaled, were used to estimate concentrations in outdoor air from volatile COPCs in soil. Volatilization factors were taken from EPA Region 9 guidance (EPA 2004d) and are summarized in Table C-2. The EPC for soil was multiplied by the reciprocal of the volatilization factor to estimate EPCs in outdoor air.

C5.1.3.3 Indoor Air – Vapor Intrusion of Volatile COPCs in Groundwater

Subsurface vapor intrusion of volatile COPCs in groundwater into a hypothetical residential or standard industrial building was evaluated for the industrial and residential exposure scenarios. A risk-based screening assessment was used to calculate risks from groundwater vapor intrusion, based on EPCs for groundwater developed for each A-aquifer plume and nonplume exposure area and risk-based screening levels (RBSL) for groundwater vapor intrusion provided in EPA (2002a). Section C7.2 provides further details on this approach. EPCs were not modeled for indoor air from EPCs in groundwater because a risk-based screening assessment approach was used to evaluate groundwater vapor intrusion.

C5.1.3.4 Indoor Air – Volatilization of COPCs in Groundwater during Domestic Use

Volatilization of COPCs in groundwater into household air during domestic use of groundwater was evaluated for the residential exposure scenario based on EPCs for groundwater developed for the B-aquifer. A risk-based screening assessment was used to calculate risks from domestic use of groundwater based on EPCs for groundwater and PRGs for tap water developed by EPA Region 9 (EPA 2004d). Section C7.2 provides further details on this approach. EPCs were not developed for indoor air based on volatilization of COPCs in groundwater during domestic use because a risk-based screening assessment approach was used to evaluate risks from domestic use of groundwater.

C5.1.3.5 Outdoor Air – Volatile COPCs Released from Groundwater in a Construction Trench

Chemical-specific volatilization factors that relate concentrations of volatile chemicals in groundwater accumulated in a construction trench to airborne concentrations that may be inhaled

by construction workers were used to estimate EPCs from volatile COPCs in groundwater. The volatilization factors for this scenario were calculated based on guidance from the Virginia Department of Environmental Quality (2005). This guidance combines a vadose zone model to estimate volatilization of gaseous COPCs from groundwater into a trench and a box model to estimate dispersion of the COPCs from the air inside the trench into aboveground air. A full description of the models used to estimate volatilization into a construction trench is provided in Attachment C5 to this appendix.

C5.1.3.6 Homegrown Produce – Uptake of COPCs in Soil through Plant Roots

Ingestion of COPCs that are transferred from soil to homegrown produce via uptake through plant roots was evaluated for the residential exposure scenario. Direct measurements of chemical concentrations in homegrown produce are not available for Parcel C because homegrown produce is not currently grown there. EPCs for homegrown produce were calculated based on EPCs for COPCs in soil and soil-to-plant uptake factors that estimate the root uptake of inorganic and organic chemicals in soil and translocation of chemicals to edible plant parts (U.S. Department of Energy 1984). Table C-3 lists the uptake factors for each COPC in soil.

Uptake factors for inorganic COPCs were obtained from U.S. Department of Energy (1984). The EPC for soil was multiplied by the uptake factor to estimate EPCs in homegrown produce from inorganic COPCs.

Equations from Cal/EPA were used to derive the uptake factors for nonvolatile organic COPCs (Cal/EPA 2003a). These equations relate the octanol-water partition coefficient (K_{ow}) and the organic carbon-water partition coefficient (K_{oc}) of the contaminant and the fraction of organic carbon (F_{oc}) in the soil to calculate the uptake factor. The equation used to calculate the uptake factor is as follows:

$$UF = \frac{(0.03 \times K_{ow}{}^{0.77}) + 0.82}{(K_{oc})(F_{oc})} \qquad \text{(C-1)}$$

where:

UF	=	Soil-to-plant uptake factor
K_{ow}	=	Octanol-water partition coefficient (cubic centimeters per gram)
K_{oc}	=	Organic carbon-water partition coefficient (cubic centimeters per gram)
F_{oc}	=	Fraction organic carbon in soil (unitless)

F_{oc} was assumed to be 0.1, a value appropriate to soil used for the production of food crops (Cal/EPA 2003a). If K_{oc} values are unavailable, they were estimated based on chemical-specific K_{ow} values using the following equation (Lyman and others 1990):

$$Log\ K_{oc} = log\ K_{ow} - 0.21 \quad \text{(C-2)}$$

Consistent with EPA guidance, a correction factor was applied to lipophilic COPCs (EPA 1998). Lipophilic chemicals were defined for this HHRA as PCBs, PAHs, pesticides, and SVOCs. EPA (1998) recommends a correction factor of 0.01 for lipophilic COPCs (log K_{ow} greater than 4); that is, the uptake factor calculated for lipophilic COPCs using Equation C-1 should be multiplied by the correction factor of 0.01 to calculate a corrected uptake factor. EPA does not recommend use of a correction factor for COPCs with a log K_{ow} less than 4. Table C-3 lists the uptake factors for nonvolatile organic COPCs derived using the above equations and the values and sources of the chemical data used to derive the uptake factors.

Risks associated with VOCs were not evaluated in the homegrown produce pathway. VOCs are typically low-molecular-weight chemicals that do not persist or bioaccumulate in the environment (EPA 1994b). In addition, VOCs are expected to be lost during soil tilling, planting, and food preparation, such as peeling, cleaning, and cooking.

C5.2 CHEMICAL INTAKE ESTIMATES

Estimates of exposure are based on the EPCs (as described in Section C5.1) and scenario-specific assumptions and intake parameters. Consistent with EPA guidance (EPA 1995), exposure estimates (intakes) were calculated for an RME scenario for each human receptor and exposure pathway and are expressed in terms of milligrams of chemical per kilogram body weight per day (mg/kg-day). The RME represents the highest exposure reasonably expected to occur and is calculated using the 95UCL and the RME exposure parameters.

EPA-derived exposure algorithms were used to estimate the chemical intakes for each route of exposure. Equation C-3 is a generic equation for calculating chemical intake, as follows (EPA 1989):

$$I = \frac{C \times CR \times EF \times ED}{BW \times AT} \quad \text{(C-3)}$$

where:

I	=	Intake: the amount of chemical at the exchange boundary (mg/kg-day)
C	=	Chemical concentration: the EPC (for example, mg/kg for soil)
CR	=	Contact rate: the amount of contaminated medium contacted per unit of time or event; may be the ingestion rate, inhalation rate, or dermal contact rate (for example, milligram per day for the ingestion rate of soil)
EF	=	Exposure frequency: how often the exposure occurs (days per year)
ED	=	Exposure duration: the number of years in which a receptor comes in contact with the contaminated medium (years)

BW = Body weight: the average body weight of the receptor over the exposure period (kilograms)

AT = Averaging time: the period over which exposure is averaged (days); for carcinogens, the averaging time is 25,550 days on the basis of a lifetime exposure of 70 years (average life expectancy), and for noncarcinogens, the averaging time is equal to the exposure duration multiplied by the number of days in a year (365 days)

Pathway-specific variations of Equation C-3 were used to calculate intakes of COPCs in soil for residents, industrial/construction workers, and recreators, and COPCs in groundwater for construction workers. Tables C-4 through C-9 present the pathway-specific equations and receptor-specific exposure assumptions used to calculate intakes. The calculation of chemical intake for the dermal contact with soil exposure pathway (all human receptors) requires chemical-specific dermal absorption factors; these factors are shown in Table C-2. The calculation of chemical intake for the dermal contact with groundwater exposure pathway (construction worker) requires chemical-specific permeability constants; these factors are shown in Table C-10.

Chemical intakes from groundwater exposure pathways for residents (ingestion, inhalation during household use, and vapor intrusion) and industrial workers (vapor intrusion) were not calculated because a risk-based screening assessment was used to quantify risks from exposure to COPCs in groundwater for these receptors (see Section C7.2).

C6.0 TOXICITY ASSESSMENT

The toxicity assessment identifies toxicity values used to quantify potential adverse health effects associated with exposure to COPCs at Parcel C. These toxicity values include references doses (RfD) for noncancer health effects and slope factors (SF) for estimating cancer risks. An RfD represents an estimated daily intake of a COPC that is expected to pose no appreciable risk of harmful effects to human health, including sensitive populations, over a lifetime. RfDs are specific to each chemical and exposure route such as inhalation or ingestion.

The SF is an upper-bound estimate of the probability of a cancer response per unit dose of a carcinogen over a lifetime. The cancer risk estimate associated with a given intake of a cancer COPC was estimated by multiplying the intake by the SF for each COPC. SFs assume that no threshold exists for the initiation of cancer and are specific to each chemical and exposure route.

Toxicity values were obtained from the following hierarchy of sources. If the SF from an EPA source (Tiers 2 through 6) was higher than the Cal/EPA SF (Tier 1), then the more conservative (higher) SF was used in the HHRA.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
19	Cancer risks and noncancer hazards	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C7.0, pages C-27 to C-32.

C7.0 RISK CHARACTERIZATION METHODS

The final step in this baseline HHRA is characterization of the potential risks associated with exposure to COPCs. Risks from exposure to soil for all human receptors and from construction worker exposure to groundwater were characterized using the methods provided in EPA (1989); Section C7.1 details these methods. Risks from residential and industrial exposure to groundwater were characterized using risk-based screening assessment methods; Section C7.2 presents these methods. Section C7.3 discusses the interpretation of hazard and risk levels. Section C7.4 discusses the risk characterization approach for lead. The results of the risk characterization for Parcel C are presented in Section C8.0.

C7.1 RISK CHARACTERIZATION FOR SOIL EXPOSURES AND CONSTRUCTION WORKER EXPOSURE TO GROUNDWATER

The general methods for estimating cancer risks and HIs for soil exposures for all receptors and construction worker exposure to groundwater follow EPA (1989) and are presented in Section C7.1.1 for cancer risks and in Section C7.1.2 for noncancer health hazards.

C7.1.1 Characterization of Cancer Risks

Risks associated with exposure to chemicals classified as carcinogens are estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of an exposure (EPA 1989). The estimated risk is expressed as a unitless probability.

Three steps are used in estimating cancer risks for chemicals classified as carcinogens. First, the chemical intake is multiplied by the chemical-specific SF to derive a cancer risk estimate for a single chemical and pathway. The calculation is based on the following relationship:

$$\textit{Chemical-Specific Cancer Risk} = \textit{Intake (mg/kg-day)} \times \textit{SF (mg/kg-day)}^{-1} \qquad \text{(C-4)}$$

Second, the individual chemical cancer risks are assumed to be additive to estimate the cancer risk associated with exposure to multiple carcinogens for a single exposure pathway, as follows:

$$\textit{Pathway-Specific Cancer Risk} = \sum \textit{Chemical-Specific Cancer Risk} \qquad \text{(C-5)}$$

Third, pathway-specific risks are summed for each receptor to estimate the total cancer risk. For exposures scenarios for which both an adult and child receptor are evaluated (that is, residential and recreational), the estimated cancer risk is based on the sum of the risk estimated for the adult receptor plus the child receptor. Hence, for the residential receptor, the estimated cancer risk is based on the sum of the risk estimated for the adult resident and the child resident. Likewise, for the recreational receptor, the estimated cancer risk is based on the sum of the risk estimated for the adult recreational user and the child recreational user.

C7.1.2 Characterization of Noncancer Hazards

The potential for exposure that may result in adverse health effects other than cancer is evaluated by comparing the intake with an RfD for chemicals that are not classified as carcinogens and for those carcinogens known to cause adverse health effects other than cancer. A three-step approach is used as described below:

Calculate a chemical-specific hazard quotient (HQ) based on the following equation:

$$Hazard\ Quotient = \frac{Intake\ (mg/kg\text{-}day)}{RfD\ (mg/kg\text{-}day)} \quad \text{(C-6)}$$

Next, sum the HQs for all chemicals to evaluate the potential for noncancer health effects from simultaneous exposure to multiple chemicals, yielding an HI as follows:

$$Hazard\ Index = \sum HQ \quad \text{(C-7)}$$

Third, sum pathway-specific HIs to estimate a total HI for each receptor.

The total noncancer HI for residents and recreators is based on the total HI estimated for the child receptor because the intake for children of soil, groundwater, and air per unit body mass is higher. (Hence, noncancer HIs for a child receptor are always higher than noncancer HIs for an adult receptor for similar exposures.)

C7.2 Risk Characterization for Residential and Industrial Exposure to Groundwater

Residential and industrial receptors were evaluated for exposure to groundwater from vapor intrusion. Residential receptors were also evaluated for exposure to groundwater from domestic use. Based on agreement among the EPA, DTSC, and Navy, the risks from these exposure pathways are based on a risk-based screening assessment.

The risk-based screening assessment is a streamlined approach that uses the ratio of EPCs to RBSLs. The EPA Region 9 PRGs for tap water were used as RBSLs to calculate cancer risks and noncancer HIs from residential exposure to B-aquifer groundwater from domestic use (EPA 2004d). Screening levels for groundwater vapor intrusion were used to estimate cancer risks and HIs from residential and industrial exposure to A-aquifer groundwater (EPA 2002a). Both the EPA tap water PRGs and screening levels for groundwater vapor intrusion are RBSLs that correspond to a cancer risk of 10^{-6} or an HI of 1 based on standardized equations that combine standard exposure assumptions and EPA toxicity values.

The risk estimates developed using the risk-based screening approach represent the risk for all exposure pathways evaluated by the RBSLs (that is, the tap water PRGs for domestic use and

groundwater screening levels for groundwater vapor intrusion). These risk estimates are numerically equivalent to the estimates obtained using the EPA (1989) "forward calculation methodology," which involves calculating risks using chemical concentrations, exposure assumptions, and toxicity values (see Section C6.0). They are numerically equivalent if the exposure pathways and assumptions used to derive the RBSLs are the same as are used in the forward calculations.

The EPA tap water PRGs were used as RBSLs in this HHRA to evaluate domestic use of groundwater for the residential receptor (EPA 2004d). The tap water PRGs were used to evaluate residential exposure to groundwater from ingestion and from inhalation of VOCs released from groundwater to indoor air during household use. The PRGs do not account for exposure from dermal contact with groundwater; Section C9.4 addresses the uncertainties associated with excluding this exposure pathway on the risk results.

Screening levels for groundwater vapor intrusion provided in Table 2c of EPA's "Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)" (EPA 2002a) were used to evaluate cancer risks and noncancer hazards from groundwater vapor intrusion. The following factors were considered in using the EPA (2002a) screening levels for groundwater vapor intrusion in the risk-based screening assessment for groundwater:

- The screening levels provided in Table 2c of EPA (2002a) are based on generic attenuation factors that assume minimum reduction of chemical concentrations caused by diffusive, advective, and other attenuating mechanisms. These conditions are similar to conditions in groundwater and soil at HPS, where groundwater is relatively shallow and vadose zone soils are fairly coarse (see Section 2.0 of the Final FS Report for Parcel C).

- The screening levels provided in Table 2c of EPA (2002a) for some chemicals are based on federal maximum contaminant levels; an RBSL was calculated for these chemicals in accordance with the methods provided in EPA (2002a) for deriving screening levels for vapor intrusion, and the calculated screening level was used instead of the maximum contaminant level.

- The screening levels provided in Table 2c of EPA (2002a) are considered protective of residential exposure. For evaluation of industrial exposures, vapor intrusion screening levels were calculated using the methods provided in EPA (2002a) and the assumptions provided in Table C-6 of this appendix for industrial worker exposure to air.

Section C6.0 discusses the hierarchy toxicity criteria used in the HHRA; Tables C-11 and C-12 list the toxicity criteria for each COPC. The EPA (2004d) Region 9 PRGs for tap water and EPA (2002a) screening levels for groundwater vapor intrusion for vapor intrusion were recalculated for this HHRA to be based on the same toxicity criteria listed in these tables; methods provided by EPA (2004d) and EPA (2002a) were used for the calculations. Table C-13 lists the RBSLs for groundwater used for this HHRA.

Cancer risks and noncancer hazards were calculated by comparing site EPCs of each COPC with the corresponding RBSL, as detailed in the following subsections.

C7.2.1 Characterization of Cancer Risks

The cancer risk associated with exposure to a single chemical for COPCs that are carcinogens is calculated as follows:

$$Cancer\ risk = (EPC/RBSL) \times 10^{-6} \quad \text{(C-8)}$$

where:

EPC = Exposure point concentration (microgram per liter [µg/L])

RBSL = Risk-based screening level (µg/L)

Individuals may be exposed to more than one chemical at a given site. The total risk from exposure to multiple chemicals is calculated using the following equation:

$$Total\ risk = 10^{-6} \times \{EPC_1/RBSL_1 + EPC_2/RBSL_2 + \ldots EPC_n/RBSL_n\} \quad \text{(C-9)}$$

where:

Total risk = Total cancer risk from exposure to all chemicals (unitless)

EPC_n = Exposure point concentration of chemical *n* (µg/L)

$RBSL_n$ = Risk-based screening level for chemical *n* (µg/L)

C7.2.2 Characterization of Noncancer Hazards

The potential for receptors to develop adverse health effects for COPCs not classified as carcinogens and for carcinogens known to cause adverse health effects other than cancer is evaluated by comparing EPCs with noncancer RBSLs as follows:

$$Hazard\ Quotient = EPC/RBSL \quad \text{(C-10)}$$

where:

EPC = Exposure point concentration (µg/L)

RBSL = Risk-based screening level (µg/L)

The HQs for all chemicals are summed to evaluate the potential for noncancer effects from exposure to multiple chemicals, yielding an HI as follows:

$$Hazard\ Index = EPC_1/RBSL_1 + EPC_2/RBSL_2 + \ldots + EPC_n/RBSL_n \quad \text{(C-11)}$$

where:

EPC_n = Exposure point concentration of chemical *n* (µg/L)

$RBSL_n$ = Risk-based screening level for chemical *n* (µg/L)

C7.3 INTERPRETATION OF HAZARD AND RISK LEVELS

EPA guidance on exposure levels considered protective of human health is presented to aid in interpreting the results of the risk assessment. In the National Oil and Hazardous Substances Pollution Contingency Plan, EPA defined general remedial action goals for sites on the National Priorities List (Title 40 of the *Code of Federal Regulations* Part 300.430). The goals include a range for residual cancer risk, which is "an excess upper-bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6}," or 1 in 10,000 to 1 in 1,000,000. The goals set out in the National Oil and Hazardous Substances Pollution Contingency Plan are applied once a decision to remediate a site has been made. A subsequent EPA directive provides additional guidance on the role of the HHRA in supporting risk management decisions, and in particular, determining whether remedial action is necessary (EPA 1991). Specifically, the guidance states, "Where cumulative carcinogenic risk to an individual based on reasonable maximum exposure for both current and future land use is less than 10^{-4}, and the noncancer HQ is less than 1, action generally is not warranted unless there are adverse environmental impacts." EPA Region 9 has stated, however, that action may be taken to address risks between 10^{-4} and 10^{-6}. In addition, DTSC has stated that it considers 10^{-6} as the point of departure for risk management decisions. To be protective of human health, therefore, the BCT has chosen to use 10^{-6}, the lower end of the residual 10^{-4} to 10^{-6} risk range set out in the National Oil and Hazardous Substances Pollution Contingency Plan, as a threshold level for cancer risks for HPS.

An HI of less than 1 indicates that adverse noncancer health effects are not expected. In accordance with EPA guidance (EPA 1989), the HHRA further evaluated exposure areas with total HIs that exceeded 1. Noncancer health effects associated with exposure to multiple COPCs may not be cumulative if the COPCs affect different target organs or systems within the body. Therefore, the HHRA segregates the HI by target organ or system and assumes that the potential for noncancer health effects exists only if the highest total segregated HI for a target organ or system exceeded 1. Table C-14 identifies the target organs affected by each COPC for Parcel C; this information was used, as necessary, to segregate HIs by target organ. Information on target organs was obtained from Integrated Risk Information System (EPA 2005), Health Effects Assessment Summary Tables (EPA 1997), Provisional Peer Reviewed Toxicity Values for Superfund database (EPA 2004b), and the Agency for Toxic Substances and Disease Registry (2005).

C7.4 EVALUATION OF LEAD

The HHRA evaluated the potential for human health effects from exposure to lead by comparing EPCs for lead with an HPS-specific risk-based concentration for lead (155 mg/kg) for residential and recreational receptors and the EPA (2004d) Region 9 industrial PRG for lead (800 mg/kg) for industrial and construction worker receptors. The HPS risk-based concentration for lead was

developed using the Cal/EPA (1999b) LeadSpread model and EPA's Integrated Exposure Uptake Biokinetic model. The methodology for development of the HPS risk-based concentration for lead is presented in Attachment C6 to this appendix. The Region 9 industrial PRG for lead was developed by EPA using EPA's adult lead model (EPA 1996). These models are designed to predict the concentration of lead in soil associated with a target blood lead level of 10 micrograms per deciliter, the EPA threshold level of concern (EPA 1994a). Adverse health effects are not expected to occur from exposure to lead below the risk-based concentration or PRG.

C8.0 RESULTS OF THE HUMAN HEALTH RISK ASSESSMENT

This section summarizes the results of this baseline HHRA for Parcel C. Future residents, industrial/construction workers, and recreators were evaluated in the HHRA. Both total and incremental risks were evaluated in the HHRA for soil exposures. Results of the total risk evaluation for soil include risks and hazards for metals present at or below background levels (that is, HPALs). Results of the incremental risk evaluation for soil do not include the risk or hazard contribution for metals where the maximum concentrations are at or below HPALs.

As discussed in Section C4.0, HGALs have been developed for groundwater in the A-aquifer at HPS, and are likely applicable for groundwater in the B-aquifer. However, data for inorganic chemicals in the B-aquifer were not compared with HGALs in the HHRA as a conservative approach and incremental risks were not assessed for the groundwater domestic use evaluation.

As discussed in Section C3.4, risks from exposure to soil and groundwater were evaluated for each redevelopment block both for the specific exposure scenario associated with the planned reuse and for the other potential exposure scenarios identified for Parcel C, regardless of the planned reuse. Using this approach, risks for each redevelopment block were evaluated for residential, industrial/construction workers, and recreational exposures. The HHRA results based on the specific planned reuse of each redevelopment block are presented in Section C8.1. Section C8.1 also identifies the chemicals of concern (COC) in soil and the A-aquifer for Parcel C; that is, the chemical-specific risks exceed 10^{-6} or the chemical-specific HIs exceed 1.0.

Domestic use of groundwater in the B-aquifer and F-WBZ was evaluated in the HHRA for the residential exposure scenario. The beneficial use evaluation of the B-aquifer and F-WBZ indicates that with the exception of the B-aquifer in the area of Building 134 at RUC5, these aquifers should not be considered a potential source of drinking water (see Section C3.5.2). However, exposure pathways associated with residential domestic use of groundwater in all B-aquifer and F-WBZ exposure areas were considered complete and were evaluated in the HHRA based on agreements with the BCT on the HHRA methodology. Chemicals associated with the B-aquifer at the RU-C5 plume were identified as COCs if the chemical-specific risks for the domestic use evaluation exceeded 10^{-6} or the chemical-specific HIs exceeded 1.0. Chemicals in the B-aquifer that are not associated with the RU-C5 plume and chemicals in the F-WBZ for which chemical-specific risks for the domestic use evaluation exceeded 10^{-6} or the chemical-specific HIs exceeded 1.0 were identified in this HHRA as groundwater chemicals of interest (COI). This distinction is made to separate risk results for the B-aquifer in the area of the RU-

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
20	Total and incremental risks	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Sections 3.1.2 and 3.1.3, pages 3-4 to 3-9.

methodology includes historical data (including data over 10 years old), the risk plumes reflect a worst-case scenario of groundwater contamination. Current conditions differ somewhat from the risk plumes and are discussed in Section 2.4. Chemical concentrations detected in samples from some groundwater monitoring locations at Parcel C were not associated with risk plumes; these nonplume-based locations were evaluated on a grid-by-grid basis, using the same grid system that was used in the HHRA to evaluate soil exposures as an efficient mechanism to locate each nonplume risk evaluation.

Risks from exposure to COPCs in soil and groundwater for each redevelopment block were evaluated both for the specific exposure scenario associated with the planned reuse of the redevelopment block, and for the other potential exposure scenarios identified for Parcel C, regardless of the planned reuse of the redevelopment block. Using this approach, risks for each redevelopment block were evaluated for resident, industrial worker, recreational user, and construction worker exposures. The HHRA results and COCs (that is, the chemicals for which the chemical-specific cancer risk exceeds 1E-06 or the chemical-specific HI exceeds 1) summarized in this section are the results associated with the specific planned reuse of each redevelopment block.

Domestic use risk evaluation results for the B-aquifer and F-WBZ, exclusive of the B-aquifer at RU-C5, are provided in the HHRA (Appendix C), but are not summarized in this section. These results are excluded from this section because, with the exception of the B-aquifer at RU-C5, the B-aquifer and F-WBZ at Parcel C should not be considered a potential source of drinking water (see discussion above and Section 2.2.9). The B-aquifer at RU-C5 may have beneficial use as drinking water. This section includes a summary of the risk results and COCs for the B-aquifer, based on the risk evaluation for domestic use of the B-aquifer at RU-C5.

3.1.2 Total and Incremental Risks for Exposure to Soil

Both total and incremental risks were evaluated for exposure to soil at Parcel C. All detected chemicals were included as COPCs for the total risk evaluation, regardless of concentration, except for the essential nutrients calcium, magnesium, potassium, and sodium. The total risk evaluation provides an estimate of the risks posed by all chemicals at the site, including any present at concentrations at or below HPALs. Conversely, the essential nutrients and metals with maximum measured concentrations below HPALs were excluded as COPCs for the incremental risk evaluation. The incremental risk evaluation provides an estimate of risks posed by all chemicals at the site, except those that do not exceed HPALs.

3.1.3 Risk Summary for Soil

This section summarizes the results of the total and incremental risk evaluations for soil based on planned reuse.

3.1.3.1 Total Risk Evaluation

Risks from exposure to COPCs in soil were assessed for the total risk evaluation for both surface soil (0 to 2 feet bgs) and subsurface soil (0 to 10 feet bgs). Figures 3-2 and 3-3 summarize the grid-specific total risk results for surface and subsurface soil based on the planned reuse of the redevelopment block associated with each grid. Figure 3-4 summarizes the grid-specific total risk results for construction worker exposure to soil. The results for each grid are shown relative to the cancer risk threshold of 1E-06, highest segregated noncancer hazard index (HI) threshold of 1, and HPS risk-based concentration for lead (155 mg/kg for residents and recreational users and 800 mg/kg for industrial and construction workers; see Section C7.4 and Attachment C6 of Appendix C for the basis of RBCs for lead). The specific calculated total cancer risk and noncancer HI results for each grid are listed in Tables 3-2, 3-3, and 3-4.

The risk results shown in the above-referenced figures and tables represent total risk; that is, all detected chemicals not considered to be essential human nutrients were included in the total risk evaluation. For surface soil (0 to 2 feet bgs) exposures, total risks were assessed for 30 grids in the industrial reuse areas, 159 grids in the residential reuse areas, and 26 grids in the open space reuse areas. Results of the total risk evaluation for surface soil showed that of these grids, 24 grids in the industrial reuse areas, 136 grids in the residential reuse areas, and 20 grids in the open space reuse areas exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1.

For subsurface soil (0 to 10 feet bgs) exposures, total risks were assessed for 34 grids in the industrial reuse areas and 228 grids in the residential reuse areas. Results of the subsurface soil evaluation showed that of these grids, 31 grids in the industrial reuse areas and 204 grids in the residential reuse areas exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1. For the construction worker exposure scenario, risks were assessed for 115 grids; 94 of these grids exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1.

Tables 3-5, 3-6, and 3-7 present a risk characterization analysis for each grid for which the total cancer risk or segregated noncancer HI exceeds thresholds. For each of these grids, the tables identify the total risk COCs (that is, the chemicals for which the chemical-specific cancer risk exceeds 1E-06 or the chemical-specific HI exceeds 1) and show the percent contribution of the COCs to the calculated total risks and hazards for each exposure pathway evaluated.

The following chemicals are identified as COCs in at least one grid based on planned reuse and results of the total risk evaluation for soil.

Exposure Scenario	Chemicals of Concern in Surface Soil (0 to 2 feet bgs), Total Risk	Chemicals of Concern in Subsurface Soil (0 to 10 feet bgs), Total Risk
Industrial	Aroclor-1260, Arsenic, Benzo(a)pyrene, and Lead	1,4-DCB, Aroclor-1260, Arsenic, Benzene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Lead, Organic Lead, PCE, TCE, and Vinyl Chloride
Recreational	Arsenic, Benzo(a)pyrene, and Lead	Not applicable
Residential	3,3'-Dichlorobenzidine, Antimony, Aroclor-1254, Aroclor-1260, Arsenic, Benzene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Cadmium, Copper, Dibenz(a,h)anthracene, Dieldrin, Gamma-BHC (Lindane), Heptachlor Epoxide, Indeno(1,2,3-cd)pyrene, Iron, Lead, Manganese, Mercury, Naphthalene, Nickel, Organic Lead, Thallium, Vanadium, and Zinc	1,2-Dichloroethane, 1,4-DCB, 2-Methylnaphthalene, 3,3'-Dichlorobenzidine, Antimony, Aroclor-1254, Aroclor-1260, Arsenic, Benzene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Cadmium, Chrysene, Copper, Dibenz(a,h)anthracene, Dieldrin, Gamma-BHC (Lindane), Heptachlor Epoxide, Heptachlor Epoxide B, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, Iron, Lead, Manganese, Mercury, Naphthalene, Nickel, n-Nitroso-di-n-Propylamine, Organic Lead, PCE, Thallium, TCE, Vanadium, Vinyl Chloride, and Zinc
Construction Worker[1]	Not applicable	Aroclor-1260, Arsenic, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Lead, Manganese, Organic Lead, and Thallium

Note:

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

Of these chemicals, the following most frequently occur as COCs for each exposure scenario for the total risk evaluation:

- For industrial exposure (educational/cultural and maritime/industrial reuse areas) to surface and subsurface soil, arsenic and benzo(a)pyrene were the most frequently occurring COCs. Arsenic was a COC for surface and subsurface soil in 80 and 91 percent, respectively, of the grids evaluated for industrial exposure. Benzo(a)pyrene was a COC for surface and subsurface soil in 27 and 38 percent, respectively, of the grids evaluated for industrial exposure.

- For residential exposure (mixed-use and research and development reuse areas) to surface and subsurface soil, benzo(a)pyrene and metals (arsenic, copper, iron, manganese, nickel, and vanadium) were the most frequently occurring COCs. Benzo(a)pyrene was a COC for surface and subsurface soil in 19 and 27 percent, respectively, of the grids evaluated for residential exposure. For residential surface soil exposure, the frequency of arsenic, copper, iron, manganese, nickel, and vanadium as COCs ranged from 15 percent (copper) to 71 percent (arsenic) for the grids evaluated. For residential subsurface soil exposure, the frequency of these metals as COCs ranged from 15 percent (copper) to 76 percent (arsenic) for the grids evaluated.

- For recreational exposure (open space reuse areas), arsenic and benzo(a)pyrene were the most frequently occurring COCs for surface soil exposure. Arsenic was a COC in 77 percent and benzo(a)pyrene was a COC in 15 percent of the grids evaluated for recreational exposure.

- For construction worker exposure (evaluated parcel-wide), arsenic was identified as a COC in 81 percent of the grids evaluated.

3.1.3.2 Incremental Risk Evaluation

Risks from exposure to COPCs in soil were assessed for both surface soil (0 to 2 feet bgs) and subsurface soil (0 to 10 feet bgs) for the incremental risk evaluation. Figures 3-5 and 3-6 summarize the grid-specific incremental risk results for surface and subsurface soil based on the planned reuse of the redevelopment block associated with each grid. Figure 3-7 summarizes the grid-specific incremental risk results for construction worker exposure to soil. The specific calculated incremental cancer risk and noncancer HI results for each grid are listed in Tables 3-8, 3-9, and 3-10.

The risk results shown in the above-referenced figures and tables represent incremental risk; that is, all detected chemicals except essential human nutrients and metals below HPALs were included in the risk evaluation. For surface soil (0 to 2 feet bgs) exposures, incremental risks were assessed for 29 grids in the industrial reuse areas, 146 grids in the residential reuse areas, and 26 grids in the open space reuse areas. Results of the incremental risk evaluation for surface soil showed that of these grids, 9 grids in the industrial reuse areas, 86 grids in the residential reuse areas, and 8 grids in the open space reuse areas exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1.

For subsurface soil (0 to 10 feet bgs) exposures, incremental risks were assessed for 34 grids in the industrial reuse areas and 222 grids in the residential reuse areas. Results of the subsurface soil evaluation showed that of these grids, 18 grids in the industrial reuse areas and 156 grids in the residential reuse areas exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1. For the construction worker exposure scenario, risks were assessed for 114 grids; of these grids, 38 exceeded the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1.

Compared with the total risk evaluation for surface soil, under the incremental risk evaluation, there is on average a 42 percent reduction in the number of exposure areas that do not exceed the cancer risk threshold of 1E-06 or the noncancer threshold HI of 1 (based on highest segregated HI) for the planned reuses of Parcel C. For subsurface soil exposures, the reduction is approximately 26 percent.

Tables 3-11, 3-12, and 3-13 present a risk characterization analysis for each grid for which the incremental cancer risk or segregated noncancer HI exceeds thresholds. For each of these grids, the tables identify the incremental risk COCs (that is, the chemicals for which the chemical-specific cancer risk exceeds 1E-06 or the chemical-specific HI exceeds 1) and show

the percent contribution of the COCs to the calculated total risks and hazards for each exposure pathway evaluated.

The following chemicals are identified as COCs in at least one grid based on planned reuse and the results of the incremental risk evaluation for soil.

Exposure Scenario	Chemicals of Concern in Surface Soil (0 to 2 feet bgs), Incremental Risk	Chemicals of Concern in Subsurface Soil (0 to 10 feet bgs), Incremental Risk
Industrial	Aroclor-1260, Arsenic, Benzo(a)pyrene, and Lead	1,4-DCB, Aroclor-1260, Arsenic, Benzene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Lead, Organic Lead, PCE, TCE, and Vinyl Chloride
Recreational	Arsenic, Benzo(a)pyrene, and Lead	Not applicable
Residential	3,3'-Dichlorobenzidine, Antimony, Aroclor-1254, Aroclor-1260, Arsenic, Benzene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Cadmium, Copper, Dibenz(a,h)anthracene, Dieldrin, Gamma-BHC (Lindane), Heptachlor Epoxide, Indeno(1,2,3-cd)pyrene, Iron, Lead, Manganese, Mercury, Naphthalene, Organic Lead, Thallium, Vanadium, and Zinc	1,2-DCA, 1,4-DCB, 2-Methylnaphthalene, 3,3'-Dichlorobenzidine, Antimony, Aroclor-1254, Aroclor-1260, Arsenic, Benzene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Cadmium, Chrysene, Copper, Dibenz(a,h)anthracene, Dieldrin, Gamma-BHC (Lindane), Heptachlor Epoxide, Heptachlor Epoxide B, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, Iron, Lead, Manganese, Mercury, Naphthalene, Nickel, n-Nitroso-di-n-Propylamine, Organic Lead, PCE, Thallium, TCE, Vanadium, Vinyl Chloride, and Zinc
Construction Worker[1]	Not applicable	Aroclor-1260, Arsenic, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene, Lead, Manganese, Organic Lead, and Thallium

Note:

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

Of these chemicals, the following most frequently occur as COCs for each exposure scenario for the incremental risk evaluation:

- For industrial exposure (educational/cultural and maritime/industrial reuse areas) to surface and subsurface soil, arsenic and benzo(a)pyrene were the most frequently occurring COCs. Arsenic was a COC for surface and subsurface soil in 17 and 29 percent, respectively, of the grids evaluated for industrial exposure. Benzo(a) pyrene was a COC for surface and subsurface soil in 27 and 38 percent, respectively, of the grids evaluated for industrial exposure.

- For residential exposure (mixed-use and research and development reuse areas) to surface and subsurface soil, benzo(a)pyrene and metals (arsenic, copper, and manganese) were the most frequently occurring COCs. Benzo(a)pyrene was a COC for surface and subsurface soil in 21 and 28 percent, respectively, of the grids evaluated for residential exposure. For residential surface soil exposure, the frequency of arsenic, copper, and manganese as COCs ranged from 14 percent (arsenic) to 40 percent (manganese) for the grids evaluated. For residential subsurface soil exposure, the frequency of these metals as COCs ranged from 15 percent (copper) to 47 percent (manganese) for the grids evaluated.

- For recreational exposure (open space reuse areas), arsenic and benzo(a)pyrene were the most frequently occurring COCs for surface soil exposure. Both of these chemicals were COCs in 15 percent of the grids evaluated for recreational exposure.

- For construction worker exposure (evaluated parcel-wide), arsenic was identified as a COC in 30 percent of the grids evaluated.

3.1.4 Risk Summary for Groundwater

Risk results for groundwater are based on exposure to the A-aquifer in the RU-C1, RU-C2, RU-C4, and RU-C5 plume-based exposure areas and several nonplume exposure areas. Risk from exposure to the A-aquifer was based on inhalation of volatile COPCs that migrate through the subsurface to indoor air (vapor intrusion); this pathway is the most likely complete exposure pathway for the planned reuses of Parcel C. Although not specifically associated with the planned reuse for Parcel C, exposure to A-aquifer groundwater may also occur during trenching for the construction worker scenario. Figure 3-8 shows the risk results for groundwater for each of the identified plumes and nonplume exposure areas in the A-aquifer based on the planned reuse for each redevelopment block. Figure 3-9 shows the risk results for construction worker exposure to groundwater for both plume- and nonplume-based exposures. The results in the figures are shown compared with the cancer risk threshold of 1E-06 and the highest segregated noncancer HI of 1.

Table 3-14 presents a groundwater risk characterization analysis for the exposure areas where the cancer risk from vapor intrusion of the A-aquifer exceeds 1E-06 or the highest segregated HI exceeds 1, based on the planned reuses for Parcel C. Table 3-15 presents a groundwater risk characterization analysis for the construction worker exposure scenario. Both of these tables identify the groundwater COCs associated with each plume- and nonplume-based exposure area at Parcel C and the percent contribution of each COC to the total cancer risk and HI calculated for each plume. The following chemicals are identified as COCs in groundwater in the A-aquifer.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
21	Revised HHRA results	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Tables 3-2 through 3-16.

TABLE 3-2: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
10	MU	063027	**8E-05**	8E+00	**3E+00**
10	MU	063028	**--**	<1	<1
10	MU	064024	**5E-05**	<1	<1
10	MU	066025	3E-07	<1	<1
10	MU	066026	1E-06	<1	<1
10	MU	066027	**2E-06**	<1	<1
10	MU	066028	**4E-05**	1E+01	**7E+00**
10	MU	067025	2E-07	1E+01	**5E+00**
10	MU	067026	**2E-04**	8E+00	**2E+00**
10	MU	068025	**1E-04**	1E+01	**4E+00**
10	MU	068026	**2E-04**	1E+01	**6E+00**
10	MU	068027	**1E-04**	6E+00	**2E+00**
10	MU	069025	**9E-05**	8E+00	**3E+00**
10	MU	069026	**1E-04**	1E+01	**5E+00**
10	MU	069027	**7E-05**	1E+01	**5E+00**
10	MU	070025	**1E-04**	5E+00	<1
11	MU	065021	**1E-04**	1E+01	**5E+00**
11	MU	065024	**1E-04**	6E+00	**2E+00**
11	MU	066022	**2E-04**	7E+00	**2E+00**
11	MU	066023	**1E-04**	1E+01	**4E+00**
11	MU	066024	**2E-04**	6E+00	**5E+00**
11	MU	067022	1E-07	5E+00	<1
11	MU	067023	2E-07	2E+00	**2E+00**
11	MU	067024	**2E-04**	9E+00	**4E+00**
11	MU	068019	**--**	<1	<1
11	MU	068024	**9E-05**	2E+00	<1
11	MU	069024	**2E-05**	1E+01	**4E+00**
11	MU	070024	**1E-04**	6E+00	**2E+00**
11	MU	071019	1E-07	6E+00	**2E+00**
11	MU	071024	**1E-04**	6E+00	<1
13	MU	075027	**4E-05**	1E+01	**6E+00**
13	MU	077028	**6E-05**	9E+00	**3E+00**
13	MU	078027	**--**	<1	<1
13	MU	078028	**5E-05**	4E+00	<1
13	MU	079027	**5E-05**	7E+00	**4E+00**
13	MU	079030	**3E-05**	1E+01	**4E+00**
13	MU	080025	**1E-04**	6E+00	**3E+00**
13	MU	080026	**1E-04**	1E+01	**4E+00**
13	MU	082026	**2E-04**	7E+00	**2E+00**
13	MU	082027	**2E-05**	8E+00	**2E+00**
18	RD	075043	**2E-04**	8E+00	**2E+00**
18	RD	075044	2E-08	3E+00	<1
18	RD	076034	**8E-05**	7E+00	**2E+00**
18	RD	076043	**8E-05**	5E+00	<1
18	RD	077035	**6E-05**	1E+01	**3E+00**
18	RD	077038	**1E-04**	9E+00	**3E+00**

TABLE 3-2: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
18	RD	077039	**7E-05**	6E+00	**2E+00**
18	RD	077040	**--**	<1	<1
18	RD	078032	**1E-05**	1E+01	**6E+00**
18	RD	078037	**2E-04**	9E+00	**2E+00**
18	RD	078038	**2E-04**	7E+00	**2E+00**
18	RD	078039	**1E-04**	8E+00	**2E+00**
18	RD	078040	6E-08	2E+00	<1
18	RD	078041	8E-08	2E+00	<1
18	RD	079037	**2E-04**	2E+00	<1
18	RD	079038	**9E-05**	4E+00	<1
18	RD	079039	**9E-05**	7E+00	**2E+00**
18	RD	079040	5E-08	<1	<1
18	RD	079041	**1E-04**	5E+00	<1
18	RD	080038	1E-07	6E+00	**2E+00**
18	RD	080040	**3E-05**	5E+00	<1
18	RD	082035	**8E-05**	9E+00	**3E+00**
18	RD	084036	**4E-05**	5E+00	<1
20A	RD	081029	3E-09	<1	<1
20A	RD	081030	**7E-06**	4E+00	**2E+00**
20A	RD	081031	**3E-05**	9E+00	**3E+00**
20A	RD	083032	**1E-04**	2E+01	**1E+01**
20A	RD	084028	**7E-05**	1E+01	**3E+00**
20A	RD	084030	**1E-04**	7E+00	**3E+00**
20A	RD	084035	1E-08	8E+00	**8E+00**
20A	RD	085030	7E-07	5E+00	**2E+00**
20A	RD	085031	**1E-05**	2E+01	**1E+01**
20A	RD	085032	6E-07	6E+00	**2E+00**
20A	RD	086030	**2E-04**	7E+00	**2E+00**
20A	RD	086031	5E-07	1E+01	**9E+00**
20A	RD	086032	**2E-04**	1E+01	**6E+00**
23	RD	083043	**6E-04**	9E+00	**3E+00**
23	RD	084039	**2E-04**	5E+00	**2E+00**
23	RD	085036	**2E-04**	7E+00	**2E+00**
23	RD	085037	5E-08	5E+00	**2E+00**
23	RD	085038	**2E-04**	9E+00	**6E+00**
23	RD	085039	**2E-04**	1E+01	**4E+00**
23	RD	085042	**2E-04**	5E+00	**2E+00**
23	RD	086037	**2E-04**	6E+00	**2E+00**
23	RD	086039	**1E-04**	6E+00	**4E+00**
23	RD	086042	7E-08	4E+00	<1
23	RD	086043	**6E-05**	6E+00	**2E+00**
23	RD	087038	**--**	<1	<1
23	RD	087043	**5E-04**	8E+00	**5E+00**
23	RD	088038	**3E-04**	7E+00	**6E+00**
23	RD	088039	**2E-04**	3E+00	<1
23	RD	088040	**3E-04**	5E+02	**5E+02**

TABLE 3-2: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
23	RD	088042	**2E-04**	2E+02	**2E+02**
23	RD	088043	**1E-04**	4E+00	<1
23	RD	088044	**2E-04**	2E+00	<1
23	RD	089038	**7E-04**	1E+01	**9E+00**
23	RD	089039	**6E-04**	1E+02	**1E+02**
23	RD	089040	**4E-04**	4E+03	**4E+03**
23	RD	089041	**7E-06**	1E+01	**6E+00**
23	RD	089042	**4E-05**	2E+00	<1
23	RD	089043	**1E-04**	2E+00	<1
23	RD	090039	**2E-03**	2E+02	**1E+02**
23	RD	090040	**2E-04**	2E+01	**1E+01**
23	RD	090041	**1E-05**	1E+01	**8E+00**
23	RD	091040	**8E-04**	1E+04	**1E+04**
24	RD	086034	**2E-04**	8E+00	**2E+00**
24	RD	087036	**2E-04**	9E+00	**6E+00**
24	RD	088032	7E-09	2E+00	<1
24	RD	088035	**5E-05**	2E+00	**2E+00**
24	RD	088036	**2E-03**	2E+01	**1E+01**
24	RD	089030	**8E-05**	7E+00	**2E+00**
24	RD	089034	**3E-04**	6E+00	**5E+00**
24	RD	089035	**5E-04**	2E+01	**1E+01**
24	RD	089036	**4E-04**	5E+01	**4E+01**
24	RD	089037	**4E-04**	7E+01	**5E+01**
24	RD	090033	**--**	2E+00	**2E+00**
24	RD	090034	**2E-04**	3E+00	**2E+00**
24	RD	090035	**3E-04**	6E+00	**4E+00**
24	RD	090036	**--**	<1	<1
24	RD	090037	**8E-04**	1E+01	**9E+00**
24	RD	090038	**1E-04**	3E+00	**2E+00**
24	RD	091034	**1E-04**	5E+00	**4E+00**
24	RD	091035	**1E-04**	7E+00	**4E+00**
24	RD	091036	**1E-04**	9E+00	**8E+00**
24	RD	091037	**3E-04**	9E+01	**8E+01**
24	RD	091038	**2E-04**	<1	<1
24	RD	091039	**5E-05**	7E+00	**5E+00**
24	RD	092034	**1E-04**	3E+00	**2E+00**
24	RD	092035	**4E-04**	7E+00	**5E+00**
24	RD	092036	**6E-04**	7E+01	**7E+01**
24	RD	092037	**5E-04**	1E+01	**1E+01**
24	RD	092038	**3E-04**	8E+00	**7E+00**
24	RD	093029	**--**	--[a]	**--**[a]
24	RD	093030	**7E-05**	1E+01	**4E+00**
24	RD	093031	4E-08	5E+00	**2E+00**
24	RD	093035	**2E-04**	5E+00	**4E+00**
24	RD	093036	**6E-04**	2E+01	**1E+01**

TABLE 3-2: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
24	RD	093037	**6E-05**	2E+00	**2E+00**
24	RD	094035	**5E-06**	9E+00	**9E+00**
24	RD	095032	4E-09	<1	<1
24	RD	096028	**8E-05**	8E+00	**3E+00**
24	RD	097029	2E-08	4E+00	<1
26	MU	089044	**3E-05**	<1	<1
26	MU	091041	5E-07	4E+00	**2E+00**
26	MU	091043	**3E-05**	2E+00	<1
26	MU	092039	**1E-04**	3E+00	<1
26	MU	092040	**5E-05**	<1	<1
26	MU	092041	**2E-04**	3E+00	**2E+00**
26	MU	092042	**2E-05**	4E+00	<1
26	MU	092043	**--**	<1	<1
26	MU	093042	**--**	<1	<1
26	MU	093043	**--**	2E+00	**2E+00**
26	MU	094040	2E-08	5E+00	**2E+00**
26	MU	094041	5E-08	1E+01	**3E+00**
26	MU	094042	3E-08	<1	<1
26	MU	095042	**2E-06**	<1	<1
26	MU	098041	3E-07	5E+00	**2E+00**
26	MU	098042	3E-08	4E+00	<1
26	MU	099042	**5E-05**	6E+00	**2E+00**
20B	E/C	AX10	**2E-05**	<1	<1
20B	E/C	AY09	**2E-05**	<1	<1
20B	E/C	AY10	**6E-04**	2E+00	<1
20B	E/C	AY11	**2E-05**	<1	<1
20B	E/C	AZ08	**2E-05**	<1	<1
20B	E/C	AZ10	**4E-05**	<1	<1
20B	E/C	AZ11	**7E-06**	<1	<1
20B	E/C	BA09	**2E-05**	<1	<1
22	E/C	AY06	**2E-05**	<1	<1
22	E/C	AZ07	4E-07	<1	<1
22	E/C	BA03	6E-07	<1	<1
22	E/C	BA07	**4E-05**	<1	<1
22	E/C	BA08	**2E-05**	<1	<1
22	E/C	BB03	**4E-06**	<1	<1
22	E/C	BB06	**5E-05**	<1	<1
25	E/C	BB08	**2E-05**	<1	<1
25	E/C	BC07	**1E-05**	<1	<1
25	E/C	BC08	2E-07	<1	<1
25	E/C	BD08	**3E-05**	<1	<1
25	E/C	BD09	**1E-05**	<1	<1
CMI-1	MI	AV15	**1E-05**	<1	<1
CMI-1	MI	AV18	**1E-05**	<1	<1
CMI-1	MI	AY16	**1E-05**	<1	<1
CMI-1	MI	AZ16	**3E-06**	<1	<1

TABLE 3-2: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
CMI-1	MI	BA18	2E-08	<1	<1
CMI-1	MI	BA19	3E-08	<1	<1
CMI-1	MI	BB18	**5E-06**	<1	<1
CMI-1	MI	BB19	3E-08	<1	<1
CMI-1	MI	BC15	**4E-06**	<1	<1
CMI-1	MI	BC18	**8E-06**	<1	<1
COS-1	OS	AW09	**1E-05**	<1	<1
COS-1	OS	AX09	**1E-05**	<1	<1
COS-1	OS	AY07	**2E-05**	<1	<1
COS-1	OS	AY08	3E-07	<1	<1
COS-2	OS	BB05	**3E-05**	<1	<1
COS-2	OS	BC03	**1E-05**	<1	<1
COS-2	OS	BC04	**2E-05**	<1	<1
COS-2	OS	BC05	**4E-05**	<1	<1
COS-2	OS	BC06	2E-08	<1	<1
COS-2	OS	BD03	**1E-05**	<1	<1
COS-2	OS	BD04	**2E-05**	<1	<1
COS-2	OS	BE04	**2E-05**	<1	<1
COS-3	OS	BA13	**6E-05**	<1	<1
COS-3	OS	BB12	3E-10	<1	<1
COS-3	OS	BC11	7E-07	<1	<1
COS-3	OS	BC12	**1E-05**	<1	<1
COS-3	OS	BD06	2E-09	<1	<1
COS-3	OS	BD07	**1E-05**	<1	<1
COS-3	OS	BD10	4E-09	<1	<1
COS-3	OS	BD11	**2E-05**	<1	<1
COS-3	OS	BD12	**8E-06**	<1	<1
COS-3	OS	BE05	**4E-05**	2E+00	<1
COS-3	OS	BE06	**5E-05**	<1	<1
COS-3	OS	BE07	**1E-05**	<1	<1
COS-3	OS	BF07	**1E-05**	<1	<1
COS-3	OS	BF09	**4E-06**	<1	<1

Notes: Values shown in **boldface** exceed the threshold level of 1E-06 for cancer risks and 1.0 for segregated noncancer hazards.

a Chemicals of potential concern for this grid are limited to lead; detected concentrations do not exceed risk-based concentrations for lead for any samples in this grid (see Table C1-23 of Attachment C1, Appendix C).

-- Not applicable
bgs Below ground surface
E/C Educational/Cultural (industrial exposure scenario)
MI Maritime/Industrial (industrial exposure scenario)
MU Mixed use (residential exposure scenario)
OS Open space (recreational exposure scenario)
RD Research and development (residential exposure scenario)
RME Reasonable maximum exposure

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
10	MU	063024	**9E-05**	6E+00	**2E+00**
10	MU	063027	**9E-05**	8E+00	**3E+00**
10	MU	063028	**--**	<1	<1
10	MU	064024	**2E-04**	9E+00	**4E+00**
10	MU	064026	3E-07	<1	<1
10	MU	064027	7E-08	<1	<1
10	MU	064028	**1E-05**	2E+00	<1
10	MU	064029	**5E-05**	2E+00	<1
10	MU	065026	**1E-04**	6E+00	**2E+00**
10	MU	065027	**4E-06**	<1	<1
10	MU	065028	**1E-04**	1E+01	**5E+00**
10	MU	065029	**6E-05**	1E+01	**6E+00**
10	MU	066025	**9E-05**	2E+00	<1
10	MU	066026	**1E-04**	1E+01	**4E+00**
10	MU	066027	**2E-04**	5E+00	<1
10	MU	066028	**9E-05**	1E+01	**7E+00**
10	MU	067025	**9E-05**	1E+01	**3E+00**
10	MU	067026	**2E-04**	7E+00	**2E+00**
10	MU	067027	**7E-05**	1E+01	**6E+00**
10	MU	067028	**9E-05**	1E+01	**5E+00**
10	MU	068025	**9E-05**	1E+01	**4E+00**
10	MU	068026	**2E-04**	1E+01	**7E+00**
10	MU	068027	**8E-05**	1E+01	**6E+00**
10	MU	069025	**9E-05**	8E+00	**2E+00**
10	MU	069026	**5E-05**	2E+01	**9E+00**
10	MU	069027	**6E-05**	1E+01	**5E+00**
10	MU	070025	**1E-04**	2E+01	**6E+00**
10	MU	070026	3E-07	1E+01	**6E+00**
11	MU	064020	4E-08	<1	<1
11	MU	064023	**9E-05**	5E+00	<1
11	MU	065020	5E-07	<1	<1
11	MU	065021	**1E-04**	1E+01	**4E+00**
11	MU	065022	**3E-04**	3E+00	<1
11	MU	065023	**1E-04**	3E+00	<1
11	MU	065024	**1E-04**	7E+00	**2E+00**
11	MU	066020	**9E-05**	2E+00	<1
11	MU	066021	1E-06	2E+00	<1
11	MU	066022	**2E-04**	1E+01	**3E+00**
11	MU	066023	**1E-04**	1E+01	**4E+00**
11	MU	066024	**1E-04**	6E+00	**5E+00**
11	MU	067019	**4E-06**	<1	<1
11	MU	067020	**9E-05**	6E+00	**5E+00**
11	MU	067021	**7E-06**	<1	<1

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
11	MU	067022	**2E-04**	6E+00	<1
11	MU	067023	2E-07	2E+00	**2E+00**
11	MU	067024	**1E-04**	1E+01	**3E+00**
11	MU	068019	**7E-05**	5E+00	**2E+00**
11	MU	068020	**9E-05**	4E+00	**3E+00**
11	MU	068022	**8E-06**	<1	<1
11	MU	068024	**1E-04**	9E+00	**3E+00**
11	MU	069022	**6E-05**	1E+01	**6E+00**
11	MU	069023	3E-08	<1	<1
11	MU	069024	**3E-05**	1E+01	**7E+00**
11	MU	070024	**1E-04**	7E+00	**2E+00**
11	MU	071019	1E-07	7E+00	**2E+00**
11	MU	071024	**1E-04**	6E+00	<1
13	MU	075027	**1E-04**	1E+01	**6E+00**
13	MU	077028	**6E-05**	1E+01	**3E+00**
13	MU	078027	**--**	<1	<1
13	MU	078028	**5E-05**	4E+00	<1
13	MU	078029	**--**	<1	<1
13	MU	079027	**8E-05**	7E+00	**4E+00**
13	MU	079029	**4E-05**	1E+01	**8E+00**
13	MU	079030	**3E-05**	2E+01	**5E+00**
13	MU	080025	**1E-04**	6E+00	**3E+00**
13	MU	080026	**9E-05**	1E+01	**4E+00**
13	MU	080029	4E-09	<1	<1
13	MU	081027	**--**	--[a]	**--**[a]
13	MU	082026	**2E-04**	7E+00	**2E+00**
13	MU	082027	**1E-04**	8E+00	**2E+00**
18	RD	075039	4E-08	<1	<1
18	RD	075043	**2E-04**	8E+00	**2E+00**
18	RD	075044	2E-08	3E+00	<1
18	RD	076034	**8E-05**	7E+00	**2E+00**
18	RD	076038	**2E-04**	1E+01	**3E+00**
18	RD	076039	**1E-05**	<1	<1
18	RD	076040	9E-07	<1	<1
18	RD	076043	**8E-05**	5E+00	<1
18	RD	077035	**6E-05**	1E+01	**3E+00**
18	RD	077037	**3E-04**	8E+00	**2E+00**
18	RD	077038	**2E-04**	1E+01	**3E+00**
18	RD	077039	**1E-04**	7E+00	**2E+00**
18	RD	077040	**2E-04**	2E+01	**1E+01**
18	RD	078032	**1E-05**	1E+01	**6E+00**
18	RD	078036	**4E-04**	1E+01	**5E+00**
18	RD	078037	**2E-04**	1E+01	**4E+00**

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
18	RD	078038	**2E-04**	9E+00	**2E+00**
18	RD	078039	**2E-04**	9E+00	**3E+00**
18	RD	078040	2E-07	3E+00	**2E+00**
18	RD	078041	2E-07	3E+00	**2E+00**
18	RD	079037	**3E-04**	9E+00	**2E+00**
18	RD	079038	**1E-04**	4E+00	<1
18	RD	079039	**2E-04**	9E+00	**2E+00**
18	RD	079040	8E-08	4E+00	<1
18	RD	079041	**4E-04**	8E+00	**2E+00**
18	RD	080038	**2E-04**	9E+00	**2E+00**
18	RD	080039	2E-07	2E+00	<1
18	RD	080040	**1E-04**	9E+00	**2E+00**
18	RD	081037	**2E-04**	6E+00	**2E+00**
18	RD	081038	7E-07	<1	<1
18	RD	082035	**8E-05**	9E+00	**3E+00**
18	RD	084036	**3E-04**	9E+00	**2E+00**
20A	RD	081029	3E-09	<1	<1
20A	RD	081030	**8E-06**	1E+01	**6E+00**
20A	RD	081031	**3E-05**	9E+00	**3E+00**
20A	RD	081032	3E-07	1E+01	**7E+00**
20A	RD	083032	**1E-04**	2E+01	**1E+01**
20A	RD	083033	**--**	<1	<1
20A	RD	083034	**3E-04**	9E+00	**2E+00**
20A	RD	084028	**7E-05**	1E+01	**3E+00**
20A	RD	084029	**9E-05**	2E+01	**9E+00**
20A	RD	084030	**1E-04**	1E+01	**3E+00**
20A	RD	084035	**2E-04**	1E+01	**6E+00**
20A	RD	085029	**9E-05**	5E+00	<1
20A	RD	085030	8E-07	4E+00	**2E+00**
20A	RD	085031	**1E-05**	2E+01	**8E+00**
20A	RD	085032	9E-07	2E+01	**8E+00**
20A	RD	086030	**1E-04**	9E+00	**2E+00**
20A	RD	086031	**1E-04**	3E+01	**1E+01**
20A	RD	086032	**2E-04**	2E+01	**8E+00**
20A	RD	087031	**2E-05**	9E+00	**4E+00**
20A	RD	087032	**5E-06**	6E+00	**3E+00**
23	RD	083043	**6E-04**	1E+01	**3E+00**
23	RD	084039	**2E-04**	1E+01	**6E+00**
23	RD	085036	**2E-04**	7E+00	**2E+00**
23	RD	085037	**2E-04**	7E+00	**2E+00**
23	RD	085038	**4E-04**	3E+01	**1E+01**
23	RD	085039	**2E-04**	9E+00	**3E+00**
23	RD	085042	**2E-04**	5E+00	**2E+00**

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
23	RD	086037	**2E-04**	7E+00	**2E+00**
23	RD	086039	**1E-04**	7E+00	**4E+00**
23	RD	086040	**1E-04**	6E+00	**2E+00**
23	RD	086042	**6E-04**	6E+00	**2E+00**
23	RD	086043	**6E-05**	6E+00	**2E+00**
23	RD	087037	**8E-05**	2E+01	**2E+01**
23	RD	087038	**4E-04**	1E+02	**1E+02**
23	RD	087042	**1E-05**	2E+00	**2E+00**
23	RD	087043	**5E-04**	1E+01	**5E+00**
23	RD	088038	**1E-03**	1E+02	**9E+01**
23	RD	088039	**3E-04**	2E+02	**2E+02**
23	RD	088040	**3E-04**	5E+02	**5E+02**
23	RD	088041	**2E-06**	3E+00	**2E+00**
23	RD	088042	**2E-04**	2E+02	**2E+02**
23	RD	088043	**2E-04**	2E+02	**2E+02**
23	RD	088044	**2E-04**	3E+00	**2E+00**
23	RD	089038	**6E-04**	4E+01	**3E+01**
23	RD	089039	**2E-04**	6E+02	**6E+02**
23	RD	089040	**5E-04**	2E+03	**2E+03**
23	RD	089041	**8E-05**	2E+01	**7E+00**
23	RD	089042	**2E-04**	5E+00	<1
23	RD	089043	**1E-04**	4E+00	<1
23	RD	090039	**1E-03**	2E+02	**1E+02**
23	RD	090040	**2E-04**	1E+01	**3E+00**
23	RD	090041	**1E-04**	9E+01	**7E+01**
23	RD	091040	**4E-04**	1E+04	**1E+04**
24	RD	086034	**2E-04**	8E+00	**2E+00**
24	RD	087033	1E-07	8E+00	**2E+00**
24	RD	087036	**1E-03**	2E+01	**1E+01**
24	RD	088032	**9E-05**	6E+00	**2E+00**
24	RD	088034	**1E-04**	1E+01	**3E+00**
24	RD	088035	**1E-04**	6E+01	**5E+01**
24	RD	088036	**1E-03**	2E+01	**1E+01**
24	RD	088037	**4E-04**	3E+01	**2E+01**
24	RD	089030	**8E-05**	7E+00	**2E+00**
24	RD	089032	**1E-04**	2E+00	**2E+00**
24	RD	089033	**1E-04**	4E+00	**3E+00**
24	RD	089034	**1E-04**	1E+01	**4E+00**
24	RD	089035	**7E-04**	2E+01	**1E+01**
24	RD	089036	**6E-04**	2E+01	**1E+01**
24	RD	089037	**4E-04**	7E+01	**5E+01**
24	RD	090033	**3E-04**	4E+00	**3E+00**
24	RD	090034	**6E-04**	7E+00	**4E+00**

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
24	RD	090035	**5E-04**	2E+01	**1E+01**
24	RD	090036	**1E-04**	6E+00	**5E+00**
24	RD	090037	**8E-04**	1E+01	**9E+00**
24	RD	090038	**1E-04**	2E+01	**2E+01**
24	RD	091032	**8E-06**	9E+00	**3E+00**
24	RD	091033	3E-11	<1	<1
24	RD	091034	**1E-04**	9E+00	**4E+00**
24	RD	091035	**1E-04**	1E+01	**6E+00**
24	RD	091036	**2E-04**	1E+01	**7E+00**
24	RD	091037	**3E-04**	9E+01	**9E+01**
24	RD	091038	**2E-04**	2E+00	<1
24	RD	091039	**5E-05**	1E+01	**1E+01**
24	RD	092030	2E-07	7E+00	**2E+00**
24	RD	092033	**--**	<1	<1
24	RD	092034	**1E-04**	3E+00	**2E+00**
24	RD	092035	**3E-04**	6E+00	**5E+00**
24	RD	092036	**6E-04**	5E+01	**5E+01**
24	RD	092037	**5E-04**	2E+01	**1E+01**
24	RD	092038	**3E-04**	8E+00	**7E+00**
24	RD	093029	**--**	--[a]	**--**[a]
24	RD	093030	**3E-04**	1E+01	**3E+00**
24	RD	093031	7E-08	9E+00	**3E+00**
24	RD	093034	**2E-04**	1E+01	**4E+00**
24	RD	093035	**4E-04**	7E+00	**5E+00**
24	RD	093036	**5E-04**	2E+01	**2E+01**
24	RD	093037	**7E-05**	3E+00	**2E+00**
24	RD	094030	**4E-04**	1E+01	**8E+00**
24	RD	094034	**3E-04**	8E+02	**7E+02**
24	RD	094035	**4E-04**	1E+03	**1E+03**
24	RD	094036	**7E-05**	<1	<1
24	RD	095032	**2E-04**	1E+01	**3E+00**
24	RD	096028	**8E-05**	8E+00	**3E+00**
24	RD	096032	**2E-04**	8E+00	**2E+00**
24	RD	097029	**1E-04**	1E+01	**5E+00**
26	MU	089044	**2E-04**	4E+01	**2E+01**
26	MU	090042	2E-07	4E+00	**4E+00**
26	MU	091041	**4E-04**	9E+00	**5E+00**
26	MU	091042	**2E-06**	5E+00	**2E+00**
26	MU	091043	**8E-05**	3E+00	<1
26	MU	092039	**1E-04**	2E+01	**1E+01**
26	MU	092040	**1E-04**	2E+01	**1E+01**
26	MU	092041	**2E-04**	4E+00	**2E+00**
26	MU	092042	**1E-04**	6E+00	**2E+00**

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
26	MU	092043	**7E-05**	5E+00	**2E+00**
26	MU	093042	**--**	2E+00	**2E+00**
26	MU	093043	**5E-05**	1E+01	**5E+00**
26	MU	094040	2E-08	5E+00	**2E+00**
26	MU	094041	5E-08	1E+01	**3E+00**
26	MU	094042	3E-08	<1	<1
26	MU	095038	**2E-04**	1E+01	**5E+00**
26	MU	095039	**1E-04**	4E+00	**4E+00**
26	MU	095042	**2E-06**	7E+00	**2E+00**
26	MU	096042	**--**	<1	<1
26	MU	098041	**6E-05**	5E+00	**2E+00**
26	MU	098042	**3E-04**	1E+01	**5E+00**
26	MU	099042	**9E-05**	7E+00	**2E+00**
20B	E/C	AX10	**1E-05**	<1	<1
20B	E/C	AY09	**1E-05**	<1	<1
20B	E/C	AY10	**1E-04**	3E+00	**3E+00**
20B	E/C	AY11	**2E-05**	<1	<1
20B	E/C	AZ08	**1E-05**	<1	<1
20B	E/C	AZ10	**4E-05**	<1	<1
20B	E/C	AZ11	**7E-06**	<1	<1
20B	E/C	BA09	**5E-05**	<1	<1
22	E/C	AY06	**2E-05**	<1	<1
22	E/C	AZ07	**1E-05**	<1	<1
22	E/C	BA03	6E-07	<1	<1
22	E/C	BA07	**1E-04**	<1	<1
22	E/C	BA08	**1E-04**	<1	<1
22	E/C	BB03	**4E-06**	1E+01	**1E+01**
22	E/C	BB06	**3E-05**	<1	<1
22	E/C	BB07	**1E-05**	<1	<1
25	E/C	BB08	**1E-05**	<1	<1
25	E/C	BB09	**1E-05**	<1	<1
25	E/C	BC07	**9E-06**	<1	<1
25	E/C	BC08	**6E-06**	<1	<1
25	E/C	BC09	**2E-05**	<1	<1
25	E/C	BC10	**5E-06**	<1	<1
25	E/C	BD08	**4E-05**	<1	<1
25	E/C	BD09	**1E-05**	<1	<1
CMI-1	MI	AV15	**4E-05**	<1	<1
CMI-1	MI	AV18	**1E-05**	<1	<1
CMI-1	MI	AY16	**1E-05**	<1	<1
CMI-1	MI	AZ16	**2E-05**	<1	<1
CMI-1	MI	BA18	2E-08	<1	<1

TABLE 3-3: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
CMI-1	MI	BA19	3E-08	<1	<1
CMI-1	MI	BB18	**4E-04**	<1	<1
CMI-1	MI	BB19	**7E-06**	<1	<1
CMI-1	MI	BC15	**3E-05**	<1	<1
CMI-1	MI	BC18	**8E-06**	<1	<1

Notes: Values shown in **boldface** exceed the threshold level of 1E-06 for cancer risks and 1.0 for segregated noncancer hazards.

a Chemicals of potential concern for this grid are limited to lead; detected concentrations do not exceed risk-based concentrations for lead for any samples in this grid (see Table C1-23 of Attachment C1, Appendix C).

-- Not applicable
bgs Below ground surface
E/C Educational/Cultural (industrial exposure scenario)
MI Maritime/Industrial (industrial exposure scenario)
MU Mixed use (residential exposure scenario)
RD Research and development (residential exposure scenario)
RME Reasonable maximum exposure

TABLE 3-4: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
10	MU	AQ09	**4E-06**	<1	<1
10	MU	AQ10	**3E-06**	2E+00	<1
10	MU	AQ11	1E-06	<1	<1
10	MU	AR10	**5E-06**	<1	<1
10	MU	AR11	1E-06	2E+00	<1
10	MU	AS10	**4E-06**	<1	<1
11	MU	AQ08	2E-09	<1	<1
11	MU	AR07	2E-07	<1	<1
11	MU	AR08	**5E-06**	<1	<1
11	MU	AR09	**2E-06**	<1	<1
11	MU	AS07	**2E-06**	<1	<1
11	MU	AS08	**2E-06**	2E+00	<1
11	MU	AS09	**2E-06**	<1	<1
11	MU	AT07	3E-09	<1	<1
11	MU	AT09	**3E-06**	<1	<1
13	MU	AU10	**3E-06**	2E+00	<1
13	MU	AV10	**2E-06**	<1	<1
13	MU	AV11	1E-06	2E+00	<1
13	MU	AW10	**2E-06**	2E+00	<1
18	RD	AU12	**2E-06**	<1	<1
18	RD	AU14	**4E-06**	<1	<1
18	RD	AU15	**4E-06**	<1	<1
18	RD	AU16	3E-10	<1	<1
18	RD	AV12	3E-07	<1	<1
18	RD	AV13	**6E-06**	<1	<1
18	RD	AV14	**4E-06**	<1	<1
18	RD	AW13	**5E-06**	<1	<1
18	RD	AW14	**5E-06**	<1	<1
20A	RD	AW11	1E-06	<1	<1
20A	RD	AW12	6E-09	<1	<1
20A	RD	AX11	**3E-06**	2E+00	<1
20A	RD	AX12	**7E-06**	2E+00	<1
23	RD	AX13	**5E-06**	2E+00	<1
23	RD	AX14	**6E-06**	2E+00	<1
23	RD	AX15	**1E-05**	2E+00	<1
23	RD	AY14	**1E-05**	4E+01	**4E+01**
23	RD	AY15	**5E-06**	7E+01	**7E+01**
23	RD	AZ14	**8E-06**	1E+02	**1E+02**
23	RD	AZ15	**6E-06**	3E+01	**3E+01**
24	RD	AY12	**4E-06**	2E+00	<1
24	RD	AY13	**1E-05**	3E+00	<1
24	RD	AZ12	**4E-06**	2E+00	<1
24	RD	AZ13	**1E-05**	3E+00	<1
24	RD	BA11	**1E-05**	2E+00	<1

TABLE 3-4: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
24	RD	BA12	**6E-06**	3E+02	**3E+02**
24	RD	BB10	**2E-06**	<1	<1
24	RD	BB11	**3E-06**	2E+00	<1
26	MU	BA14	**4E-06**	2E+00	<1
26	MU	BA15	**3E-06**	<1	<1
26	MU	BB15	1E-07	<1	<1
20B	E/C	AX10	**3E-06**	<1	<1
20B	E/C	AY09	**4E-06**	2E+00	<1
20B	E/C	AY10	**3E-05**	2E+01	**2E+01**
20B	E/C	AY11	**4E-06**	2E+00	<1
20B	E/C	AZ08	**4E-06**	<1	<1
20B	E/C	AZ10	**1E-05**	3E+00	**2E+00**
20B	E/C	AZ11	**2E-06**	<1	<1
20B	E/C	BA09	**1E-05**	<1	<1
22	E/C	AY06	**6E-06**	<1	<1
22	E/C	AZ07	**3E-06**	<1	<1
22	E/C	BA03	2E-07	<1	<1
22	E/C	BA07	**3E-05**	3E+00	<1
22	E/C	BA08	**3E-05**	5E+00	**3E+00**
22	E/C	BB03	1E-06	7E+01	**7E+01**
22	E/C	BB06	**8E-06**	<1	<1
22	E/C	BB07	**3E-06**	<1	<1
25	E/C	BB08	**2E-06**	<1	<1
25	E/C	BB09	**3E-06**	<1	<1
25	E/C	BC07	**2E-06**	2E+00	<1
25	E/C	BC08	**2E-06**	<1	<1
25	E/C	BC09	**4E-06**	<1	<1
25	E/C	BC10	1E-06	<1	<1
25	E/C	BD08	**1E-05**	3E+00	**2E+00**
25	E/C	BD09	**3E-06**	<1	<1
CMI-1	MI	AV15	**1E-05**	<1	<1
CMI-1	MI	AV18	**4E-06**	<1	<1
CMI-1	MI	AY16	**4E-06**	<1	<1
CMI-1	MI	AZ16	**4E-06**	<1	<1
CMI-1	MI	BA18	8E-10	<1	<1
CMI-1	MI	BA19	1E-09	<1	<1
CMI-1	MI	BB18	**1E-04**	3E+00	<1
CMI-1	MI	BB19	**2E-06**	<1	<1
CMI-1	MI	BC15	**7E-06**	<1	<1
CMI-1	MI	BC18	**2E-06**	<1	<1
COS-1	OS	AW09	**3E-06**	<1	<1
COS-1	OS	AX07	**5E-06**	<1	<1
COS-1	OS	AX09	**9E-06**	<1	<1

TABLE 3-4: TOTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
COS-1	OS	AY07	**5E-06**	<1	<1
COS-1	OS	AY08	5E-08	<1	<1
COS-2	OS	BB05	**5E-06**	2E+00	<1
COS-2	OS	BC03	**2E-06**	<1	<1
COS-2	OS	BC04	**1E-05**	<1	<1
COS-2	OS	BC05	**9E-06**	2E+00	<1
COS-2	OS	BC06	**8E-06**	2E+00	<1
COS-2	OS	BD02	8E-09	<1	<1
COS-2	OS	BD03	**3E-06**	<1	<1
COS-2	OS	BD04	**5E-06**	<1	<1
COS-2	OS	BD05	**2E-06**	<1	<1
COS-2	OS	BE04	**4E-06**	2E+00	<1
COS-3	OS	BA13	**1E-05**	6E+02	**6E+02**
COS-3	OS	BB12	**8E-06**	2E+00	<1
COS-3	OS	BB14	**3E-06**	<1	<1
COS-3	OS	BC11	1E-07	<1	<1
COS-3	OS	BC12	**3E-06**	<1	<1
COS-3	OS	BD06	7E-09	2E+00	<1
COS-3	OS	BD07	**4E-06**	2E+00	<1
COS-3	OS	BD10	**2E-06**	2E+00	<1
COS-3	OS	BD11	**5E-06**	<1	<1
COS-3	OS	BD12	**3E-06**	2E+00	<1
COS-3	OS	BE05	**7E-06**	4E+00	**2E+00**
COS-3	OS	BE06	**1E-05**	2E+00	<1
COS-3	OS	BE07	**2E-06**	2E+00	<1
COS-3	OS	BF07	**3E-06**	2E+00	<1
COS-3	OS	BF08	9E-07	<1	<1
COS-3	OS	BF09	9E-07	<1	<1

Notes: Values shown in **boldface** exceed the threshold level of 1E-06 for cancer risks and 1.0 for segregated noncancer hazards.

bgs Below ground surface
E/C Educational/cultural (industrial exposure scenario)
MI Maritime/Industrial (industrial exposure scenario)
MU Mixed use (residential exposure scenario)
OS Open space (recreational exposure scenario)
RD Research and development (residential exposure scenario)
RME Reasonable maximum exposure

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
10	MU	063027	8E-05	8E+00	3E+00	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/1	8.10E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	39500 - 39500	3.95E+04	1/1	--	--	--	--	--	1.80E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	847 - 847	8.47E+02	1/1	--	--	--	--	--	1.00E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	848 - 848	8.48E+02	1/1	8.72E-08	--	--	--	--	2.81E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	68.2 - 68.2	6.82E+01	1/1	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
10	MU	064024	5E-05	<1	<1	Metal	ARSENIC	C	2 - 2	2.00E+00	1/1	5.22E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
10	MU	066027	2E-06	<1	<1	Pest/PCB	AROCLOR-1260	C	0.46 - 0.46	4.60E-01	1/1	2.18E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
10	MU	066028	4E-05	1E+01	7E+00	Metal	ARSENIC	C	1.7 - 1.7	1.70E+00	1/1	4.44E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	34800 - 34800	3.48E+04	1/1	--	--	--	--	--	1.58E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1230 - 1230	1.23E+03	1/1	--	--	--	--	--	1.46E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	2170 - 2170	2.17E+03	1/1	2.23E-07	--	--	--	--	7.18E+00	19.3 %	0 %	1 %	79.6 %	*	No
10	MU	067025	2E-07	1E+01	5E+00	Metal	IRON	NC	38500 - 38500	3.85E+04	1/1	--	--	--	--	--	1.75E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	823 - 885	8.85E+02	2/2	--	--	--	--	--	1.05E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	1630 - 1630	1.63E+03	1/1	1.68E-07	--	--	--	--	5.40E+00	19.3 %	0 %	1 %	79.6 %	*	No
10	MU	067026	2E-04	8E+00	2E+00	Metal	ARSENIC	C	2.1 - 8	5.46E+00	8/10	1.43E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	17700 - 45500	3.32E+04	8/8	--	--	--	--	--	1.51E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	329 - 1350	1.03E+03	10/10	--	--	--	--	--	1.22E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	57.8 - 842	6.68E+02	8/8	6.87E-08	--	--	--	--	2.21E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	36 - 83.7	6.71E+01	8/8	--	--	--	--	--	1.04E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)ANTHRACENE	C	1.8 - 1.8	1.80E+00	1/11	4.87E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.011 - 1.9	1.90E+00	2/11	5.09E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.03 - 3	3.00E+00	2/11	8.87E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	1.1 - 1.1	1.10E+00	1/10	3.25E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.13 - 0.13	1.30E-01	1/10	2.25E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.51 - 0.51	5.10E-01	1/11	1.47E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
10	MU	068025	1E-04	1E+01	4E+00	Metal	ARSENIC	C	1.7 - 4.2	4.20E+00	2/4	1.10E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	35800 - 58200	5.66E+04	4/4	--	--	--	--	--	2.58E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	894 - 2050	1.91E+03	4/4	--	--	--	--	--	2.26E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	471 - 1310	1.31E+03	4/4	1.35E-07	--	--	--	--	4.34E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	61.3 - 102	1.02E+02	4/4	--	--	--	--	--	1.57E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.078 - 0.078	7.80E-02	1/5	2.09E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						SVOC	3,3'-DICHLOROBENZIDINE	C	0.036 - 0.036	3.60E-02	1/4	4.48E-06	1.5 %	0.5 %	0 %	98 %	--	--	--	--	--	--	--
10	MU	068026	2E-04	1E+01	6E+00	Metal	ANTIMONY	NC	2.5 - 15.5	1.55E+01	7/11	--	--	--	--	--	1.52E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	1.9 - 9.7	6.55E+00	10/11	1.71E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	21300 - 39600	3.25E+04	11/11	--	--	--	--	--	1.48E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	433 - 1670	1.01E+03	11/11	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	47.2 - 1840	1.84E+03	11/11	1.89E-07	--	--	--	--	6.09E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)PYRENE	C	0.31 - 0.31	3.10E-01	1/1	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.51 - 0.51	5.10E-01	1/1	1.51E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
						Pest/PCB	DIELDRIN	C	0.002 - 0.002	2.00E-03	1/4	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--
10	MU	068027	1E-04	6E+00	2E+00	Metal	ARSENIC	C	4.6 - 4.6	4.60E+00	1/1	1.20E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	35400 - 35400	3.54E+04	1/1	--	--	--	--	--	1.61E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	73.7 - 73.7	7.37E+01	1/1	--	--	--	--	--	1.14E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
10	MU	069025	9E-05	8E+00	3E+00	Metal	ARSENIC	C	2 - 3.5	3.50E+00	2/2	9.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	33400 - 34400	3.44E+04	2/2	--	--	--	--	--	1.57E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	268 - 774	7.74E+02	2/2	7.96E-08	--	--	--	--	2.56E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	43.8 - 81.3	8.13E+01	2/2	--	--	--	--	--	1.25E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
10	MU	069026	1E-04	1E+01	5E+00	Metal	ARSENIC	C	3 - 4.1	4.10E+00	2/3	1.07E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	30300 - 46100	4.61E+04	3/3	--	--	--	--	--	2.10E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	12.5 - 218	2.18E+02	3/3	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	640 - 875	8.75E+02	3/3	--	--	--	--	--	1.04E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	523 - 1580	1.58E+03	3/3	1.62E-07	--	--	--	--	5.23E+00	19.3 %	0 %	1 %	79.6 %	*	No
10	MU	069027	7E-05	1E+01	5E+00	Metal	ANTIMONY	NC	6.6 - 15.5	1.55E+01	3/4	--	--	--	--	--	1.52E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	1.4 - 2.7	2.64E+00	4/4	6.91E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	23700 - 42800	4.28E+04	4/4	--	--	--	--	--	1.95E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	15.6 - 239	2.39E+02	4/4	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	169 - 1240	1.24E+03	4/4	--	--	--	--	--	1.47E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	101 - 1420	1.42E+03	4/4	1.46E-07	--	--	--	--	4.70E+00	19.3 %	0 %	1 %	79.6 %	*	No
10	MU	070025	1E-04	5E+00	<1	Metal	ARSENIC	C	1 - 4.1	4.10E+00	3/3	1.07E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
11	MU	065021	1E-04	1E+01	5E+00	Metal	ARSENIC	C	5.5 - 5.5	5.50E+00	1/1	1.44E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	42700 - 42700	4.27E+04	1/1	--	--	--	--	--	1.94E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1110 - 1110	1.11E+03	1/1	--	--	--	--	--	1.32E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	1400 - 1400	1.40E+03	1/1	1.44E-07	--	--	--	--	4.63E+00	19.3 %	0 %	1 %	79.6 %	*	No
11	MU	065024	1E-04	6E+00	2E+00	Metal	ARSENIC	C	4 - 4	4.00E+00	1/1	1.04E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	36600 - 36600	3.66E+04	1/1	--	--	--	--	--	1.67E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	404 - 404	4.04E+02	1/1	4.15E-08	--	--	--	--	1.34E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	83.7 - 83.7	8.37E+01	1/1	--	--	--	--	--	1.29E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
11	MU	066022	2E-04	7E+00	2E+00	Metal	ARSENIC	C	5.3 - 5.3	5.30E+00	1/1	1.38E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	23700 - 23700	2.37E+04	1/1	--	--	--	--	--	1.08E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	316 - 316	3.16E+02	1/1	3.25E-08	--	--	--	--	1.05E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)PYRENE	C	0.21 - 0.21	2.10E-01	1/1	5.63E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C,NC	2.4 - 2.4	2.40E+00	1/1	1.14E-05	66.1 %	29.2 %	0 %	4.7 %	2.20E+00	69.6 %	27.3 %	0 %	3.1 %	--	--
11	MU	066023	1E-04	1E+01	4E+00	Metal	ARSENIC	C	4.1 - 4.1	4.10E+00	1/2	1.07E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	31600 - 49700	4.97E+04	2/2	--	--	--	--	--	2.26E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1120 - 1400	1.40E+03	2/2	--	--	--	--	--	1.66E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	465 - 1310	1.31E+03	2/2	1.35E-07	--	--	--	--	4.34E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	58.8 - 71.4	7.14E+01	2/2	--	--	--	--	--	1.10E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)ANTHRACENE	C	0.42 - 0.42	4.20E-01	1/4	1.14E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.34 - 0.34	3.40E-01	1/4	1.00E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
11	MU	066024	2E-04	6E+00	5E+00	Metal	ARSENIC	C	7.1 - 7.1	7.10E+00	1/1	1.85E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	3890 - 3890	3.89E+03	1/1	--	--	--	--	--	4.61E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
11	MU	067023	2E-07	2E+00	2E+00	Metal	MANGANESE	NC	780 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
11	MU	067024	2E-04	9E+00	4E+00	Metal	ARSENIC	C	2.6 - 5.8	5.80E+00	3/3	1.52E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	24200 - 31200	3.12E+04	2/2	--	--	--	--	--	1.42E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	951 - 3200	3.20E+03	3/3	--	--	--	--	--	3.80E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	60 - 85	8.50E+01	2/2	--	--	--	--	--	1.31E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.038 - 0.038	3.80E-02	1/3	1.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
11	MU	068024	9E-05	2E+00	<1	Metal	ARSENIC	C	3.3 - 3.3	3.30E+00	1/1	8.62E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)PYRENE	C	0.046 - 0.046	4.60E-02	1/1	1.23E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
11	MU	069024	2E-05	1E+01	4E+00	Metal	ARSENIC	C	0.85 - 0.85	8.50E-01	1/1	2.22E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	53400 - 53400	5.34E+04	1/1	--	--	--	--	--	2.43E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1060 - 1060	1.06E+03	1/1	--	--	--	--	--	1.26E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	1200 - 1200	1.20E+03	1/1	1.23E-07	--	--	--	--	3.97E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	71.5 - 71.5	7.15E+01	1/1	--	--	--	--	--	1.10E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
11	MU	070024	1E-04	6E+00	2E+00	Metal	ARSENIC	C	3.7 - 3.7	3.70E+00	1/1	9.66E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	36500 - 36500	3.65E+04	1/1	--	--	--	--	--	1.66E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1290 - 1290	1.29E+03	1/1	--	--	--	--	--	1.53E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	97.4 - 97.4	9.74E+01	1/1	--	--	--	--	--	1.50E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
11	MU	071019	1E-07	6E+00	2E+00	Metal	IRON	NC	27900 - 27900	2.79E+04	1/1	--	--	--	--	--	1.27E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1010 - 1010	1.01E+03	1/1	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	670 - 670	6.70E+02	1/1	6.89E-08	--	--	--	--	2.22E+00	19.3 %	0 %	1 %	79.6 %	*	No
11	MU	071024	1E-04	6E+00	<1	Metal	ARSENIC	C	5 - 5	5.00E+00	1/1	1.31E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
13	MU	075027	4E-05	1E+01	6E+00	Metal	ARSENIC	C	1.5 - 1.5	1.50E+00	1/1	3.92E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	70600 - 70600	7.06E+04	1/1	--	--	--	--	--	3.21E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	1200 - 1200	1.20E+03	1/1	--	--	--	--	--	1.42E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	1850 - 1850	1.85E+03	1/1	1.90E-07	--	--	--	--	6.12E+00	19.3 %	0 %	1 %	79.6 %	*	No
13	MU	077028	6E-05	9E+00	3E+00	Metal	ARSENIC	C	2.1 - 2.1	2.10E+00	1/1	5.49E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	50900 - 50900	5.09E+04	1/1	--	--	--	--	--	2.32E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	525 - 2110	2.11E+03	6/6	--	--	--	--	--	2.50E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	124 - 124	1.24E+02	1/1	--	--	--	--	--	1.91E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
13	MU	078028	5E-05	4E+00	<1	Metal	ARSENIC	C	1.8 - 1.8	1.80E+00	1/1	4.70E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
13	MU	079027	5E-05	7E+00	4E+00	Metal	ARSENIC	C	1.8 - 1.8	1.80E+00	1/1	4.70E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	25000 - 25000	2.50E+04	1/1	--	--	--	--	--	1.14E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	2960 - 2960	2.96E+03	1/1	--	--	--	--	--	3.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
13	MU	079030	3E-05	1E+01	4E+00	Metal	ARSENIC	C	1.1 - 1.1	1.10E+00	1/1	2.87E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	59300 - 59300	5.93E+04	1/1	--	--	--	--	--	2.70E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	3150 - 3150	3.15E+03	1/1	--	--	--	--	--	3.74E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	165 - 165	1.65E+02	1/1	--	--	--	--	--	2.54E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
13	MU	080025	1E-04	6E+00	3E+00	Metal	ARSENIC	C	4.3 - 4.3	4.30E+00	1/1	1.12E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	28800 - 28800	2.88E+04	1/1	--	--	--	--	--	1.31E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1950 - 1950	1.95E+03	1/1	--	--	--	--	--	2.31E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						Pest/PCB	DIELDRIN	C	0.004 - 0.004	4.00E-03	1/1	6.07E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--
13	MU	080026	1E-04	1E+01	4E+00	Metal	ARSENIC	C	0.97 - 4	3.63E+00	4/6	9.49E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	41800 - 58100	5.57E+04	6/6	--	--	--	--	--	2.54E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	157 - 4480	2.58E+03	16/16	--	--	--	--	--	3.06E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	130 - 1250	1.25E+03	6/6	1.29E-07	--	--	--	--	4.14E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	90.2 - 147	1.32E+02	6/6	--	--	--	--	--	2.04E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
13	MU	082026	2E-04	7E+00	2E+00	Metal	ARSENIC	C	4.3 - 4.3	4.30E+00	1/1	1.12E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	31300 - 31300	3.13E+04	1/1	--	--	--	--	--	1.43E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1060 - 1060	1.06E+03	1/1	--	--	--	--	--	1.26E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	69.5 - 69.5	6.95E+01	1/1	--	--	--	--	--	1.07E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						Pest/PCB	DIELDRIN	C	0.045 - 0.045	4.50E-02	1/1	6.83E-05	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
13	MU	082027	2E-05	8E+00	2E+00	Metal	ARSENIC	C	0.61 - 0.61	6.10E-01	1/1	1.59E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	49400 - 49400	4.94E+04	1/1	--	--	--	--	--	2.25E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1250 - 1250	1.25E+03	1/1	--	--	--	--	--	1.48E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	150 - 150	1.50E+02	1/1	--	--	--	--	--	2.31E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
18	RD	075043	2E-04	8E+00	2E+00	Metal	ARSENIC	C	6.5 - 6.5	6.50E+00	1/1	1.70E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	44900 - 44900	4.49E+04	1/1	--	--	--	--	--	2.04E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1270 - 1270	1.27E+03	1/1	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	92.3 - 92.3	9.23E+01	1/1	--	--	--	--	--	1.42E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	076034	8E-05	7E+00	2E+00	Metal	ARSENIC	C	3 - 3	3.00E+00	1/1	7.84E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	40300 - 40300	4.03E+04	1/1	--	--	--	--	--	1.83E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1150 - 1150	1.15E+03	1/1	--	--	--	--	--	1.36E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	392 - 392	3.92E+02	1/1	4.03E-08	--	--	--	--	1.30E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	93.8 - 93.8	9.38E+01	1/1	--	--	--	--	--	1.45E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	076043	8E-05	5E+00	<1	Metal	ARSENIC	C	3.2 - 3.2	3.20E+00	1/1	8.36E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
18	RD	077035	6E-05	1E+01	3E+00	Metal	ARSENIC	C	2.3 - 2.3	2.30E+00	1/1	6.01E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	47300 - 47300	4.73E+04	1/1	--	--	--	--	--	2.15E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	967 - 967	9.67E+02	1/1	--	--	--	--	--	1.15E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	949 - 949	9.49E+02	1/1	9.76E-08	--	--	--	--	3.14E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	109 - 109	1.09E+02	1/1	--	--	--	--	--	1.68E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	077038	1E-04	9E+00	3E+00	Metal	ARSENIC	C	5.6 - 5.6	5.60E+00	1/1	1.46E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	43500 - 43500	4.35E+04	1/1	--	--	--	--	--	1.98E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	991 - 991	9.91E+02	1/1	1.02E-07	--	--	--	--	3.28E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	68.4 - 68.4	6.84E+01	1/1	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	BENZENE	C	0.26 - 0.26	2.60E-01	1/2	1.46E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	077039	7E-05	6E+00	2E+00	Metal	ARSENIC	C	2.8 - 2.8	2.80E+00	1/1	7.31E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	36600 - 36600	3.66E+04	1/1	--	--	--	--	--	1.67E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	107 - 107	1.07E+02	1/1	--	--	--	--	--	1.65E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	078032	1E-05	1E+01	6E+00	Metal	ARSENIC	C	0.4 - 0.4	4.00E-01	1/1	1.04E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	44300 - 44300	4.43E+04	1/1	--	--	--	--	--	2.02E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	1890 - 1890	1.89E+03	1/1	1.94E-07	--	--	--	--	6.26E+00	19.3 %	0 %	1 %	79.6 %	*	No
18	RD	078037	2E-04	9E+00	2E+00	Metal	ARSENIC	C	4.5 - 9.75	8.71E+00	5/5	2.28E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	34100 - 40000	3.98E+04	5/5	--	--	--	--	--	1.81E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	769.5 - 1340	1.34E+03	5/5	--	--	--	--	--	1.59E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	169.5 - 473	3.86E+02	5/5	3.97E-08	--	--	--	--	1.28E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	57.05 - 89.9	8.99E+01	5/5	--	--	--	--	--	1.39E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.14 - 0.14	1.40E-01	1/7	3.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						VOC	BENZENE	C	0.006 - 0.23	2.30E-01	4/5	1.29E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	078038	2E-04	7E+00	2E+00	Metal	ARSENIC	C	8.9 - 8.9	8.90E+00	1/1	2.32E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	38700 - 38700	3.87E+04	1/1	--	--	--	--	--	1.76E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	989 - 989	9.89E+02	1/1	--	--	--	--	--	1.17E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	79.9 - 79.9	7.99E+01	1/1	--	--	--	--	--	1.23E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
18	RD	078039	1E-04	8E+00	2E+00	Metal	ARSENIC	C	5.5 - 5.5	5.50E+00	1/1	1.44E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	49600 - 49600	4.96E+04	1/1	--	--	--	--	--	2.26E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	109 - 580	5.80E+02	2/2	5.96E-08	--	--	--	--	1.92E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	68.3 - 68.3	6.83E+01	1/1	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						Pest/PCB	GAMMA-BHC (LINDANE)	C	0.0089 - 0.0089	8.90E-03	1/2	3.36E-06	0.5 %	0.1 %	0 %	99.4 %	<1	--	--	--	--	--	--
18	RD	079037	2E-04	2E+00	<1	Metal	ARSENIC	C	6 - 6	6.00E+00	1/1	1.57E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)PYRENE	C	0.078 - 0.078	7.80E-02	1/2	2.09E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
18	RD	079038	9E-05	4E+00	<1	Metal	ARSENIC	C	3.5 - 3.5	3.50E+00	1/1	9.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
18	RD	079039	9E-05	7E+00	2E+00	Metal	ARSENIC	C	3.5 - 3.5	3.50E+00	1/1	9.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	41600 - 41600	4.16E+04	1/1	--	--	--	--	--	1.89E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	891 - 891	8.91E+02	1/1	--	--	--	--	--	1.06E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	103 - 350	3.50E+02	2/2	3.60E-08	--	--	--	--	1.16E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	121 - 121	1.21E+02	1/1	--	--	--	--	--	1.87E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
18	RD	079041	1E-04	5E+00	<1	Metal	ARSENIC	C	5.5 - 5.5	5.50E+00	1/1	1.44E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						SVOC	BIS(2-ETHYLHEXYL)PHTHALATE	C	1.5 - 1.5	1.50E+00	1/1	1.31E-06	2.5 %	0.8 %	0 %	96.7 %	<1	--	--	--	--	--	--
18	RD	080038	1E-07	6E+00	2E+00	Metal	IRON	NC	33000 - 33000	3.30E+04	1/1	--	--	--	--	--	1.50E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	829 - 1100	1.10E+03	2/2	--	--	--	--	--	1.30E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	85.8 - 85.8	8.58E+01	1/1	--	--	--	--	--	1.32E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	080040	3E-05	5E+00	<1	Metal	ARSENIC	C	1.3 - 1.3	1.30E+00	1/1	3.40E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
18	RD	082035	8E-05	9E+00	3E+00	Metal	ARSENIC	C	3.2 - 3.2	3.20E+00	1/1	8.36E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	43400 - 43400	4.34E+04	1/1	--	--	--	--	--	1.98E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1660 - 1660	1.66E+03	1/1	--	--	--	--	--	1.97E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	761 - 761	7.61E+02	1/1	7.83E-08	--	--	--	--	2.52E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	77.4 - 77.4	7.74E+01	1/1	--	--	--	--	--	1.19E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	084036	4E-05	5E+00	<1	Metal	ARSENIC	C	1.7 - 1.7	1.70E+00	1/1	4.44E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
20A	RD	081030	7E-06	4E+00	2E+00	PAH	BENZO(A)PYRENE	C	0.26 - 0.26	2.60E-01	1/1	6.97E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
20A	RD	081031	3E-05	9E+00	3E+00	Metal	ARSENIC	C	1.2 - 1.2	1.20E+00	1/1	3.13E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	50600 - 50600	5.06E+04	1/1	--	--	--	--	--	2.30E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	890 - 890	8.90E+02	1/1	--	--	--	--	--	1.06E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	944 - 944	9.44E+02	1/1	9.71E-08	--	--	--	--	3.12E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	95.9 - 95.9	9.59E+01	1/1	--	--	--	--	--	1.48E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	083032	1E-04	2E+01	1E+01	Metal	ARSENIC	C	4.4 - 4.4	4.40E+00	1/2	1.15E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	10 - 192	1.92E+02	5/5	--	--	--	--	--	1.21E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	39900 - 39900	3.99E+04	1/1	--	--	--	--	--	1.82E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	200 - 8990	8.99E+03	5/5	--	--	--	--	--	1.07E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	82.7 - 82.7	8.27E+01	1/1	--	--	--	--	--	1.28E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	084028	7E-05	1E+01	3E+00	Metal	ARSENIC	C	2.7 - 2.7	2.70E+00	1/2	7.05E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	35800 - 43800	4.38E+04	2/2	--	--	--	--	--	1.99E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1040 - 1330	1.33E+03	2/2	--	--	--	--	--	1.58E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	343 - 930	9.30E+02	2/2	9.56E-08	--	--	--	--	3.08E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	74.8 - 92.1	9.21E+01	2/2	--	--	--	--	--	1.42E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	084030	1E-04	7E+00	3E+00	Metal	ARSENIC	C	3.9 - 3.9	3.90E+00	1/1	1.02E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1300 - 1300	1.30E+03	1/1	--	--	--	--	--	1.54E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	940 - 940	9.40E+02	1/1	9.67E-08	--	--	--	--	3.11E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)PYRENE	C	0.091 - 0.091	9.10E-02	1/1	2.44E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
20A	RD	084035	1E-08	8E+00	8E+00	Metal	MANGANESE	NC	1560 - 6550	6.55E+03	4/4	--	--	--	--	--	7.77E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
20A	RD	085030	7E-07	5E+00	2E+00	Metal	MANGANESE	NC	558 - 1908.5	1.80E+03	4/4	--	--	--	--	--	2.13E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							ZINC	NC	41.8 - 855	7.45E+02	4/4	--	--	--	--	--	2.00E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
20A	RD	085031	1E-05	2E+01	1E+01	Metal	COPPER	NC	36 - 690	6.90E+02	5/5	--	--	--	--	--	4.34E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	630 - 3120	2.49E+03	5/5	--	--	--	--	--	2.96E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							ZINC	NC	46 - 5600	3.84E+03	5/5	--	--	--	--	--	1.03E+01	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.039 - 0.37	3.70E-01	2/5	1.00E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.0375 - 0.24	2.40E-01	2/5	6.43E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.054 - 0.44	4.40E-01	2/5	1.30E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
20A	RD	085032	6E-07	6E+00	2E+00	Metal	IRON	NC	40300 - 40300	4.03E+04	1/1	--	--	--	--	--	1.83E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1020 - 1300	1.30E+03	2/2	--	--	--	--	--	1.54E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	115 - 115	1.15E+02	1/1	--	--	--	--	--	1.77E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	086030	2E-04	7E+00	2E+00	Metal	ARSENIC	C	6.9 - 6.9	6.90E+00	1/1	1.80E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	32000 - 32000	3.20E+04	1/1	--	--	--	--	--	1.46E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	103 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	77.9 - 77.9	7.79E+01	1/1	--	--	--	--	--	1.20E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	086031	5E-07	1E+01	9E+00	Metal	CADMIUM	NC	5.04 - 5.04	5.04E+00	1/3	8.54E-09	--	--	--	--	1.46E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							ZINC	NC	35.5 - 3201.5	3.20E+03	3/3	--	--	--	--	--	8.58E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
20A	RD	086032	2E-04	1E+01	6E+00	Metal	ARSENIC	C	5.7 - 5.7	5.70E+00	1/1	1.49E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	56200 - 56200	5.62E+04	1/1	--	--	--	--	--	2.56E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	445 - 6540	4.99E+03	5/5	--	--	--	--	--	5.92E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	139 - 139	1.39E+02	1/1	--	--	--	--	--	2.14E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
							ZINC	NC	36 - 540	5.40E+02	5/5	--	--	--	--	--	1.45E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.095 - 0.266	2.66E-01	2/5	7.13E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.17 - 0.344	3.44E-01	2/5	1.02E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
23	RD	083043	6E-04	9E+00	3E+00	Metal	ARSENIC	C,NC	21.1 - 21.1	2.11E+01	1/1	5.51E-04	56.6 %	5.4 %	0 %	38 %	1.35E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							IRON	NC	52600 - 52600	5.26E+04	1/1	--	--	--	--	--	2.39E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	166 - 166	1.66E+02	1/1	--	--	--	--	--	2.56E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
23	RD	084039	2E-04	5E+00	2E+00	Metal	ARSENIC	C	8.9 - 8.9	8.90E+00	1/1	2.32E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	39200 - 39200	3.92E+04	1/1	--	--	--	--	--	1.78E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	948 - 948	9.48E+02	1/1	--	--	--	--	--	1.12E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
						PAH	BENZO(A)PYRENE	C	0.31 - 0.31	3.10E-01	1/2	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	HEPTACHLOR EPOXIDE	C	0.0009 - 0.0009	9.00E-04	1/1	1.67E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--	--	--
23	RD	085036	2E-04	7E+00	2E+00	Metal	ARSENIC	C	7.9 - 7.9	7.90E+00	1/1	2.06E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	42300 - 42300	4.23E+04	1/1	--	--	--	--	--	1.93E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1070 - 1070	1.07E+03	1/1	--	--	--	--	--	1.27E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	70.3 - 70.3	7.03E+01	1/1	--	--	--	--	--	1.08E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	085037	5E-08	5E+00	2E+00	Metal	IRON	NC	33700 - 33700	3.37E+04	1/1	--	--	--	--	--	1.53E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	85.3 - 85.3	8.53E+01	1/1	--	--	--	--	--	1.32E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	085038	2E-04	9E+00	6E+00	Metal	ARSENIC	C	8.4 - 8.4	8.40E+00	1/1	2.19E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	5400 - 5400	5.40E+03	1/1	--	--	--	--	--	6.41E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	120 - 120	1.20E+02	1/1	--	--	--	--	--	1.85E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	085039	2E-04	1E+01	4E+00	Metal	ARSENIC	C	2.8 - 14	5.62E+00	9/12	1.47E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							CADMIUM	NC	0.285 - 4.5	4.50E+00	6/15	7.63E-09	--	--	--	--	1.30E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							IRON	NC	11700 - 29400	2.94E+04	2/2	--	--	--	--	--	1.34E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	12.5 - 215	1.14E+02	2/2	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	304 - 3400	2.08E+03	12/12	--	--	--	--	--	2.46E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	1.6 - 1.6	1.60E+00	1/2	--	--	--	--	--	1.01E+00	6.8 %	0 %	0 %	93.2 %	2.28	No
							VANADIUM	NC	11.9 - 100	7.84E+01	12/12	--	--	--	--	--	1.21E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)ANTHRACENE	C	0.014 - 0.53	5.30E-01	3/9	1.43E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.021 - 0.4	4.00E-01	2/9	1.07E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.36 - 0.36	3.60E-01	1/9	1.06E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.28 - 0.28	2.80E-01	1/9	1.33E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
23	RD	085042	2E-04	5E+00	2E+00	Metal	ARSENIC	C	6.5 - 6.5	6.50E+00	1/1	1.70E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	35000 - 35000	3.50E+04	1/1	--	--	--	--	--	1.59E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	939 - 939	9.39E+02	1/1	--	--	--	--	--	1.11E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
23	RD	086037	2E-04	6E+00	2E+00	Metal	ARSENIC	C	6.5 - 6.5	6.50E+00	1/1	1.70E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	44300 - 44300	4.43E+04	1/1	--	--	--	--	--	2.02E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1150 - 1150	1.15E+03	1/1	--	--	--	--	--	1.36E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
23	RD	086039	1E-04	6E+00	4E+00	Metal	ARSENIC	C	4.4 - 4.4	4.40E+00	1/1	1.15E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	3330 - 3330	3.33E+03	1/1	--	--	--	--	--	3.95E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	81.9 - 81.9	8.19E+01	1/1	--	--	--	--	--	1.26E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	086043	6E-05	6E+00	2E+00	Metal	ARSENIC	C	2.4 - 2.4	2.40E+00	1/1	6.27E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	30900 - 30900	3.09E+04	1/1	--	--	--	--	--	1.41E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1270 - 1270	1.27E+03	1/1	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	78.6 - 78.6	7.86E+01	1/1	--	--	--	--	--	1.21E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	087043	5E-04	8E+00	5E+00	Metal	ARSENIC	C,NC	3.72 - 18.3	1.83E+01	3/3	4.78E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	21.9 - 160	1.60E+02	3/3	--	--	--	--	--	1.01E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	600 - 4450	4.45E+03	3/3	--	--	--	--	--	5.28E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
23	RD	088038	3E-04	7E+00	6E+00	Metal	ARSENIC	C	2.8 - 16.6	1.05E+01	7/8	2.75E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							MANGANESE	NC	416 - 5020	5.02E+03	8/8	--	--	--	--	--	5.95E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
23	RD	088039	2E-04	3E+00	<1	Metal	ARSENIC	C	4.5 - 6.6	6.60E+00	2/2	1.72E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)PYRENE	C	0.13 - 0.13	1.30E-01	1/3	3.48E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	088040	3E-04	5E+02	5E+02	Orglead	ORGANIC LEAD	NC	2.5 - 2.5	2.50E+00	1/1	--	--	--	--	--	4.79E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	12.8 - 12.8	1.28E+01	1/1	3.34E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	396 - 396	3.96E+02	1/1	--	--	--	--	--	2.49E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	225 -225	2.25E+02	1/1	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							ZINC	NC	497 - 497	4.97E+02	1/1	--	--	--	--	--	1.33E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.13 - 0.13	1.30E-01	1/1	3.48E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	088042	2E-04	2E+02	2E+02	Orglead	ORGANIC LEAD	NC	0.86 - 0.86	8.60E-01	1/2	--	--	--	--	--	1.65E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	4.2 - 4.2	4.20E+00	1/2	1.10E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	29 - 1600	1.60E+03	3/3	--	--	--	--	--	1.01E+01	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	3.9 - 240	8.33E+01	3/3	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	200 - 940	9.40E+02	3/3	--	--	--	--	--	1.12E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							ZINC	NC	47 - 1300	1.30E+03	3/3	--	--	--	--	--	3.48E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.017 - 1.4	1.40E+00	2/3	3.79E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.019 - 1.2	1.20E+00	2/3	3.22E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.014 - 1.5	1.50E+00	3/3	4.43E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.65 - 0.65	6.50E-01	1/3	1.92E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.17 - 0.17	1.70E-01	1/3	2.94E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						PAH	INDENO(1,2,3-CD)PYRENE	C	0.48 - 0.48	4.80E-01	1/3	1.38E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C,NC	0.87 - 0.87	8.70E-01	1/3	9.36E-06	29.1 %	12.9 %	0 %	58 %	1.46E+00	38.2 %	15 %	0 %	46.8 %	--	--
							AROCLOR-1260	C	0.7 - 0.7	7.00E-01	1/3	3.32E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
						VOC	NAPHTHALENE	C	1.7 - 1.7	1.70E+00	1/3	1.02E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--	--	--
23	RD	088043	1E-04	4E+00	<1	Metal	ARSENIC	C	2.5 - 4.4	3.59E+00	6/8	9.38E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)PYRENE	C	0.026 - 0.048	4.50E-02	6/8	1.21E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	088044	2E-04	2E+00	<1	Metal	ARSENIC	C	3.09 - 6.04	6.04E+00	3/3	1.58E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
23	RD	089038	7E-04	1E+01	9E+00	Metal	ARSENIC	C,NC	2 - 28.65	2.87E+01	3/3	7.48E-04	56.6 %	5.4 %	0 %	38 %	1.83E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	9.3 - 200	2.00E+02	3/3	--	--	--	--	--	1.26E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	223 - 7700	7.70E+03	3/3	--	--	--	--	--	9.13E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
23	RD	089039	6E-04	1E+02	1E+02	Orglead	ORGANIC LEAD	NC	0.5075 - 0.5075	5.08E-01	1/6	--	--	--	--	--	9.71E+01	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C,NC	2.95 - 40	2.03E+01	10/11	5.31E-04	56.6 %	5.4 %	0 %	38 %	1.30E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							CADMIUM	NC	0.53 - 5.8	3.76E+00	6/7	6.37E-09	--	--	--	--	1.09E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	16 - 605	6.05E+02	11/11	--	--	--	--	--	3.80E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	161 - 3010	1.64E+03	12/12	--	--	--	--	--	1.94E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.016 - 0.48	4.80E-01	3/7	1.30E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.029 - 0.66	6.60E-01	3/7	1.77E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.076 - 0.62	6.20E-01	4/7	1.83E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.245 - 0.66	6.60E-01	2/7	1.95E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.011 - 0.15	1.50E-01	2/7	2.59E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.023 - 0.45	4.50E-01	2/7	1.30E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
23	RD	089040	4E-04	4E+03	4E+03	Orglead	ORGANIC LEAD	NC	0.72 - 21	2.10E+01	2/5	--	--	--	--	--	4.02E+03	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	2.8 - 20	1.16E+01	10/10	3.03E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	30.8 - 714	3.52E+02	18/18	--	--	--	--	--	2.21E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	19200 - 40600	3.77E+04	4/4	--	--	--	--	--	1.71E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	3.0 - 1730	2.62E+02	17/17	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	544 - 1670	1.01E+03	21/21	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	24.7 - 226	1.98E+02	4/4	--	--	--	--	--	3.06E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.01 - 2.6	2.60E+00	10/13	7.03E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.018 - 1.9	7.66E-01	9/13	2.05E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.022 - 2	8.46E-01	8/13	2.50E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.021 - 1.3	5.62E-01	6/13	1.66E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.023 - 0.31	1.67E-01	4/13	2.89E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C,NC	0.018 - 4.6	4.60E+00	13/18	2.18E-05	66.1 %	29.2 %	0 %	4.7 %	4.22E+00	69.6 %	27.3 %	0 %	3.1 %	--	--

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	089041	7E-06	1E+01	6E+00	Metal	COPPER	NC	45.4 - 1000	1.00E+03	6/6	--	--	--	--	--	6.28E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	714 - 1150	1.15E+03	3/3	--	--	--	--	--	1.36E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							LEAD	NC	9.9 - 265	1.34E+02	4/4	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							ZINC	NC	130 - 592	5.92E+02	2/2	--	--	--	--	--	1.59E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.051 - 0.057	5.70E-02	2/2	1.53E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.1 - 0.1	1.00E-01	1/5	1.08E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--	--	--
							AROCLOR-1260	C	0.0355 - 0.58	4.98E-01	5/5	2.36E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
23	RD	089042	4E-05	2E+00	<1	Metal	ARSENIC	C	1.6325 - 1.6325	1.63E+00	1/1	4.26E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
23	RD	089043	1E-04	2E+00	<1	Metal	ARSENIC	C	2.6 - 4.03	4.03E+00	2/3	1.05E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
23	RD	090039	2E-03	2E+02	1E+02	Orglead	ORGANIC LEAD	NC	0.73 - 0.73	7.30E-01	1/8	--	--	--	--	--	1.40E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C,NC	2.9 - 74.5	6.40E+01	8/8	1.67E-03	56.6 %	5.4 %	0 %	38 %	4.09E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							CADMIUM	NC	0.38 - 5.1	5.10E+00	5/12	8.65E-09	--	--	--	--	1.48E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	40.6 - 295	1.63E+02	12/12	--	--	--	--	--	1.02E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	880 - 14500	6.14E+03	12/12	--	--	--	--	--	7.29E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.028 - 0.3	1.85E-01	7/12	4.96E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	090040	2E-04	2E+01	1E+01	Metal	ARSENIC	C	4.6 - 4.6	4.60E+00	1/1	1.20E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	25.1 - 3200	2.05E+03	9/9	--	--	--	--	--	1.29E+01	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	23400 - 23400	2.34E+04	1/1	--	--	--	--	--	1.07E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	1.6 - 490	6.68E+01	11/11	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	340 - 4420	2.68E+03	9/9	--	--	--	--	--	3.18E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.008 - 1.3	1.30E+00	6/9	3.51E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.008 - 1	1.00E+00	5/9	2.68E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.012 - 0.8	8.00E-01	5/9	2.36E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.14 - 1	5.56E-01	4/9	1.64E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.014 - 0.27	2.14E-01	4/9	3.69E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.15 - 0.44	4.40E-01	3/11	4.73E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--	--	--
							AROCLOR-1260	C	0.0215 - 1.2	4.73E-01	7/11	2.24E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
23	RD	090041	1E-05	1E+01	8E+00	Metal	COPPER	NC	75.8 - 1332.5	1.33E+03	2/2	--	--	--	--	--	8.37E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	650 - 1310	1.31E+03	2/2	--	--	--	--	--	1.55E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							ZINC	NC	43.1 - 642.75	6.43E+02	2/2	--	--	--	--	--	1.72E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.285 - 0.285	2.85E-01	1/2	7.64E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.35 - 0.35	3.50E-01	1/2	1.03E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
23	RD	091040	8E-04	1E+04	1E+04	Orglead	ORGANIC LEAD	NC	62 - 62	6.20E+01	1/8	--	--	--	--	--	1.19E+04	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C,NC	0.6 - 32	3.20E+01	8/8	8.36E-04	56.6 %	5.4 %	0 %	38 %	2.04E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							MANGANESE	NC	700 - 16000	9.98E+03	10/10	--	--	--	--	--	1.18E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	1.7 - 7.7	7.70E+00	3/8	--	--	--	--	--	1.53E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
24	RD	086034	2E-04	8E+00	2E+00	Metal	ARSENIC	C	9 - 9	9.00E+00	1/1	2.35E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	50300 - 50300	5.03E+04	1/1	--	--	--	--	--	2.29E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	433 - 433	4.33E+02	1/1	4.45E-08	--	--	--	--	1.43E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	106 - 106	1.06E+02	1/1	--	--	--	--	--	1.63E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	087036	2E-04	9E+00	6E+00	Metal	ARSENIC	C	4.8 - 7.66	7.66E+00	3/4	2.00E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	870 - 5200	5.20E+03	4/4	--	--	--	--	--	6.17E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	088035	5E-05	2E+00	2E+00	Metal	ARSENIC	C	2.0005 - 2.0005	2.00E+00	1/1	5.23E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1485 - 1485	1.49E+03	1/1	--	--	--	--	--	1.76E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
24	RD	088036	2E-03	2E+01	1E+01	Metal	ARSENIC	C,NC	1.8725 - 100	6.72E+01	10/11	1.76E-03	56.6 %	5.4 %	0 %	38 %	4.29E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	53.5 - 490	2.68E+02	11/11	--	--	--	--	--	1.68E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	1160 - 15000	8.13E+03	11/11	--	--	--	--	--	9.64E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.02 - 0.095	9.50E-02	3/10	2.55E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--	--
24	RD	089030	8E-05	7E+00	2E+00	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/1	8.10E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	33900 - 33900	3.39E+04	1/1	--	--	--	--	--	1.54E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	607 - 607	6.07E+02	1/1	6.24E-08	--	--	--	--	2.01E+00	19.3 %	0 %	1 %	79.6 %	*	No
24	RD	089034	3E-04	6E+00	5E+00	Metal	ARSENIC	C	10.65 - 10.65	1.07E+01	1/1	2.78E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	3935 - 3935	3.94E+03	1/1	--	--	--	--	--	4.67E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	089035	5E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	4.3 - 22	2.04E+01	4/5	5.33E-04	56.6 %	5.4 %	0 %	38 %	1.30E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	36.9 - 350	2.54E+02	9/9	--	--	--	--	--	1.60E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	25100 - 25100	2.51E+04	1/1	--	--	--	--	--	1.14E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	937 - 13000	7.96E+03	9/9	--	--	--	--	--	9.44E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	67.9 - 67.9	6.79E+01	1/1	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	089036	4E-04	5E+01	4E+01	Metal	ARSENIC	C,NC	3.5 - 24	1.62E+01	6/6	4.23E-04	56.6 %	5.4 %	0 %	38 %	1.03E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	7.8 - 555	3.39E+02	6/6	--	--	--	--	--	2.13E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	35600 - 35600	3.56E+04	1/1	--	--	--	--	--	1.62E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	9.7 - 194	1.02E+02	2/2	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	270 - 6100	5.76E+03	6/6	--	--	--	--	--	6.83E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.1175 - 45.7	4.57E+01	3/4	--	--	--	--	--	2.87E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							THALLIUM	NC	8 - 8	8.00E+00	1/6	--	--	--	--	--	1.59E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
							VANADIUM	NC	85.1 - 85.1	8.51E+01	1/1	--	--	--	--	--	1.31E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
							ZINC	NC	108 - 680	6.80E+02	2/2	--	--	--	--	--	1.82E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
24	RD	089037	4E-04	7E+01	5E+01	Metal	ARSENIC	C,NC	16 - 16	1.60E+01	1/1	4.18E-04	56.6 %	5.4 %	0 %	38 %	1.02E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							CADMIUM	NC	3.8 - 3.8	3.80E+00	1/1	6.44E-09	--	--	--	--	1.10E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	1000 - 1000	1.00E+03	1/1	--	--	--	--	--	6.28E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	780 - 780	7.80E+02	1/1	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	2800 - 2800	2.80E+03	1/1	--	--	--	--	--	3.32E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	77 - 77	7.70E+01	1/1	--	--	--	--	--	4.84E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							ZINC	NC	2500 - 2500	2.50E+03	1/1	--	--	--	--	--	6.70E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
24	RD	090033	--	2E+00	2E+00	Metal	MANGANESE	NC	1640 - 1640	1.64E+03	1/1	--	--	--	--	--	1.95E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	090034	2E-04	3E+00	2E+00	Metal	ARSENIC	C	6.75 - 6.75	6.75E+00	1/1	1.76E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1770 - 1770	1.77E+03	1/1	--	--	--	--	--	2.10E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.2125 - 0.2125	2.13E-01	1/1	5.70E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.077 - 0.077	7.70E-02	1/1	1.33E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
24	RD	090035	3E-04	6E+00	4E+00	Metal	ARSENIC	C	10.6 - 10.6	1.06E+01	1/1	2.77E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	3545 - 3545	3.55E+03	1/1	--	--	--	--	--	4.21E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.054 - 0.054	5.40E-02	1/1	1.45E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
24	RD	090037	8E-04	1E+01	9E+00	Metal	ARSENIC	C,NC	29.6 - 29.6	2.96E+01	1/1	7.73E-04	56.6 %	5.4 %	0 %	38 %	1.89E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	454 - 454	4.54E+02	1/1	--	--	--	--	--	2.85E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	7600 - 7600	7.60E+03	1/1	--	--	--	--	--	9.02E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	090038	1E-04	3E+00	2E+00	Metal	ARSENIC	C	3.7 - 3.7	3.70E+00	1/2	9.66E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	393 - 1900	1.90E+03	2/2	--	--	--	--	--	2.25E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	091034	1E-04	5E+00	4E+00	Metal	ARSENIC	C	2.89 - 4.8875	4.89E+00	2/2	1.28E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1954 - 2990	2.99E+03	2/2	--	--	--	--	--	3.55E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI		COC	Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
24	RD	091035	1E-04	7E+00	4E+00	Metal	ARSENIC	C	4.8 - 5.15	5.15E+00	2/3	1.35E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	3.65 - 3.65	3.65E+00	1/1	6.19E-09	--	--	--	--	1.06E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							MANGANESE	NC	1210 - 3250	3.25E+03	3/3	--	--	--	--	--	3.86E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	091036	1E-04	9E+00	8E+00	Metal	ARSENIC	C	5 - 5.49	5.49E+00	2/2	1.43E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	150 - 5340	5.34E+03	4/4	--	--	--	--	--	6.33E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	2.425 - 2.425	2.43E+00	1/1	--	--	--	--	--	1.52E+00	6.8 %	0 %	0 %	93.2 %	2.28	Yes
24	RD	091037	3E-04	9E+01	8E+01	Metal	ARSENIC	C	1.6 - 10.3	1.03E+01	2/2	2.69E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	77.5 - 393	3.93E+02	2/2	--	--	--	--	--	2.47E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	20.6 - 166	9.33E+01	2/2	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	1310 - 4710	4.71E+03	2/2	--	--	--	--	--	5.59E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	5.41 - 124	1.24E+02	2/2	--	--	--	--	--	7.79E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							ZINC	NC	146 - 521	5.21E+02	2/2	--	--	--	--	--	1.40E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
24	RD	091038	2E-04	<1	<1	Metal	ARSENIC	C	6.61 - 6.61	6.61E+00	1/1	1.73E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
24	RD	091039	5E-05	7E+00	5E+00	Metal	ARSENIC	C	0.89 - 2.82	1.99E+00	4/8	5.19E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	300 - 7300	4.16E+03	10/10	--	--	--	--	--	4.94E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	092034	1E-04	3E+00	2E+00	Metal	ARSENIC	C	3.8 - 3.8	3.80E+00	1/1	9.93E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1900 - 1900	1.90E+03	1/1	--	--	--	--	--	2.25E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	092035	4E-04	7E+00	5E+00	Metal	ARSENIC	C	0.28 - 14	1.39E+01	5/5	3.64E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							MANGANESE	NC	870 - 5070	4.55E+03	5/5	--	--	--	--	--	5.39E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	092036	6E-04	7E+01	7E+01	Metal	ARSENIC	C,NC	3.92 - 32	2.32E+01	8/8	6.07E-04	56.6 %	5.4 %	0 %	38 %	1.48E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	45 - 408	2.39E+02	8/8	--	--	--	--	--	1.50E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	1390 - 55300	5.53E+04	8/8	--	--	--	--	--	6.56E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	092037	5E-04	1E+01	1E+01	Metal	ARSENIC	C,NC	4.25 - 18.4	1.84E+01	2/2	4.81E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	198 - 259	2.59E+02	2/2	--	--	--	--	--	1.63E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	2230 - 2360	2.36E+03	2/2	--	--	--	--	--	2.80E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	12.9 - 12.9	1.29E+01	1/1	--	--	--	--	--	8.11E+00	6.8 %	0 %	0 %	93.2 %	2.28	Yes
24	RD	092038	3E-04	8E+00	7E+00	Metal	ARSENIC	C	11.4 - 11.4	1.14E+01	1/1	2.98E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							MANGANESE	NC	990 - 5710	5.71E+03	2/2	--	--	--	--	--	6.77E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	093030	7E-05	1E+01	4E+00	Metal	ARSENIC	C	2.3 - 2.3	2.30E+00	1/2	6.01E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	41.2 - 207	2.07E+02	2/2	--	--	--	--	--	1.30E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	29200 - 36300	3.63E+04	2/2	--	--	--	--	--	1.65E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	645 - 2810	2.81E+03	4/4	--	--	--	--	--	3.33E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	67.3 - 727	7.27E+02	2/2	7.48E-08	--	--	--	--	2.41E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	53 - 85.6	8.56E+01	2/2	--	--	--	--	--	1.32E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						Pest/PCB	AROCLOR-1260	C,NC	1.4 - 1.5	1.50E+00	2/5	7.11E-06	66.1 %	29.2 %	0 %	4.7 %	1.38E+00	69.6 %	27.3 %	0 %	3.1 %	--	--
24	RD	093031	4E-08	5E+00	2E+00	Metal	IRON	NC	30900 - 30900	3.09E+04	1/1	--	--	--	--	--	1.41E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1260 - 1260	1.26E+03	1/1	--	--	--	--	--	1.49E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
24	RD	093035	2E-04	5E+00	4E+00	Metal	ARSENIC	C	6.8 - 6.8	6.80E+00	1/5	1.78E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1800 - 3800	3.24E+03	5/5	--	--	--	--	--	3.85E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	093036	6E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	2 - 21.65	2.17E+01	10/14	5.66E-04	56.6 %	5.4 %	0 %	38 %	1.38E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	45 - 335	1.86E+02	11/11	--	--	--	--	--	1.17E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	49700 - 49700	4.97E+04	1/1	--	--	--	--	--	2.26E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	390 - 14500	1.21E+04	15/15	--	--	--	--	--	1.43E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	82.6 - 82.6	8.26E+01	1/1	--	--	--	--	--	1.27E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
24	RD	093037	6E-05	2E+00	2E+00	Metal	ARSENIC	C	2.4 - 2.4	2.40E+00	1/1	6.27E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1310 - 1310	1.31E+03	1/1	--	--	--	--	--	1.55E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
24	RD	094035	5E-06	9E+00	9E+00	Metal	MANGANESE	NC	678 - 7240	7.24E+03	2/2	--	--	--	--	--	8.59E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.032 - 0.093	9.30E-02	2/2	2.49E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.028 - 0.06	6.00E-02	2/2	1.04E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
24	RD	096028	8E-05	8E+00	3E+00	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/1	8.10E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	41200 - 41200	4.12E+04	1/1	--	--	--	--	--	1.88E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	2280 - 2280	2.28E+03	1/1	--	--	--	--	--	2.70E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	99.6 - 99.6	9.96E+01	1/1	--	--	--	--	--	1.54E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
26	MU	089044	3E-05	<1	<1	Metal	ARSENIC	C	1.31 - 1.31	1.31E+00	1/1	3.42E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
26	MU	091041	5E-07	4E+00	2E+00	Metal	CADMIUM	NC	4.7 - 4.7	4.70E+00	1/1	7.97E-09	--	--	--	--	1.36E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							MANGANESE	NC	583 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
26	MU	091043	3E-05	2E+00	<1	Metal	ARSENIC	C	1.2 - 1.2	1.20E+00	1/1	3.13E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
26	MU	092039	1E-04	3E+00	<1	Metal	ARSENIC	C	0.87 - 4.6	4.60E+00	3/3	1.20E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
26	MU	092040	5E-05	<1	<1	Metal	ARSENIC	C	1.7 - 1.7	1.70E+00	1/2	4.44E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
26	MU	092041	2E-04	3E+00	2E+00	Metal	ARSENIC	C	6.1 - 6.1	6.10E+00	1/1	1.59E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	2100 - 2100	2.10E+03	1/1	--	--	--	--	--	2.49E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.099 - 0.099	9.90E-02	1/1	2.65E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	092042	2E-05	4E+00	<1	Metal	ARSENIC	C	0.4 - 0.82	8.20E-01	2/2	2.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
26	MU	093043	--	2E+00	2E+00	Metal	MANGANESE	NC	1400 - 1400	1.40E+03	1/1	--	--	--	--	--	1.66E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
26	MU	094040	2E-08	5E+00	2E+00	Metal	IRON	NC	26300 - 26300	2.63E+04	1/1	--	--	--	--	--	1.20E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1240 - 1240	1.24E+03	1/1	--	--	--	--	--	1.47E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
26	MU	094041	5E-08	1E+01	3E+00	Metal	IRON	NC	71000 - 71000	7.10E+04	1/1	--	--	--	--	--	3.23E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	2600 - 2600	2.60E+03	1/1	--	--	--	--	--	3.08E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	5.4 - 5.4	5.40E+00	1/1	--	--	--	--	--	1.07E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
							VANADIUM	NC	179 - 179	1.79E+02	1/1	--	--	--	--	--	2.76E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
26	MU	095042	2E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.02 - 0.065	6.50E-02	2/2	1.74E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	098041	3E-07	5E+00	2E+00	Metal	IRON	NC	33600 - 33600	3.36E+04	1/1	--	--	--	--	--	1.53E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	102 - 102	1.02E+02	1/1	--	--	--	--	--	1.57E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
26	MU	099042	5E-05	6E+00	2E+00	Metal	ARSENIC	C	1.8 - 1.8	1.80E+00	1/1	4.70E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	32700 - 32700	3.27E+04	1/1	--	--	--	--	--	1.49E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	112 - 112	1.12E+02	1/1	--	--	--	--	--	1.73E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20B	E/C	AX10	2E-05	<1	<1	Metal	ARSENIC	C	2.7 - 6.2	4.51E+00	5/6	1.04E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.09 - 0.67	6.70E-01	4/8	3.82E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
20B	E/C	AY09	2E-05	<1	<1	Metal	ARSENIC	C	1.8 - 9.3	9.30E+00	3/4	2.14E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.21 - 0.21	2.10E-01	1/4	1.20E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
20B	E/C	AY10	6E-04	2E+00	<1	Metal	ARSENIC	C	0.93 - 245	2.45E+02	10/10	5.65E-04	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
						PAH	BENZO(A)PYRENE	C	0.028 - 0.25	2.47E-01	4/5	1.40E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
						Pest/PCB	AROCLOR-1260	C	0.57 - 14	1.40E+01	3/7	1.39E-05	35.1 %	64.9 %	0 %		<1	--	--	--		--	--
20B	E/C	AY11	2E-05	<1	<1	Metal	ARSENIC	C	6.9 - 6.9	6.90E+00	1/1	1.59E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
20B	E/C	AZ08	2E-05	<1	<1	Metal	ARSENIC	C	1.537 - 10	5.10E+00	7/9	1.18E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.03 - 0.57	5.70E-01	4/9	3.25E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
20B	E/C	AZ10	4E-05	<1	<1	Metal	ARSENIC	C	17.5 - 17.5	1.75E+01	1/1	4.04E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
20B	E/C	AZ11	7E-06	<1	<1	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/1	7.15E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
20B	E/C	BA09	2E-05	<1	<1	Metal	ARSENIC	C	7.1 - 8.7	8.70E+00	2/3	2.01E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
							LEAD	NC	8.6 - 1700	1.70E+03	3/3	--	--	--	--		--	--	--	--		8.99	Yes
22	E/C	AY06	2E-05	<1	<1	Metal	ARSENIC	C	9.3 - 9.3	9.30E+00	1/1	2.14E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
22	E/C	BA07	4E-05	<1	<1	Metal	ARSENIC	C	14.8 - 14.8	1.48E+01	1/1	3.41E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
						PAH	BENZO(A)PYRENE	C	0.2 - 0.2	2.00E-01	1/1	1.14E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
22	E/C	BA08	2E-05	<1	<1	Metal	ARSENIC	C	0.3825 - 8.9	8.90E+00	11/19	2.05E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.028 - 1.1	4.60E-01	17/19	2.62E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
22	E/C	BB03	4E-06	<1	<1	Metal	ARSENIC	C	1.6 - 1.6	1.60E+00	1/1	3.69E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
22	E/C	BB06	5E-05	<1	<1	Metal	ARSENIC	C	2.6 - 21	2.10E+01	4/4	4.84E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
						PAH	BENZO(A)PYRENE	C	0.031 - 0.79	6.92E-01	4/4	3.94E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
25	E/C	BB08	2E-05	<1	<1	Metal	ARSENIC	C	2.2 - 10.7	1.02E+01	4/4	2.34E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.1 - 0.18	1.80E-01	2/4	1.03E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
25	E/C	BC07	1E-05	<1	<1	Metal	ARSENIC	C	3.8 - 3.8	3.80E+00	1/3	8.76E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
25	E/C	BD08	3E-05	<1	<1	Metal	ARSENIC	C	12.1 - 12.1	1.21E+01	1/1	2.79E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
25	E/C	BD09	1E-05	<1	<1	Metal	ARSENIC	C	4.5 - 4.5	4.50E+00	1/1	1.04E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AV15	1E-05	<1	<1	Metal	ARSENIC	C	5.5 - 5.5	5.50E+00	1/1	1.27E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AV18	1E-05	<1	<1	Metal	ARSENIC	C	2.1 - 5.6	4.76E+00	5/6	1.10E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AY16	1E-05	<1	<1	Metal	ARSENIC	C	3.09 - 6.04	6.04E+00	3/3	1.39E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AZ16	3E-06	<1	<1	Metal	ARSENIC	C	1.31 - 1.31	1.31E+00	1/1	3.02E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BB18	5E-06	<1	<1	Metal	ARSENIC	C	1.8 - 2	2.00E+00	2/3	4.61E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BC15	4E-06	<1	<1	Metal	ARSENIC	C	1.8 - 1.8	1.80E+00	1/3	4.15E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BC18	8E-06	<1	<1	Metal	ARSENIC	C	3 - 3.5	3.50E+00	2/2	8.07E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
COS-1	OS	AW09	1E-05	<1	<1	Metal	ARSENIC	C	4.3 - 4.3	4.30E+00	1/1	1.16E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-1	OS	AX09	1E-05	<1	<1	Metal	ARSENIC	C	1.6 - 3.4	3.40E+00	3/4	9.15E-06	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.25 - 0.25	2.50E-01	1/6	1.91E-06	28 %	71.9 %	0 %		--	--	--	--		--	--
COS-1	OS	AY07	2E-05	<1	<1	Metal	ARSENIC	C	0.68 - 8.1	8.10E+00	2/2	2.18E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BB05	3E-05	<1	<1	Metal	ARSENIC	C	6.1 - 6.1	6.10E+00	1/2	1.64E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.77 - 0.77	7.70E-01	1/2	5.89E-06	28 %	71.9 %	0 %		--	--	--	--		--	--
COS-2	OS	BC03	1E-05	<1	<1	Metal	ARSENIC	C	4 - 4	4.00E+00	1/1	1.08E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BC04	2E-05	<1	<1	Metal	ARSENIC	C	8 - 8	8.00E+00	1/1	2.15E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BC05	4E-05	<1	<1	Metal	ARSENIC	C	13 - 13	1.30E+01	1/1	3.50E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	Yes
COS-2	OS	BD03	1E-05	<1	<1	Metal	ARSENIC	C	0.74 - 5.2325	4.48E+00	5/6	1.20E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BD04	2E-05	<1	<1	Metal	ARSENIC	C	0.6225 - 10.5	8.04E+00	4/5	2.16E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
							LEAD	NC	1.2 - 410	4.10E+02	3/3	--	--	--	--		--	--	--	--		8.99	Yes
						PAH	BENZO(A)PYRENE	C	0.06625 - 0.3	3.00E-01	2/5	2.30E-06	28 %	71.9 %	0 %		--	--	--	--		--	--
COS-2	OS	BE04	2E-05	<1	<1	Metal	ARSENIC	C	7.2 - 7.2	7.20E+00	2/2	1.94E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BA13	6E-05	<1	<1	Metal	ARSENIC	C	0.28 - 32	2.13E+01	27/35	5.74E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	Yes
COS-3	OS	BC12	1E-05	<1	<1	Metal	ARSENIC	C	2.6 - 4.6	4.60E+00	2/3	1.24E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BD07	1E-05	<1	<1	Metal	ARSENIC	C	3.7 - 3.7	3.70E+00	1/1	9.96E-06	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BD11	2E-05	<1	<1	Metal	ARSENIC	C	0.78 - 5.9	5.90E+00	2/2	1.59E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BD12	8E-06	<1	<1	Metal	ARSENIC	C	3 - 3	3.00E+00	1/2	8.08E-06	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BE05	4E-05	2E+00	<1	Metal	ARSENIC	C	5.2 - 15.5	1.55E+01	2/3	4.17E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	Yes
COS-3	OS	BE06	5E-05	<1	<1	Metal	ARSENIC	C	20.3 - 20.3	2.03E+01	1/1	5.46E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	Yes

TABLE 3-5: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
COS-3	OS	BE07	1E-05	<1	<1	Metal	ARSENIC	C	1.5 - 2.7	2.70E+00	2/2	7.27E-06	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.3 - 0.3	3.00E-01	1/2	2.30E-06	28 %	71.9 %	0 %		--	--	--	--		--	--
COS-3	OS	BF07	1E-05	<1	<1	Metal	ARSENIC	C	2.5 - 4.4	4.40E+00	3/3	1.18E-05	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BF09	4E-06	<1	<1	Metal	ARSENIC	C	1.4 - 1.4	1.40E+00	1/1	3.77E-06	62.8 %	37.2 %	0 %		<1	--	--	--		11.1	No

Notes: All concentrations shown in mg/kg.

--	Not applicable or chemical is not a COC for this endpoint
*	Not available; comparison to ambient levels based on regression analysis
	Not evaluated because exposure pathway is incomplete
bgs	Below ground surface
BHC	Benzene hexachloride
C	Cancer effect
COC	Chemical of concern
DF	Detection frequency
E/C	Educational/cultural (industrial exposure scenario)
EPC	Exposure point concentration
HI	Hazard index
HPAL	Hunters Point ambient level
mg/kg	Milligram per kilogram
MI	Maritime/Industrial (industrial exposure scenario)
MU	Mixed use (residential exposure scenario)
NC	Noncancer effect
OrgLead	Organic lead
OS	Open space (recreational exposure scenario)
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
Pest	Pesticide
SVOC	Semivolatile organic compound
RD	Residential development
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
10	MU	063024	9E-05	6E+00	2E+00	Metal	ARSENIC	C	3.6 - 3.6	3.60E+00	1/1	9.40E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	40000 - 40000	4.00E+04	1/1	--	--	--	--	--	1.82E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	400 - 400	4.00E+02	1/1	4.11E-08	--	--	--	--	1.32E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	68 - 68	6.80E+01	1/1	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
10	MU	063027	9E-05	8E+00	3E+00	Metal	ARSENIC	C	3.1 - 3.3	3.30E+00	2/2	8.62E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	35600 - 39500	3.95E+04	2/2	--	--	--	--	--	1.80E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	278 - 847	8.47E+02	2/2	--	--	--	--	--	1.00E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	683 - 848	8.48E+02	2/2	8.72E-08	--	--	--	--	2.81E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	44.1 - 68.2	6.82E+01	2/2	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
10	MU	064024	2E-04	9E+00	4E+00	Metal	ARSENIC	C	1.6 - 6.8	5.01E+00	5/5	1.31E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	1270 - 52000	4.41E+04	5/5	--	--	--	--	--	2.01E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	1.3 - 380	3.69E+02	10/10	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	75.6 - 970	8.66E+02	5/5	--	--	--	--	--	1.03E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	6.1 - 1470	1.18E+03	5/5	1.21E-07	--	--	--	--	3.91E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)PYRENE	C	0.02 - 0.53	5.30E-01	3/10	1.42E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.018 - 0.5	5.00E-01	4/10	1.48E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.026 - 0.43	4.30E-01	2/10	1.27E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
10	MU	064028	1E-05	2E+00	<1	Metal	ANTIMONY	NC	6.1 - 10.8	1.03E+01	4/5	--	--	--	--	--	1.01E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
						PAH	BENZO(A)PYRENE	C	0.012 - 0.12	9.93E-02	4/5	2.66E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.034 - 1.2	1.20E+00	3/5	5.69E-06	66.1 %	29.2 %	0 %	4.7 %	<1	69.6 %	27.3 %	0 %	3.1 %	--	--
						VOC	TETRACHLOROETHENE	C	0.002 - 1.1	9.22E-01	4/4	1.91E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
10	MU	064029	5E-05	2E+00	<1	Metal	ARSENIC	C	2 - 2	2.00E+00	1/1	5.22E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
10	MU	065026	1E-04	6E+00	2E+00	Metal	ARSENIC	C	3.7 - 3.7	3.70E+00	1/1	9.66E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	31700 - 31700	3.17E+04	1/1	--	--	--	--	--	1.44E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	87.6 - 87.6	8.76E+01	1/1	--	--	--	--	--	1.35E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.011 - 0.04	4.00E-02	3/4	1.07E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.039 - 0.84	6.00E-01	5/6	2.84E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
10	MU	065027	4E-06	<1	<1	Pest/PCB	AROCLOR-1260	C	0.007 - 0.67	6.70E-01	3/4	3.17E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
10	MU	065028	1E-04	1E+01	5E+00	Metal	ARSENIC	C	1.5 - 3	3.00E+00	2/4	7.84E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	13700 - 37700	3.52E+04	4/4	--	--	--	--	--	1.60E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	134 - 1710	1.59E+03	4/4	--	--	--	--	--	1.89E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	180 - 1680	1.46E+03	4/4	1.50E-07	--	--	--	--	4.84E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)PYRENE	C	0.028 - 0.52	5.20E-01	2/9	1.39E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.03 - 0.65	6.50E-01	2/9	1.92E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.035 - 0.44	4.40E-01	2/9	1.30E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.065 - 0.065	6.50E-02	1/9	1.12E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.019 - 0.23	2.30E-01	3/10	1.09E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
						VOC	TETRACHLOROETHENE	C	0.59 - 0.59	5.90E-01	1/3	1.22E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
10	MU	065029	6E-05	1E+01	6E+00	Metal	ANTIMONY	NC	7.6 - 12.3	1.23E+01	2/3	--	--	--	--	--	1.20E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	1.8 - 2.3	2.30E+00	2/3	6.01E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	22900 - 52100	5.21E+04	3/3	--	--	--	--	--	2.37E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	352 - 3030	3.03E+03	3/3	--	--	--	--	--	3.59E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	287 - 1730	1.73E+03	3/3	1.78E-07	--	--	--	--	5.73E+00	19.3 %	0 %	1 %	79.6 %	*	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
10	MU	066025	9E-05	2E+00	<1	Metal	ARSENIC	C	1.6 - 5	3.60E+00	6/8	9.40E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
10	MU	066026	1E-04	1E+01	4E+00	Metal	ARSENIC	C	1.5 - 6.2	4.46E+00	6/6	1.17E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	24500 - 51400	4.71E+04	6/6	--	--	--	--	--	2.14E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	376 - 1380	1.10E+03	6/6	--	--	--	--	--	1.30E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	162 - 1470	1.13E+03	6/6	1.16E-07	--	--	--	--	3.72E+00	19.3 %	0 %	1 %	79.6 %	*	No
10	MU	066027	2E-04	5E+00	<1	Metal	ARSENIC	C	8.1 - 8.1	8.10E+00	1/1	2.12E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)PYRENE	C	0.026 - 0.25	1.82E-01	5/7	4.87E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.029 - 0.48	3.51E-01	4/5	1.04E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.048 - 0.46	3.35E-01	5/5	1.59E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
10	MU	066028	9E-05	1E+01	7E+00	Metal	ARSENIC	C	1.3 - 4.2	2.67E+00	6/7	6.98E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	6560 - 35800	3.19E+04	7/7	--	--	--	--	--	1.45E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	185 - 2170	2.17E+03	7/7	2.23E-07	--	--	--	--	7.18E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)ANTHRACENE	C	0.54 - 0.54	5.40E-01	1/10	1.46E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.51 - 0.51	5.10E-01	1/10	1.37E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.44 - 0.44	4.40E-01	1/10	1.30E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.58 - 0.58	5.80E-01	1/10	1.71E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.071 - 0.071	7.10E-02	1/10	1.23E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
10	MU	067025	9E-05	1E+01	3E+00	Metal	ARSENIC	C	3.1 - 3.5	3.50E+00	2/9	9.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	29400 - 50600	4.28E+04	8/8	--	--	--	--	--	1.95E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	609 - 2200	1.45E+03	10/10	--	--	--	--	--	1.72E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	214 - 1630	9.44E+02	8/8	9.71E-08	--	--	--	--	3.13E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	22.6 - 81.3	7.29E+01	8/8	--	--	--	--	--	1.12E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
10	MU	067026	2E-04	7E+00	2E+00	Metal	ARSENIC	C	1 - 8	5.04E+00	14/20	1.32E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	16900 - 46100	3.17E+04	16/16	--	--	--	--	--	1.44E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	282 - 1960	9.95E+02	20/20	--	--	--	--	--	1.18E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	57.8 - 944	5.51E+02	16/16	5.67E-08	--	--	--	--	1.82E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)ANTHRACENE	C	0.056 - 1.8	8.27E-01	8/27	2.24E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.011 - 1.9	1.27E+00	10/27	3.41E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.019 - 3	1.12E+00	10/27	3.31E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.039 - 1.1	1.10E+00	3/25	3.25E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.017 - 0.13	1.23E-01	4/25	2.13E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
10	MU	067027	7E-05	1E+01	6E+00	Metal	ANTIMONY	NC	3.7 - 15.6	1.19E+01	5/7	--	--	--	--	--	1.17E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	1.5 - 3.2	2.57E+00	4/7	6.71E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	8400 - 33800	3.11E+04	7/7	--	--	--	--	--	1.41E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	300 - 2890	2.28E+03	7/7	--	--	--	--	--	2.71E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	104 - 1810	1.81E+03	7/7	1.86E-07	--	--	--	--	5.99E+00	19.3 %	0 %	1 %	79.6 %	*	No
						Pest/PCB	HEPTACHLOR EPOXIDE	C	0.002 - 0.002	2.00E-03	1/6	3.71E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--	--	--
10	MU	067028	9E-05	1E+01	5E+00	Metal	ANTIMONY	NC	2.1 - 11.3	1.13E+01	2/4	--	--	--	--	--	1.11E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	2.6 - 3.3	3.30E+00	3/4	8.62E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	10300 - 38800	3.68E+04	4/4	--	--	--	--	--	1.68E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	425 - 3940	3.94E+03	4/4	--	--	--	--	--	4.67E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	177 - 1800	1.54E+03	4/4	1.59E-07	--	--	--	--	5.10E+00	19.3 %	0 %	1 %	79.6 %	*	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
10	MU	068025	9E-05	1E+01	4E+00	SVOC	3,3'-DICHLOROBENZIDINE	C	0.036 - 0.036	3.60E-02	1/8	4.48E-06	1.5 %	0.5 %	0 %	98 %	--	--	--	--	--	--	--
						Metal	ANTIMONY	NC	2.8 - 17	1.12E+01	5/9	--	--	--	--	--	1.10E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	1.5 - 4.2	2.57E+00	6/10	6.71E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	27200 - 58200	4.42E+04	9/9	--	--	--	--	--	2.01E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	252 - 2050	1.27E+03	10/10	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	143 - 2110	1.25E+03	9/9	1.29E-07	--	--	--	--	4.15E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	27.6 - 102	7.50E+01	9/9	--	--	--	--	--	1.16E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
							BENZO(A)PYRENE	C	0.027 - 0.11	1.09E-01	4/12	2.93E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	GAMMA-BHC (LINDANE)	C	0.005 - 0.005	5.00E-03	1/6	1.89E-06	0.5 %	0.1 %	0 %	99.4 %	<1	--	--	--	--	--	--
							HEPTACHLOR EPOXIDE	C	0.004 - 0.004	4.00E-03	1/6	7.43E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--	--	--
10	MU	068026	2E-04	1E+01	7E+00	Metal	ARSENIC	C	1.2 - 11.3	5.07E+00	17/22	1.32E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							IRON	NC	20200 - 52700	3.68E+04	22/22	--	--	--	--	--	1.68E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	6.3 - 192	1.40E+02	21/22	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	306 - 2440	1.06E+03	22/22	--	--	--	--	--	1.25E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	47.2 - 2500	2.17E+03	22/22	2.23E-07	--	--	--	--	7.19E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)PYRENE	C	0.052 - 0.31	3.10E-01	2/8	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.0515 - 0.51	5.10E-01	2/8	1.51E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
						Pest/PCB	DIELDRIN	C	0.002 - 0.002	2.00E-03	2/15	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--
							HEPTACHLOR EPOXIDE	C	0.002 - 0.003	3.00E-03	2/15	5.57E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--	--	--
						VOC	NAPHTHALENE	C	2.5 - 6.3	6.30E+00	2/5	3.78E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--	--	--
10	MU	068027	8E-05	1E+01	6E+00	Metal	ARSENIC	C	1.3 - 4.6	2.65E+00	7/10	6.91E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	22100 - 47400	3.63E+04	10/10	--	--	--	--	--	1.65E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	204 - 1680	1.02E+03	10/10	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	234 - 2690	1.79E+03	10/10	1.84E-07	--	--	--	--	5.91E+00	19.3 %	0 %	1 %	79.6 %	*	Yes
						Pest/PCB	DIELDRIN	C	0.004 - 0.004	4.00E-03	1/8	6.07E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--
							HEPTACHLOR EPOXIDE	C	0.003 - 0.003	3.00E-03	1/8	5.57E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--	--	--
10	MU	069025	9E-05	8E+00	2E+00	Metal	ARSENIC	C	2 - 3.5	3.32E+00	5/5	8.67E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	29400 - 34400	3.42E+04	5/5	--	--	--	--	--	1.56E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	268 - 774	7.32E+02	5/5	7.53E-08	--	--	--	--	2.42E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	43.8 - 81.3	7.54E+01	5/5	--	--	--	--	--	1.16E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
10	MU	069026	5E-05	2E+01	9E+00	Metal	ANTIMONY	NC	12.2 - 26.1	1.74E+01	7/12	--	--	--	--	--	1.70E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	2.4 - 4.1	2.03E+00	4/12	5.31E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	27000 - 84000	5.85E+04	12/12	--	--	--	--	--	2.66E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							LEAD	NC	1.6 - 218	2.18E+02	6/12	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	413 - 2170	1.29E+03	12/12	--	--	--	--	--	1.52E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	218 - 4585	2.81E+03	12/12	2.89E-07	--	--	--	--	9.31E+00	19.3 %	0 %	1 %	79.6 %	*	No
10	MU	069027	6E-05	1E+01	5E+00	Metal	ANTIMONY	NC	6.6 - 15.9	1.36E+01	5/7	--	--	--	--	--	1.33E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	1.4 - 2.7	2.12E+00	5/7	5.53E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	23200 - 42800	3.71E+04	7/7	--	--	--	--	--	1.69E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	15.6 - 239	2.39E+02	4/7	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	169 - 1240	1.01E+03	7/7	--	--	--	--	--	1.19E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	101 - 1600	1.42E+03	7/7	1.46E-07	--	--	--	--	4.71E+00	19.3 %	0 %	1 %	79.6 %	*	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
10	MU	070025	1E-04	2E+01	6E+00	Metal	ANTIMONY	NC	1.7 - 30.1	3.01E+01	4/4	--	--	--	--	--	2.95E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							ARSENIC	C	1 - 4.1	4.10E+00	3/4	1.07E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	15800 - 54600	5.13E+04	4/4	--	--	--	--	--	2.34E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	87.8 - 1870	1.64E+03	4/4	--	--	--	--	--	1.94E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	198 - 2130	1.82E+03	4/4	1.87E-07	--	--	--	--	6.02E+00	19.3 %	0 %	1 %	79.6 %	*	No
10	MU	070026	3E-07	1E+01	6E+00	Metal	ANTIMONY	NC	16.15 - 16.15	1.62E+01	1/1	--	--	--	--	--	1.58E+00	32.7 %	0 %	0 %	67.3 %	9.05	Yes
							IRON	NC	32250 - 32250	3.23E+04	1/1	--	--	--	--	--	1.47E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	1760 - 1760	1.76E+03	1/1	1.81E-07	--	--	--	--	5.83E+00	19.3 %	0 %	1 %	79.6 %	*	No
11	MU	064023	9E-05	5E+00	<1	Metal	ARSENIC	C	3.6 - 3.6	3.60E+00	1/1	9.40E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
11	MU	065021	1E-04	1E+01	4E+00	Metal	ARSENIC	C	1.6 - 5.5	5.28E+00	5/5	1.38E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	20800 - 42700	4.27E+04	4/4	--	--	--	--	--	1.94E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	518 - 1540	1.11E+03	7/7	--	--	--	--	--	1.31E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	97.7 - 1400	1.21E+03	4/4	1.25E-07	--	--	--	--	4.01E+00	19.3 %	0 %	1 %	79.6 %	*	No
11	MU	065022	3E-04	3E+00	<1	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/4	8.10E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)ANTHRACENE	C	0.013 - 5.4	5.40E+00	3/6	1.46E-05	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.013 - 4.8	4.80E+00	3/6	1.29E-04	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.015 - 6.9	6.90E+00	3/6	2.04E-05	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.014 - 4.4	4.40E+00	2/6	1.30E-05	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							CHRYSENE	C	0.016 - 6.8	6.80E+00	4/6	2.06E-06	62 %	25.5 %	0 %	12.5 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	1 - 1	1.00E+00	1/6	1.73E-05	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.011 - 2	2.00E+00	2/6	5.76E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.17 - 0.45	4.50E-01	2/6	2.13E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
11	MU	065023	1E-04	3E+00	<1	Metal	ARSENIC	C	4.3 - 4.3	4.30E+00	1/7	1.12E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							BENZO(A)PYRENE	C	0.014 - 0.34	2.26E-01	10/11	6.07E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.064 - 0.064	6.40E-02	1/8	1.11E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.021 - 1.4	6.02E-01	10/16	2.85E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
11	MU	065024	1E-04	7E+00	2E+00	Metal	ARSENIC	C	4 - 5.2	5.20E+00	2/2	1.36E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	36600 - 40000	4.00E+04	2/2	--	--	--	--	--	1.82E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	825 - 1250	1.25E+03	2/2	--	--	--	--	--	1.48E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	404 - 489	4.89E+02	2/2	5.03E-08	--	--	--	--	1.62E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	82.4 - 83.7	8.37E+01	2/2	--	--	--	--	--	1.29E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
11	MU	066020	9E-05	2E+00	<1	Metal	ARSENIC	C	2.8 - 3.3	3.30E+00	2/2	8.62E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
11	MU	066022	2E-04	1E+01	3E+00	Metal	ARSENIC	C	3 - 5.3	4.19E+00	4/7	1.09E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	10.2 - 374	2.67E+02	15/15	--	--	--	--	--	1.67E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	20000 - 33600	3.28E+04	5/5	--	--	--	--	--	1.49E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	148 - 1210	9.19E+02	7/7	--	--	--	--	--	1.09E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	56.8 - 710	5.44E+02	5/5	5.59E-08	--	--	--	--	1.80E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	34.6 - 76.7	6.85E+01	5/5	--	--	--	--	--	1.06E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.21 - 0.32	3.20E-01	2/10	8.58E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C,NC	0.026 - 2.95	1.71E+00	6/21	8.12E-06	66.1 %	29.2 %	0 %	4.7 %	1.57E+00	69.6 %	27.3 %	0 %	3.1 %	--	--
						VOC	1,2-DICHLOROETHANE	C	0.00349 - 12	5.41E+00	6/30	1.95E-05	4 %	0 %	96 %	0 %	<1	--	--	--	--	--	--
							1,4-DICHLOROBENZENE	C	0.00309 - 94	1.21E+01	14/30	6.03E-06	7.6 %	0 %	92.4 %	0 %	<1	--	--	--	--	--	--
							NAPHTHALENE	C	0.00304 - 5.45	5.45E+00	3/19	3.27E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--	--	--
							TETRACHLOROETHENE	C	0.004 - 139	2.23E+01	7/30	4.62E-05	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
							TRICHLOROETHENE	C	0.00206 - 20.5	6.57E+00	9/30	2.23E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--	--	--
							VINYL CHLORIDE	C	0.004 - 1.5	4.98E-01	11/30	2.05E-05	5.7 %	0 %	94.3 %	0 %	<1	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
11	MU	066023	1E-04	1E+01	4E+00	Metal	ARSENIC	C	4.1 - 4.1	4.10E+00	1/5	1.07E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	31600 - 49700	4.97E+04	3/3	--	--	--	--	--	2.26E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	570 - 1580	1.27E+03	7/7	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	465 - 1310	1.31E+03	3/3	1.35E-07	--	--	--	--	4.34E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	53.7 - 71.4	7.14E+01	3/3	--	--	--	--	--	1.10E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.011 - 0.043	4.30E-02	4/14	1.15E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.02075 - 2.5	9.06E-01	5/9	4.29E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
11	MU	066024	1E-04	6E+00	5E+00	Metal	ARSENIC	C	2.4 - 7.1	5.67E+00	5/5	1.48E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	423 - 3890	3.89E+03	6/6	--	--	--	--	--	4.61E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
11	MU	067019	4E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.021 - 0.11	1.10E-01	3/3	2.95E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
11	MU	067020	9E-05	6E+00	5E+00	Metal	ARSENIC	C	3 - 3.4	3.40E+00	2/2	8.88E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	366 - 3880	3.88E+03	4/4	--	--	--	--	--	4.60E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
11	MU	067021	7E-06	<1	<1	VOC	1,4-DICHLOROBENZENE	C	2.58 - 2.58	2.58E+00	1/1	1.28E-06	7.6 %	0 %	92.4 %	0 %	<1	--	--	--	--	--	--
							TETRACHLOROETHENE	C	2.37 - 2.37	2.37E+00	1/1	4.91E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
11	MU	067022	2E-04	6E+00	<1	Metal	ARSENIC	C	5.4 - 5.4	5.40E+00	1/2	1.41E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						VOC	1,2-DICHLOROETHANE	C	0.027 - 8.52	8.52E+00	2/14	3.07E-05	4 %	0 %	96 %	0 %	<1	--	--	--	--	--	--
11	MU	067023	2E-07	2E+00	2E+00	Metal	MANGANESE	NC	780 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
11	MU	067024	1E-04	1E+01	3E+00	Metal	ARSENIC	C	1.7 - 5.8	4.79E+00	6/6	1.25E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	24200 - 44200	3.84E+04	5/5	--	--	--	--	--	1.75E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	321 - 3200	2.22E+03	8/8	--	--	--	--	--	2.63E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	76.1 - 1260	9.50E+02	5/5	9.77E-08	--	--	--	--	3.14E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	48.4 - 85	7.52E+01	5/5	--	--	--	--	--	1.16E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.038 - 0.038	3.80E-02	1/6	1.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
11	MU	068019	7E-05	5E+00	2E+00	Metal	ARSENIC	C	2.5 - 2.5	2.50E+00	1/3	6.53E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	289 - 1370	1.19E+03	5/5	--	--	--	--	--	1.41E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
11	MU	068020	9E-05	4E+00	3E+00	Metal	ARSENIC	C	2.2 - 3.5	3.50E+00	3/3	9.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	575 - 3480	2.72E+03	5/5	--	--	--	--	--	3.22E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
11	MU	068022	8E-06	<1	<1	VOC	TRICHLOROETHENE	C	1.29 - 18.4	1.84E+01	2/2	6.25E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--	--	--
							VINYL CHLORIDE	C	0.0291 - 0.0395	3.95E-02	2/2	1.62E-06	5.7 %	0 %	94.3 %	0 %	<1	--	--	--	--	--	--
11	MU	068024	1E-04	9E+00	3E+00	Metal	ARSENIC	C	0.81 - 4.6	3.44E+00	9/9	8.99E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	14700 - 44300	3.58E+04	7/7	--	--	--	--	--	1.63E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	205 - 3360	1.09E+03	18/18	--	--	--	--	--	1.29E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	50.7 - 1290	7.96E+02	7/7	8.19E-08	--	--	--	--	2.64E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	15.8 - 100	7.37E+01	7/7	--	--	--	--	--	1.14E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.011 - 0.15	1.50E-01	4/11	4.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
11	MU	069022	6E-05	1E+01	6E+00	Metal	ARSENIC	C	1.9 - 2	2.00E+00	2/2	5.22E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	44700 - 55600	5.56E+04	2/2	--	--	--	--	--	2.53E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	466 - 1860	1.86E+03	2/2	1.91E-07	--	--	--	--	6.16E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	49.1 - 68.7	6.87E+01	2/2	--	--	--	--	--	1.06E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	NAPHTHALENE	C	0.0088 - 19	3.45E+00	6/21	2.07E-06	31.3 %	0 %	68.7 %	0 %	--	--	--	--	--	--	
							TRICHLOROETHENE	C	0.003 - 120	2.32E+01	17/21	7.89E-06	6 %	0 %	94 %	0 %	--	--	--	--	--	--	
11	MU	069024	3E-05	1E+01	7E+00	Metal	ARSENIC	C	0.85 - 1.2	1.20E+00	2/2	3.13E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	53400 - 68900	6.89E+04	2/2	--	--	--	--	--	3.14E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	1060 - 1140	1.14E+03	2/2	--	--	--	--	--	1.35E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	1200 - 2130	2.13E+03	2/2	2.19E-07	--	--	--	--	7.05E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	60.7 - 71.5	7.15E+01	2/2	--	--	--	--	--	1.10E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
11	MU	070024	1E-04	7E+00	2E+00	Metal	ARSENIC	C	2.1 - 3.7	3.70E+00	2/2	9.66E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	22800 - 36500	3.65E+04	2/2	--	--	--	--	--	1.66E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	314 - 1290	1.29E+03	2/2	--	--	--	--	--	1.53E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	56.7 - 97.4	9.74E+01	2/2	--	--	--	--	--	1.50E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
11	MU	071019	1E-07	7E+00	2E+00	Metal	IRON	NC	25900 - 36200	3.62E+04	3/3	--	--	--	--	--	1.65E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	235 - 1010	1.01E+03	3/3	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	131 - 670	6.70E+02	3/3	6.89E-08	--	--	--	--	2.22E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	40.2 - 65.4	6.54E+01	3/3	--	--	--	--	--	1.01E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
11	MU	071024	1E-04	6E+00	<1	Metal	ARSENIC	C	5 - 5	5.00E+00	1/1	1.31E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
13	MU	075027	1E-04	1E+01	6E+00	Metal	ARSENIC	C	1.5 - 4.4	4.40E+00	2/2	1.15E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	49600 - 70600	7.06E+04	2/2	--	--	--	--	--	3.21E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	1200 - 1250	1.25E+03	2/2	--	--	--	--	--	1.48E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	144 - 1850	1.85E+03	2/2	1.90E-07	--	--	--	--	6.12E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	56 - 149	1.49E+02	2/2	--	--	--	--	--	2.30E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
13	MU	077028	6E-05	1E+01	3E+00	Metal	ARSENIC	C	2.1 - 2.1	2.10E+00	1/2	5.49E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	50900 - 52600	5.26E+04	2/2	--	--	--	--	--	2.39E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	381 - 2110	1.45E+03	10/10	--	--	--	--	--	1.72E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	154 - 842	8.42E+02	2/2	8.66E-08	--	--	--	--	2.79E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	80.3 - 124	1.24E+02	2/2	--	--	--	--	--	1.91E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
13	MU	078028	5E-05	4E+00	<1	Metal	ARSENIC	C	1 - 1.8	1.80E+00	2/2	4.70E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
13	MU	079027	8E-05	7E+00	4E+00	Metal	ARSENIC	C	1.8 - 3	3.00E+00	2/2	7.84E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	24900 - 25000	2.50E+04	2/2	--	--	--	--	--	1.14E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1210 - 2960	2.96E+03	2/2	--	--	--	--	--	3.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
13	MU	079029	4E-05	1E+01	8E+00	Metal	ARSENIC	C	1.7 - 1.7	1.70E+00	1/1	4.44E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	42400 - 42400	4.24E+04	1/1	--	--	--	--	--	1.93E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	670 - 1040	1.00E+03	5/5	--	--	--	--	--	1.19E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	2400 - 2400	2.40E+03	1/1	2.47E-07	--	--	--	--	7.94E+00	19.3 %	0 %	1 %	79.6 %	*	No
13	MU	079030	3E-05	2E+01	5E+00	Metal	ARSENIC	C	0.96 - 1.1	1.10E+00	2/2	2.87E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	44600 - 59300	5.93E+04	2/2	--	--	--	--	--	2.70E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	528 - 3150	3.15E+03	2/2	--	--	--	--	--	3.74E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	212 - 1540	1.54E+03	2/2	1.58E-07	--	--	--	--	5.10E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	25.7 - 165	1.65E+02	2/2	--	--	--	--	--	2.54E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
13	MU	080025	1E-04	6E+00	3E+00	Metal	ARSENIC	C	4.3 - 4.3	4.30E+00	1/1	1.12E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	28800 - 28800	2.88E+04	1/1	--	--	--	--	--	1.31E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1950 - 1950	1.95E+03	1/1	--	--	--	--	--	2.31E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						Pest/PCB	DIELDRIN	C	0.004 - 0.004	4.00E-03	1/1	6.07E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--
13	MU	080026	9E-05	1E+01	4E+00	Metal	ARSENIC	C	0.97 - 4	3.40E+00	5/7	8.88E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	21600 - 58100	5.54E+04	7/7	--	--	--	--	--	2.52E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	157 - 4480	2.89E+03	23/23	--	--	--	--	--	3.42E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	130 - 1250	8.19E+02	7/7	8.43E-08	--	--	--	--	2.71E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	41.1 - 147	1.29E+02	7/7	--	--	--	--	--	1.98E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
13	MU	082026	2E-04	7E+00	2E+00	Metal	ARSENIC	C	3.8 - 4.3	4.30E+00	2/2	1.12E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	31300 - 31500	3.15E+04	2/2	--	--	--	--	--	1.43E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	424 - 1060	1.06E+03	2/2	--	--	--	--	--	1.26E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	69.5 - 74	7.40E+01	2/2	--	--	--	--	--	1.14E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						Pest/PCB	DIELDRIN	C	0.045 - 0.045	4.50E-02	1/2	6.83E-05	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
13	MU	082027	1E-04	8E+00	2E+00	Metal	ARSENIC	C	0.61 - 5.7	5.70E+00	2/2	1.49E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	29700 - 49400	4.94E+04	2/2	--	--	--	--	--	2.25E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	324 - 1250	1.25E+03	2/2	--	--	--	--	--	1.48E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	68 - 150	1.50E+02	2/2	--	--	--	--	--	2.31E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
18	RD	075043	2E-04	8E+00	2E+00	Metal	ARSENIC	C	3.3 - 6.5	6.50E+00	2/2	1.70E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	34800 - 44900	4.49E+04	2/2	--	--	--	--	--	2.04E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	882 - 1270	1.27E+03	2/2	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	78.3 - 92.3	9.23E+01	2/2	--	--	--	--	--	1.42E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	076034	8E-05	7E+00	2E+00	Metal	ARSENIC	C	3 - 3	3.00E+00	1/1	7.84E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	40300 - 40300	4.03E+04	1/1	--	--	--	--	--	1.83E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1150 - 1150	1.15E+03	1/1	--	--	--	--	--	1.36E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	392 - 392	3.92E+02	1/1	4.03E-08	--	--	--	--	1.30E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	93.8 - 93.8	9.38E+01	1/1	--	--	--	--	--	1.45E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	076038	2E-04	1E+01	3E+00	Metal	ARSENIC	C	4.1 - 6.1	6.10E+00	2/2	1.59E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	42000 - 53100	5.31E+04	2/2	--	--	--	--	--	2.42E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	741 - 928	9.28E+02	2/2	--	--	--	--	--	1.10E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	614 - 876	8.76E+02	2/2	9.01E-08	--	--	--	--	2.90E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	73.3 - 98	9.80E+01	2/2	--	--	--	--	--	1.51E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	BENZENE	C	0.002 - 3.5	1.24E+00	17/23	6.95E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	076039	1E-05	<1	<1	VOC	BENZENE	C	0.0057 - 5	1.70E+00	20/31	9.51E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	076043	8E-05	5E+00	<1	Metal	ARSENIC	C	2.5 - 3.2	3.20E+00	2/2	8.36E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
18	RD	077035	6E-05	1E+01	3E+00	Metal	ARSENIC	C	2.3 - 2.3	2.30E+00	1/1	6.01E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	47300 - 47300	4.73E+04	1/1	--	--	--	--	--	2.15E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	967 - 967	9.67E+02	1/1	--	--	--	--	--	1.15E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	949 - 949	9.49E+02	1/1	9.76E-08	--	--	--	--	3.14E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	109 - 109	1.09E+02	1/1	--	--	--	--	--	1.68E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	077037	3E-04	8E+00	2E+00	Metal	ARSENIC	C	4.5 - 12.8	1.28E+01	2/2	3.34E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							IRON	NC	31500 - 44700	4.47E+04	2/2	--	--	--	--	--	2.04E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	335 - 648	6.48E+02	2/2	6.66E-08	--	--	--	--	2.15E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	67.7 - 69.7	6.97E+01	2/2	--	--	--	--	--	1.07E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	077038	2E-04	1E+01	3E+00	Metal	ARSENIC	C	4.4 - 5.6	5.60E+00	2/2	1.46E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	43500 - 48200	4.82E+04	2/2	--	--	--	--	--	2.19E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	709 - 866	8.66E+02	2/2	--	--	--	--	--	1.03E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	589 - 991	9.91E+02	2/2	1.02E-07	--	--	--	--	3.28E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	68.4 - 92.3	9.23E+01	2/2	--	--	--	--	--	1.42E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	BENZENE	C	0.001 - 5.7	1.61E+00	26/31	9.00E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	077039	1E-04	7E+00	2E+00	Metal	ARSENIC	C	2.8 - 2.8	2.80E+00	1/1	7.31E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	36600 - 36600	3.66E+04	1/1	--	--	--	--	--	1.67E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	107 - 107	1.07E+02	1/1	--	--	--	--	--	1.65E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	BENZENE	C	0.00083 - 4.5	4.50E+00	20/24	2.52E-05	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	077040	2E-04	2E+01	1E+01	Metal	ARSENIC	C	2.7 - 5.9	5.90E+00	2/2	1.54E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	33100 - 38800	3.88E+04	2/2	--	--	--	--	--	1.77E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	111 - 3010	3.01E+03	2/2	3.10E-07	--	--	--	--	9.96E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	41.7 - 70.2	7.02E+01	2/2	--	--	--	--	--	1.08E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
18	RD	078032	1E-05	1E+01	6E+00	Metal	ARSENIC	C	0.4 - 0.4	4.00E-01	1/2	1.04E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	42800 - 44300	4.43E+04	2/2	--	--	--	--	--	2.02E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	1770 - 1890	1.89E+03	2/2	1.94E-07	--	--	--	--	6.26E+00	19.3 %	0 %	1 %	79.6 %	*	No
18	RD	078036	4E-04	1E+01	5E+00	Metal	ARSENIC	C,NC	8.9 - 16.4	1.64E+01	2/2	4.28E-04	56.6 %	5.4 %	0 %	38 %	1.05E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							IRON	NC	41500 - 49000	4.90E+04	2/2	--	--	--	--	--	2.23E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	783 - 3660	3.66E+03	2/2	--	--	--	--	--	4.34E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	324 - 394	3.94E+02	2/2	4.05E-08	--	--	--	--	1.30E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	72.6 - 109	1.09E+02	2/2	--	--	--	--	--	1.68E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	078037	2E-04	1E+01	4E+00	Metal	ARSENIC	C	2.9 - 9.75	7.02E+00	8/9	1.83E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	29600 - 47300	4.27E+04	9/9	--	--	--	--	--	1.94E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	395 - 1340	1.18E+03	9/9	--	--	--	--	--	1.40E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	57 - 1340	1.07E+03	9/9	1.10E-07	--	--	--	--	3.53E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	42.3 - 95.5	8.85E+01	9/9	--	--	--	--	--	1.36E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.052 - 0.14	1.40E-01	2/26	3.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						VOC	BENZENE	C	0.001 - 8.95	1.83E+00	21/26	1.02E-05	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	078038	2E-04	9E+00	2E+00	Metal	ARSENIC	C	3.5 - 8.9	8.90E+00	3/3	2.32E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	38700 - 44700	4.47E+04	3/3	--	--	--	--	--	2.04E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	762 - 989	9.89E+02	3/3	--	--	--	--	--	1.17E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	184 - 475	4.75E+02	3/3	4.89E-08	--	--	--	--	1.57E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	72.1 - 79.9	7.99E+01	3/3	--	--	--	--	--	1.23E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.011 - 0.0615	5.20E-02	6/30	1.39E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						VOC	BENZENE	C	0.0018 - 9.1	2.03E+00	33/35	1.13E-05	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	078039	2E-04	9E+00	3E+00	Metal	ARSENIC	C	5.2 - 5.5	5.50E+00	2/2	1.44E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	49600 - 50400	5.04E+04	2/2	--	--	--	--	--	2.29E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	109 - 751	7.23E+02	5/5	7.43E-08	--	--	--	--	2.39E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	68.3 - 80.2	8.02E+01	2/2	--	--	--	--	--	1.24E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						Pest/PCB	GAMMA-BHC (LINDANE)	C	0.0089 - 0.0089	8.90E-03	1/5	3.36E-06	0.5 %	0.1 %	0 %	99.4 %	<1	--	--	--	--	--	--
							HEPTACHLOR EPOXIDE B	C	0.0035 - 0.0035	3.50E-03	1/1	6.50E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--	--	--
18	RD	078040	2E-07	3E+00	2E+00	Metal	NICKEL	NC	125 - 770	7.41E+02	4/4	7.62E-08	--	--	--	--	2.45E+00	19.3 %	0 %	1 %	79.6 %	*	No
18	RD	078041	2E-07	3E+00	2E+00	Metal	NICKEL	NC	250 - 680	6.80E+02	2/2	6.99E-08	--	--	--	--	2.25E+00	19.3 %	0 %	1 %	79.6 %	*	No
		079037					ARSENIC	C	6 - 10.3	1.03E+01	3/4	2.69E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	28100 - 44200	4.42E+04	2/2	--	--	--	--	--	2.01E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	748 - 1100	1.10E+03	4/4	--	--	--	--	--	1.30E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	69.4 - 711	7.11E+02	2/2	7.31E-08	--	--	--	--	2.35E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	53.2 - 88.9	8.89E+01	2/2	--	--	--	--	--	1.37E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.078 - 0.078	7.80E-02	1/10	2.09E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
18	RD	079038	1E-04	4E+00	<1	Metal	ARSENIC	C	3.5 - 5.4	5.40E+00	3/3	1.41E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						VOC	BENZENE	C	0.0009 - 0.54	5.40E-01	3/4	3.02E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	079039	2E-04	9E+00	2E+00	Metal	ARSENIC	C	2.1 - 9.8	7.51E+00	7/7	1.96E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	28500 - 50300	4.47E+04	7/7	--	--	--	--	--	2.04E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	89.8 - 752	6.18E+02	9/10	6.36E-08	--	--	--	--	2.05E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	37 - 121	9.17E+01	7/7	--	--	--	--	--	1.41E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
18	RD	079041	4E-04	8E+00	2E+00	Metal	ARSENIC	C,NC	5.5 - 15.8	1.58E+01	3/3	4.13E-04	56.6 %	5.4 %	0 %	38 %	1.01E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							IRON	NC	13200 - 37300	3.73E+04	3/3	--	--	--	--	--	1.70E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	35.7 - 650	3.57E+02	8/8	3.67E-08	--	--	--	--	1.18E+00	19.3 %	0 %	1 %	79.6 %	*	No
						SVOC	BIS(2-ETHYLHEXYL)PHTHALATE	C	1.5 - 1.5	1.50E+00	1/3	1.31E-06	2.5 %	0.8 %	0 %	96.7 %	<1	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
18	RD	080038	2E-04	9E+00	2E+00	Metal	ARSENIC	C	3.4 - 8.8	8.80E+00	2/3	2.30E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	1.4 - 3.7	3.70E+00	3/8	6.27E-09	--	--	--	--	1.07E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							IRON	NC	33000 - 44300	4.43E+04	3/3	--	--	--	--	--	2.02E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	500 - 1100	1.09E+03	5/5	--	--	--	--	--	1.29E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	70.6 - 570	3.89E+02	8/8	4.00E-08	--	--	--	--	1.29E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	66.1 - 85.8	8.58E+01	3/3	--	--	--	--	--	1.32E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	BENZENE	C	0.002 - 3.9	8.98E-01	10/19	5.03E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	080040	1E-04	9E+00	2E+00	Metal	ARSENIC	C	1.3 - 5.4	5.40E+00	2/2	1.41E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	20800 - 48800	4.88E+04	2/2	--	--	--	--	--	2.22E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	328 - 867	8.67E+02	2/2	--	--	--	--	--	1.03E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	20.2 - 1200	6.36E+02	8/8	6.54E-08	--	--	--	--	2.11E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	60.3 - 85.9	8.59E+01	2/2	--	--	--	--	--	1.32E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	BENZENE	C	0.0006 - 7.4	1.38E+00	13/26	7.75E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--	--	--
18	RD	081037	2E-04	6E+00	2E+00	Metal	ARSENIC	C	8.3 - 8.3	8.30E+00	1/1	2.17E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	37600 - 37600	3.76E+04	1/1	--	--	--	--	--	1.71E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	869 - 869	8.69E+02	1/1	--	--	--	--	--	1.03E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	375 - 375	3.75E+02	1/1	3.86E-08	--	--	--	--	1.24E+00	19.3 %	0 %	1 %	79.6 %	*	No
18	RD	082035	8E-05	9E+00	3E+00	Metal	ARSENIC	C	3.2 - 3.2	3.20E+00	1/1	8.36E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	43400 - 43400	4.34E+04	1/1	--	--	--	--	--	1.98E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1660 - 1660	1.66E+03	1/1	--	--	--	--	--	1.97E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	761 - 761	7.61E+02	1/1	7.83E-08	--	--	--	--	2.52E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	77.4 - 77.4	7.74E+01	1/1	--	--	--	--	--	1.19E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
18	RD	084036	3E-04	9E+00	2E+00	Metal	ARSENIC	C	1.7 - 9.6	9.60E+00	2/2	2.51E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	25500 - 47500	4.75E+04	2/2	--	--	--	--	--	2.16E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	829 - 894	8.94E+02	2/2	--	--	--	--	--	1.06E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	54.1 - 630	6.30E+02	2/2	6.48E-08	--	--	--	--	2.09E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	70.7 - 82.1	8.21E+01	2/2	--	--	--	--	--	1.27E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	081030	8E-06	1E+01	6E+00	Metal	IRON	NC	20100 - 39000	3.90E+04	2/2	--	--	--	--	--	1.78E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	42.2 - 1810	1.81E+03	2/2	1.86E-07	--	--	--	--	5.99E+00	19.3 %	0 %	1 %	79.6 %	*	No
						PAH	BENZO(A)PYRENE	C	0.043 - 0.26	2.60E-01	2/10	6.97E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
20A	RD	081031	3E-05	9E+00	3E+00	Metal	ARSENIC	C	0.56 - 1.2	1.20E+00	2/2	3.13E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	121 - 50600	5.06E+04	2/2	--	--	--	--	--	2.30E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	2.1 - 890	8.90E+02	2/2	--	--	--	--	--	1.06E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	944 - 944	9.44E+02	1/2	9.71E-08	--	--	--	--	3.12E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	0.63 - 95.9	9.59E+01	2/2	--	--	--	--	--	1.48E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	081032	3E-07	1E+01	7E+00	Metal	IRON	NC	34800 - 38300	3.83E+04	2/2	--	--	--	--	--	1.74E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	433 - 1070	1.07E+03	2/2	--	--	--	--	--	1.27E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	841 - 2040	2.04E+03	2/2	2.10E-07	--	--	--	--	6.75E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	25.5 - 69	6.90E+01	2/2	--	--	--	--	--	1.06E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	083032	1E-04	2E+01	1E+01	Metal	ARSENIC	C	4.4 - 4.4	4.40E+00	1/2	1.15E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	39900 - 39900	3.99E+04	1/1	--	--	--	--	--	1.82E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	200 - 8990	8.99E+03	8/8	--	--	--	--	--	1.07E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	82.7 - 82.7	8.27E+01	1/1	--	--	--	--	--	1.28E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
20A	RD	083034	3E-04	9E+00	2E+00	Metal	ARSENIC	C	11.1 - 11.1	1.11E+01	1/1	2.90E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							IRON	NC	44600 - 44600	4.46E+04	1/1	--	--	--	--	--	2.03E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	556 - 556	5.56E+02	1/1	5.72E-08	--	--	--	--	1.84E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	76.1 - 76.1	7.61E+01	1/1	--	--	--	--	--	1.17E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	084028	7E-05	1E+01	3E+00	Metal	ARSENIC	C	2.7 - 2.7	2.70E+00	1/3	7.05E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	28100 - 43800	4.38E+04	3/3	--	--	--	--	--	1.99E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	397 - 1330	1.33E+03	3/3	--	--	--	--	--	1.58E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	208 - 930	9.30E+02	3/3	9.56E-08	--	--	--	--	3.08E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	74.8 - 92.1	9.21E+01	3/3	--	--	--	--	--	1.42E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	084029	9E-05	2E+01	9E+00	SVOC	HEXACHLOROBENZENE	C	0.082 - 0.082	8.20E-02	1/3	1.52E-06	15.2 %	4.8 %	0 %	80 %	<1	--	--	--	--	--	--
						Metal	ARSENIC	C	0.73 - 3.5	3.50E+00	3/3	9.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	31300 - 59200	5.92E+04	3/3	--	--	--	--	--	2.70E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	366 - 1030	1.03E+03	3/3	--	--	--	--	--	1.22E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	112 - 2700	2.70E+03	3/3	2.78E-07	--	--	--	--	8.94E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	46.7 - 77.5	7.75E+01	3/3	--	--	--	--	--	1.20E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	084030	1E-04	1E+01	3E+00	Metal	ARSENIC	C	1.6 - 3.9	3.90E+00	2/2	1.02E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	30600 - 30600	3.06E+04	1/1	--	--	--	--	--	1.39E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	277.5 - 1300	1.30E+03	3/3	--	--	--	--	--	1.54E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	406.5 - 940	9.40E+02	2/2	9.67E-08	--	--	--	--	3.11E+00	19.3 %	0 %	1 %	79.6 %	*	No
							ZINC	NC	13 - 431.5	4.32E+02	7/7	--	--	--	--	--	1.16E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.091 - 0.091	9.10E-02	1/3	2.44E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
20A	RD	084035	2E-04	1E+01	6E+00	Metal	ARSENIC	C	7.1 - 7.1	7.10E+00	1/1	1.85E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	42600 - 42700	4.27E+04	2/2	--	--	--	--	--	1.94E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	867 - 6550	4.81E+03	10/10	--	--	--	--	--	5.71E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	182 - 585	5.85E+02	2/2	6.02E-08	--	--	--	--	1.94E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	72.5 - 120	1.20E+02	2/2	--	--	--	--	--	1.85E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
20A	RD	085029	9E-05	5E+00	<1	Metal	ARSENIC	C	2.5 - 3.5	3.50E+00	2/2	9.14E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
20A	RD	085030	8E-07	4E+00	2E+00	Metal	MANGANESE	NC	260 - 1908.5	1.24E+03	9/9	--	--	--	--	--	1.47E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							ZINC	NC	27.1 - 855	8.40E+02	8/8	--	--	--	--	--	2.25E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
20A	RD	085031	1E-05	2E+01	8E+00	Metal	COPPER	NC	12 - 1300	1.20E+03	11/11	--	--	--	--	--	7.52E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	350 - 3120	1.75E+03	11/11	--	--	--	--	--	2.07E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							ZINC	NC	46 - 5600	1.99E+03	11/11	--	--	--	--	--	5.34E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.039 - 0.37	3.70E-01	3/11	1.00E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.0375 - 0.24	2.40E-01	3/11	6.43E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.054 - 0.44	4.40E-01	3/11	1.30E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
						VOC	TRICHLOROETHENE	C	0.0041 - 22	5.73E+00	10/11	1.95E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--	--	--
20A	RD	085032	9E-07	2E+01	8E+00	Metal	IRON	NC	40300 - 60500	6.05E+04	2/2	--	--	--	--	--	2.75E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	702 - 1600	1.60E+03	4/4	--	--	--	--	--	1.90E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	37.2 - 2520	2.52E+03	2/2	2.59E-07	--	--	--	--	8.34E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	46.5 - 115	1.15E+02	2/2	--	--	--	--	--	1.77E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20A	RD	086030	1E-04	9E+00	2E+00	Metal	ARSENIC	C	0.99 - 6.9	5.57E+00	6/6	1.45E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	10200 - 53300	4.33E+04	6/6	--	--	--	--	--	1.97E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	103 - 2450	1.05E+03	28/28	--	--	--	--	--	1.25E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	49.3 - 780	5.68E+02	6/6	5.84E-08	--	--	--	--	1.88E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	19 - 152	1.10E+02	6/6	--	--	--	--	--	1.69E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						Pest/PCB	AROCLOR-1260	C	0.13 - 2.4	6.24E-01	5/14	2.96E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
20A	RD	086031	1E-04	3E+01	1E+01	Metal	ARSENIC	C	2.8 - 4.4	4.40E+00	2/2	1.15E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	3.5 - 10.6	1.06E+01	3/24	1.80E-08	--	--	--	--	3.07E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	2.7 - 2700	3.73E+02	24/24	--	--	--	--	--	2.35E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	63800 - 63800	6.38E+04	1/1	--	--	--	--	--	2.90E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	100 - 6200	1.32E+03	30/30	--	--	--	--	--	1.56E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	70 - 891	8.91E+02	2/2	9.16E-08	--	--	--	--	2.95E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	90.9 - 90.9	9.09E+01	1/1	--	--	--	--	--	1.40E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
							ZINC	NC	18 - 36000	5.06E+03	29/29	--	--	--	--	--	1.35E+01	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.05325 - 0.27	8.77E-02	6/30	2.35E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						VOC	1,4-DICHLOROBENZENE	C	0.85 - 15.5	1.55E+01	2/14	7.70E-06	7.6 %	0 %	92.4 %	0 %	<1	--	--	--	--	--	--
							TETRACHLOROETHENE	C	0.0008 - 1.45	1.45E+00	3/30	3.00E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
							TRICHLOROETHENE	C	0.00245 - 36	9.77E+00	30/30	3.32E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--	--	--
20A	RD	086032	2E-04	2E+01	8E+00	Metal	ARSENIC	C	1.1 - 5.7	5.70E+00	2/2	1.49E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	51100 - 56200	5.62E+04	2/2	--	--	--	--	--	2.56E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	445 - 6540	5.90E+03	10/10	--	--	--	--	--	7.00E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	133 - 1050	1.05E+03	2/2	1.08E-07	--	--	--	--	3.48E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	84.8 - 139	1.39E+02	2/2	--	--	--	--	--	2.14E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.14 - 1.8	1.80E+00	3/10	4.87E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.095 - 1.2	1.20E+00	3/10	3.22E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.17 - 2	2.00E+00	3/10	5.91E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.055 - 0.7	7.00E-01	3/10	2.07E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
20A	RD	087031	2E-05	9E+00	4E+00	Metal	COPPER	NC	6.4 - 1100	6.30E+02	12/12	--	--	--	--	--	3.96E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	120 - 2950	1.78E+03	12/12	--	--	--	--	--	2.12E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.62 - 0.62	6.20E-01	1/12	1.68E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.64 - 0.64	6.40E-01	1/12	1.72E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.92 - 0.92	9.20E-01	1/12	2.72E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.35 - 0.35	3.50E-01	1/12	1.03E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.63 - 0.63	6.30E-01	1/12	1.81E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
20A	RD	087032	5E-06	6E+00	3E+00	Metal	MANGANESE	NC	74 - 2700	2.70E+03	6/6	--	--	--	--	--	3.20E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							ZINC	NC	16 - 662	6.62E+02	6/6	--	--	--	--	--	1.77E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.12 - 0.12	1.20E-01	1/6	3.22E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	083043	6E-04	1E+01	3E+00	Metal	ARSENIC	C,NC	2.2 - 21.1	2.11E+01	3/3	5.51E-04	56.6 %	5.4 %	0 %	38 %	1.35E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							IRON	NC	52600 - 71500	7.15E+04	3/3	--	--	--	--	--	3.26E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	788 - 1080	1.08E+03	3/3	--	--	--	--	--	1.28E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	166 - 177	1.77E+02	3/3	--	--	--	--	--	2.73E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
23	RD	084039	2E-04	1E+01	6E+00	Metal	ARSENIC	C	0.63 - 8.9	8.57E+00	4/4	2.24E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	39200 - 44400	4.41E+04	4/4	--	--	--	--	--	2.01E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	948 - 5510	4.87E+03	4/4	--	--	--	--	--	5.78E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	51.4 - 118	1.18E+02	4/4	--	--	--	--	--	1.82E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)PYRENE	C	0.31 - 0.31	3.10E-01	1/5	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	HEPTACHLOR EPOXIDE	C	0.0009 - 0.0009	9.00E-04	1/4	1.67E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--	--	--
23	RD	085036	2E-04	7E+00	2E+00	Metal	ARSENIC	C	7.9 - 7.9	7.90E+00	1/1	2.06E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	42300 - 42300	4.23E+04	1/1	--	--	--	--	--	1.93E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1070 - 1070	1.07E+03	1/1	--	--	--	--	--	1.27E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	70.3 - 70.3	7.03E+01	1/1	--	--	--	--	--	1.08E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	085037	2E-04	7E+00	2E+00	Metal	ARSENIC	C	6.8 - 6.8	6.80E+00	1/2	1.78E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	33700 - 44200	4.42E+04	2/2	--	--	--	--	--	2.01E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	59.3 - 325	3.25E+02	2/2	3.34E-08	--	--	--	--	1.08E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	67.4 - 85.3	8.53E+01	2/2	--	--	--	--	--	1.32E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	085038	4E-04	3E+01	1E+01	Metal	ARSENIC	C,NC	1.5 - 16.1	1.61E+01	4/6	4.21E-04	56.6 %	5.4 %	0 %	38 %	1.03E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							CADMIUM	NC	2.9 - 8.2	8.20E+00	2/6	1.39E-08	--	--	--	--	2.37E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	35 - 345	3.45E+02	6/6	--	--	--	--	--	2.17E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	42200 - 125000	1.25E+05	2/2	--	--	--	--	--	5.69E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	1080 - 8780	6.92E+03	6/6	--	--	--	--	--	8.20E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	143 - 384	3.84E+02	2/2	3.95E-08	--	--	--	--	1.27E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	46.9 - 636	6.36E+02	6/6	--	--	--	--	--	9.81E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
23	RD	085039	2E-04	9E+00	3E+00	Metal	ARSENIC	C	0.255 - 14	6.07E+00	13/28	1.59E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							IRON	NC	11700 - 40500	4.05E+04	3/3	--	--	--	--	--	1.84E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	1.9 - 215	2.15E+02	3/3	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	304 - 4270	1.76E+03	28/28	--	--	--	--	--	2.08E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	1.6 - 1.6	1.60E+00	1/3	--	--	--	--	--	1.01E+00	6.8 %	0 %	0 %	93.2 %	2.28	No
							VANADIUM	NC	11.9 - 109	8.94E+01	28/28	--	--	--	--	--	1.38E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)ANTHRACENE	C	0.014 - 0.53	5.30E-01	3/25	1.43E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.021 - 0.4	4.00E-01	2/25	1.07E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.36 - 0.36	3.60E-01	1/25	1.06E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.28 - 0.28	2.80E-01	1/25	1.33E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
23	RD	085042	2E-04	5E+00	2E+00	Metal	ARSENIC	C	6.5 - 6.5	6.50E+00	1/1	1.70E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	35000 - 35000	3.50E+04	1/1	--	--	--	--	--	1.59E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	939 - 939	9.39E+02	1/1	--	--	--	--	--	1.11E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
23	RD	086037	2E-04	7E+00	2E+00	Metal	ARSENIC	C	1.4 - 6.5	6.50E+00	2/2	1.70E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	39100 - 44300	4.43E+04	2/2	--	--	--	--	--	2.02E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1150 - 1680	1.68E+03	2/2	--	--	--	--	--	1.99E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	54.9 - 80.1	8.01E+01	2/2	--	--	--	--	--	1.24E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	086039	1E-04	7E+00	4E+00	Metal	ARSENIC	C	4.4 - 4.4	4.40E+00	1/2	1.15E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1340 - 3330	3.33E+03	2/2	--	--	--	--	--	3.95E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	81.9 - 111	1.11E+02	2/2	--	--	--	--	--	1.71E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	086040	1E-04	6E+00	2E+00	Metal	ARSENIC	C	1 - 5.3	5.30E+00	2/5	1.38E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	34800 - 34800	3.48E+04	1/1	--	--	--	--	--	1.58E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	680 - 970	9.70E+02	5/5	--	--	--	--	--	1.15E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	68.5 - 68.5	6.85E+01	1/1	--	--	--	--	--	1.06E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	086042	6E-04	6E+00	2E+00	SVOC	N-NITROSO-DI-N-PROPYLAMINE	C	0.11 - 0.11	1.10E-01	1/2	6.36E-04	0.2 %	0.1 %	0 %	99.8 %	--	--	--	--	--	--	--
						Metal	IRON	NC	24100 - 29500	2.95E+04	2/2	--	--	--	--	--	1.34E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	865 - 998	9.98E+02	2/2	--	--	--	--	--	1.18E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	53.1 - 67.8	6.78E+01	2/2	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						Pest/PCB	AROCLOR-1260	C	0.81 - 0.81	8.10E-01	1/5	3.84E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
23	RD	086043	6E-05	6E+00	2E+00	Metal	ARSENIC	C	2.4 - 2.4	2.40E+00	1/1	6.27E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	30900 - 30900	3.09E+04	1/1	--	--	--	--	--	1.41E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1270 - 1270	1.27E+03	1/1	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	78.6 - 78.6	7.86E+01	1/1	--	--	--	--	--	1.21E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	087037	8E-05	2E+01	2E+01	Metal	ARSENIC	C	3 - 3	3.00E+00	1/2	7.84E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	2.4 - 11	1.10E+01	2/2	1.86E-08	--	--	--	--	3.18E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	50 - 190	1.90E+02	2/2	--	--	--	--	--	1.19E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	1900 - 13000	1.30E+04	2/2	--	--	--	--	--	1.54E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	2.2 - 15	1.50E+01	2/2	--	--	--	--	--	2.99E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
23	RD	087038	4E-04	1E+02	1E+02	OrgLead	ORGANIC LEAD	NC	0.63 - 0.63	6.30E-01	1/13	--	--	--	--	--	1.21E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C,NC	0.86 - 16	1.60E+01	4/11	4.18E-04	56.6 %	5.4 %	0 %	38 %	1.02E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							CADMIUM	NC	4 - 8.8	8.80E+00	2/7	1.49E-08	--	--	--	--	2.55E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							IRON	NC	44400 - 44400	4.44E+04	1/1	--	--	--	--	--	2.02E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	340 - 5200	3.72E+03	14/14	--	--	--	--	--	4.41E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	65.5 - 65.5	6.55E+01	1/1	--	--	--	--	--	1.01E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.066 - 0.066	6.60E-02	1/14	1.77E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	087042	1E-05	2E+00	2E+00	Pest/PCB	AROCLOR-1260	C,NC	2.3 - 2.3	2.30E+00	1/4	1.09E-05	66.1 %	29.2 %	0 %	4.7 %	2.11E+00	69.6 %	27.3 %	0 %	3.1 %	--	--
23	RD	087043	5E-04	1E+01	5E+00	Metal	ARSENIC	C,NC	1.3 - 18.3	1.83E+01	5/8	4.78E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							IRON	NC	22000 - 23900	2.39E+04	2/2	--	--	--	--	--	1.09E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	149 - 4450	4.09E+03	8/8	--	--	--	--	--	4.85E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	54.6 - 74.9	7.49E+01	2/2	--	--	--	--	--	1.16E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
23	RD	088038	1E-03	1E+02	9E+01	OrgLead	ORGANIC LEAD	NC	0.4325 - 0.98	4.55E-01	4/19	--	--	--	--	--	8.70E+01	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C,NC	1.2 - 70.5	3.46E+01	32/44	9.05E-04	56.6 %	5.4 %	0 %	38 %	2.21E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	5.6 - 454	2.02E+02	45/45	--	--	--	--	--	1.27E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	36500 - 59100	5.91E+04	3/3	--	--	--	--	--	2.69E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							LEAD	NC	0.86 - 180	1.80E+02	9/16	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	111 - 21000	7.69E+03	45/45	--	--	--	--	--	9.12E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.089 - 4	4.00E+00	8/9	--	--	--	--	--	2.51E+00	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							THALLIUM	NC	0.69 - 17	1.16E+01	8/44	--	--	--	--	--	2.30E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
							VANADIUM	NC	70 - 138	1.38E+02	3/3	--	--	--	--	--	2.13E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.072 - 1.4	1.40E+00	3/23	3.79E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.15 - 2.1	2.10E+00	2/23	5.63E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	2.5 - 2.5	2.50E+00	1/23	7.39E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	1.9 - 1.9	1.90E+00	1/23	5.62E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.49 - 0.49	4.90E-01	1/23	8.46E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	1.3 - 1.3	1.30E+00	1/23	3.74E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
23	RD	088039	3E-04	2E+02	2E+02	OrgLead	ORGANIC LEAD	NC	0.5975 - 0.89	8.90E-01	2/14	--	--	--	--	--	1.70E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	2 - 11.9	5.57E+00	13/14	1.46E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							IRON	NC	20700 - 37900	3.79E+04	4/4	--	--	--	--	--	1.73E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	112 - 4300	1.46E+03	28/28	--	--	--	--	--	1.73E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.022 - 8.7	1.80E+00	13/22	--	--	--	--	--	1.13E+00	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							VANADIUM	NC	58.3 - 108	1.01E+02	4/4	--	--	--	--	--	1.55E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)ANTHRACENE	C	0.016 - 7.7	3.38E+00	6/27	9.13E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.009 - 4.7	2.91E+00	7/26	7.80E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.01 - 6.7	2.55E+00	7/26	7.53E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.014 - 2.7	1.97E+00	4/25	5.83E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.94 - 0.94	9.40E-01	1/25	1.62E-05	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						VOC	NAPHTHALENE	C	0.018 - 14	1.40E+01	2/26	8.41E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	088040	3E-04	5E+02	5E+02	OrgLead	ORGANIC LEAD	NC	0.59 - 2.5	2.50E+00	2/2	--	--	--	--	--	4.79E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	5.5 - 12.8	1.28E+01	2/2	3.34E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	30.9 - 396	3.96E+02	2/2	--	--	--	--	--	2.49E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	5.4 - 225	2.25E+02	2/2	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							ZINC	NC	40.4 - 497	4.97E+02	2/2	--	--	--	--	--	1.33E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.035 - 0.13	1.30E-01	2/2	3.48E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	088041	2E-06	3E+00	2E+00	Metal	COPPER	NC	13.2 - 297	2.73E+02	4/4	--	--	--	--	--	1.71E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	4.1 -168	1.42E+02	4/4	--	--	--	--	--	--	--	--	--	--	8.99	Yes
23	RD	088042	2E-04	2E+02	2E+02	OrgLead	ORGANIC LEAD	NC	0.86 - 0.86	8.60E-01	1/7	--	--	--	--	--	1.65E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	2.1 - 6.2	4.51E+00	4/7	1.18E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	5.7 - 1600	8.08E+02	11/11	--	--	--	--	--	5.08E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	2.9 - 240	2.40E+02	7/10	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							ZINC	NC	17 - 1300	5.98E+02	11/11	--	--	--	--	--	1.60E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.017 - 1.4	1.40E+00	2/11	3.79E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.019 - 1.2	1.20E+00	2/11	3.22E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.014 - 1.5	1.50E+00	3/11	4.43E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.65 - 0.65	6.50E-01	1/11	1.92E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.17 - 0.17	1.70E-01	1/11	2.94E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.48 - 0.48	4.80E-01	1/11	1.38E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C,NC	0.87 - 0.87	8.70E-01	1/11	9.36E-06	29.1 %	12.9 %	0 %	58 %	1.46E+00	38.2 %	15 %	0 %	46.8 %	--	--
							AROCLOR-1260	C	0.075 - 0.7	7.00E-01	2/11	3.32E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
						VOC	NAPHTHALENE	C	1.7 - 1.7	1.70E+00	1/11	1.02E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--	--	--
23	RD	088043	2E-04	2E+02	2E+02	OrgLead	ORGANIC LEAD	NC	0.31 - 0.94	9.40E-01	2/17	--	--	--	--	--	1.80E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	0.91 - 6.74	5.96E+00	8/17	1.56E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	2.7 - 4.1	4.10E+00	2/17	6.95E-09	--	--	--	--	1.19E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							MANGANESE	NC	206 - 1500	1.03E+03	17/17	--	--	--	--	--	1.22E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.026 - 0.048	3.92E-02	7/17	1.05E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	088044	2E-04	3E+00	2E+00	Metal	ARSENIC	C	2.77 - 6.95	6.00E+00	6/6	1.57E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	570 - 1700	1.33E+03	6/6	--	--	--	--	--	1.58E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
23	RD	089038	6E-04	4E+01	3E+01	Metal	ARSENIC	C,NC	2 - 86	2.44E+01	25/29	6.36E-04	56.6 %	5.4 %	0 %	38 %	1.56E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	4.2 - 700	4.16E+02	29/29	--	--	--	--	--	2.61E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	130 - 23000	2.13E+04	29/29	--	--	--	--	--	2.52E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	1.35 - 23	2.30E+01	8/28	--	--	--	--	--	4.58E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
23	RD	089039	2E-04	6E+02	6E+02	OrgLead	ORGANIC LEAD	NC	0.5075 - 2.95	2.95E+00	3/38	--	--	--	--	--	5.65E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	0.75 - 40	8.73E+00	54/60	2.28E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							CADMIUM	NC	0.53 - 5.8	5.80E+00	16/23	9.83E-09	--	--	--	--	1.68E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	5.8 - 2300	4.52E+02	48/48	--	--	--	--	--	2.84E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	32000 - 45700	4.45E+04	4/4	--	--	--	--	--	2.03E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	3.6 - 180	7.10E+01	21/23	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	33.3 - 16250	3.43E+03	64/64	--	--	--	--	--	4.07E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	152 - 498	4.27E+02	5/5	4.40E-08	--	--	--	--	1.41E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	63.7 - 137	1.26E+02	4/4	--	--	--	--	--	1.94E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)PYRENE	C	0.01 - 2.7	2.32E-01	19/44	6.21E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.013 - 3.7	3.58E-01	23/44	1.06E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.011 - 0.93	1.34E-01	6/44	2.32E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	089040	5E-04	2E+03	2E+03	OrgLead	ORGANIC LEAD	NC	0.72 - 21	1.28E+01	4/9	--	--	--	--	--	2.45E+03	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	1.4 - 20	1.24E+01	17/18	3.24E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	16 - 714	1.79E+02	44/45	--	--	--	--	--	1.13E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	12700 - 40600	3.04E+04	8/8	--	--	--	--	--	1.38E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	0.5 - 1730	8.35E+02	38/39	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	73.5 - 7000	1.58E+03	51/51	--	--	--	--	--	1.88E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	17.8 - 226	1.86E+02	8/8	--	--	--	--	--	2.86E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.01 - 12	4.86E+00	15/29	1.31E-05	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.018 - 8.9	3.21E+00	14/29	8.59E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.016 - 8.8	3.32E+00	13/29	9.80E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.019 - 5.1	1.37E+00	9/29	4.04E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							CHRYSENE	C	0.017 - 11	4.06E+00	17/29	1.23E-06	62 %	25.5 %	0 %	12.5 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.023 - 0.95	7.48E-01	6/29	1.29E-05	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.009 - 3.7	1.75E+00	13/29	5.04E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.015 - 4.6	9.19E-01	22/45	4.35E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--	--	--
							DIELDRIN	C	0.002 - 0.002	2.00E-03	1/8	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--
23	RD	089041	8E-05	2E+01	7E+00	Metal	ARSENIC	C	1.6 - 1.6	1.60E+00	1/1	4.18E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	11 - 7600	7.66E+02	30/31	--	--	--	--	--	4.81E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	70700 - 70700	7.07E+04	1/1	--	--	--	--	--	3.22E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							LEAD	NC	0.94 - 265	2.26E+02	17/19	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	379 - 1400	1.03E+03	16/16	--	--	--	--	--	1.22E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	192 - 192	1.92E+02	1/1	--	--	--	--	--	2.96E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)PYRENE	C	0.01 - 0.057	5.70E-02	4/13	1.53E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.088 - 0.1	1.00E-01	2/28	1.08E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--	--	--
							AROCLOR-1260	C,NC	0.019 - 67	7.03E+00	15/28	3.33E-05	66.1 %	29.2 %	0 %	4.7 %	6.45E+00	69.6 %	27.3 %	0 %	3.1 %	--	--
23	RD	089042	2E-04	5E+00	<1	Metal	ARSENIC	C	0.6175 - 6.9	6.90E+00	7/11	1.80E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)PYRENE	C	0.011 - 0.63	1.38E-01	7/22	3.69E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.017 - 0.12	1.20E-01	3/25	2.07E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.073 - 0.43	4.30E-01	3/22	4.62E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--	--	--
23	RD	089043	1E-04	4E+00	<1	Metal	ARSENIC	C	2.6 - 5.07	4.35E+00	4/6	1.14E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							LEAD	NC	2.93 - 297	2.97E+02	4/6	--	--	--	--	--	--	--	--	--	--	8.99	Yes
23	RD	090039	1E-03	2E+02	1E+02	OrgLead	ORGANIC LEAD	NC	0.73 - 0.73	7.30E-01	1/14	--	--	--	--	--	1.40E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C,NC	0.98 - 74.5	4.40E+01	11/14	1.15E-03	56.6 %	5.4 %	0 %	38 %	2.81E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							MANGANESE	NC	819 - 14500	6.51E+03	22/22	--	--	--	--	--	7.72E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.024 - 0.3	9.19E-02	10/22	2.46E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
23	RD	090040	2E-04	1E+01	3E+00	Metal	ARSENIC	C	3.5 - 6.1	6.10E+00	3/4	1.59E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	25.1 - 3200	4.95E+02	24/24	--	--	--	--	--	3.11E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	13600 - 23400	2.34E+04	3/3	--	--	--	--	--	1.07E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	0.43 - 695	6.95E+02	26/27	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	116 - 4420	2.16E+03	23/23	--	--	--	--	--	2.56E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							ZINC	NC	30.4 - 2530	7.40E+02	22/22	--	--	--	--	--	1.98E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.008 - 1.3	4.23E-01	10/22	1.14E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.008 - 1	3.43E-01	10/22	9.20E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.014 - 0.27	1.59E-01	7/21	2.74E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.15 - 0.44	2.04E-01	6/28	2.19E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--	--	--
							AROCLOR-1260	C,NC	0.0215 - 2.7	2.59E+00	16/28	1.23E-05	66.1 %	29.2 %	0 %	4.7 %	2.37E+00	69.6 %	27.3 %	0 %	3.1 %	--	--
							DIELDRIN	C	0.002 - 0.002	2.00E-03	1/3	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
23	RD	090041	1E-04	9E+01	7E+01	OrgLead	ORGANIC LEAD	NC	0.36 - 0.36	3.60E-01	1/4	--	--	--	--	--	6.89E+01	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	1.5 - 3.9	3.90E+00	4/4	1.02E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	0.17 - 4.8	4.80E+00	5/7	8.14E-09	--	--	--	--	1.39E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	10 - 1332.5	1.33E+03	7/7	--	--	--	--	--	8.37E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	104 - 1310	1.05E+03	7/7	--	--	--	--	--	1.24E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							ZINC	NC	40 - 1970	1.97E+03	7/7	--	--	--	--	--	5.28E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.025 - 2	2.00E+00	6/8	5.41E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.066 - 0.71	7.10E-01	4/8	1.90E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.06925 - 0.1	1.00E-01	3/7	1.08E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--	--	--
						VOC	NAPHTHALENE	C	0.048 - 6.3	6.30E+00	3/8	3.78E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--	--	--
23	RD	091040	4E-04	1E+04	1E+04	OrgLead	ORGANIC LEAD	NC	62 - 62	6.20E+01	1/23	--	--	--	--	--	1.19E+04	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C,NC	0.6 - 32	1.71E+01	21/23	4.45E-04	56.6 %	5.4 %	0 %	38 %	1.09E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							MANGANESE	NC	320 - 35000	7.74E+03	27/27	--	--	--	--	--	9.18E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	1.6 - 9.4	7.34E+00	10/23	--	--	--	--	--	1.46E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
						PAH	BENZO(A)PYRENE	C	0.025 - 0.43	7.55E-02	6/27	2.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
24	RD	086034	2E-04	8E+00	2E+00	Metal	ARSENIC	C	9 - 9	9.00E+00	1/1	2.35E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	50300 - 50300	5.03E+04	1/1	--	--	--	--	--	2.29E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	433 - 433	4.33E+02	1/1	4.45E-08	--	--	--	--	1.43E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	106 - 106	1.06E+02	1/1	--	--	--	--	--	1.63E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	087033	1E-07	8E+00	2E+00	Metal	IRON	NC	44900 - 48400	4.84E+04	2/2	--	--	--	--	--	2.20E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	733 - 1190	1.19E+03	2/2	--	--	--	--	--	1.41E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							NICKEL	NC	643 - 695	6.95E+02	2/2	7.15E-08	--	--	--	--	2.30E+00	19.3 %	0 %	1 %	79.6 %	*	No
24	RD	087036	1E-03	2E+01	1E+01	Metal	ARSENIC	C,NC	2.18 - 39	3.90E+01	6/9	1.02E-03	56.6 %	5.4 %	0 %	38 %	2.49E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	7.6 - 350	3.50E+02	9/9	--	--	--	--	--	2.20E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	377 - 11000	1.10E+04	9/9	--	--	--	--	--	1.30E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	975 - 975	9.75E+02	1/1	1.00E-07	--	--	--	--	3.23E+00	19.3 %	0 %	1 %	79.6 %	*	No
							THALLIUM	NC	2 - 9.6	9.60E+00	3/9	--	--	--	--	--	1.91E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
24	RD	088032	9E-05	6E+00	2E+00	Metal	ARSENIC	C	3.4 - 3.4	3.40E+00	1/2	8.88E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	10100 - 35600	3.56E+04	2/2	--	--	--	--	--	1.62E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	184 - 851	8.51E+02	2/2	--	--	--	--	--	1.01E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	34 - 93.9	9.39E+01	2/2	--	--	--	--	--	1.45E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	088034	1E-04	1E+01	3E+00	Metal	ARSENIC	C	2.5 - 5	5.00E+00	3/3	1.31E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	33900 - 70900	7.09E+04	3/3	--	--	--	--	--	3.23E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	400 - 3040	1.19E+03	16/16	--	--	--	--	--	1.41E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	129 - 385	3.85E+02	3/3	3.96E-08	--	--	--	--	1.27E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	69.8 - 91.2	9.12E+01	3/3	--	--	--	--	--	1.41E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	088035	1E-04	6E+01	5E+01	Metal	ARSENIC	C	1.2 - 7.4	5.23E+00	7/7	1.37E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	35500 - 53000	5.30E+04	3/3	--	--	--	--	--	2.41E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	57.2 - 217	2.17E+02	2/3	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	370 - 4860	2.45E+03	15/15	--	--	--	--	--	2.91E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.05 - 75.5	7.55E+01	10/14	--	--	--	--	--	4.74E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							NICKEL	NC	102 - 520	5.20E+02	3/3	5.35E-08	--	--	--	--	1.72E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	70.8 - 122	1.22E+02	3/3	--	--	--	--	--	1.88E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
24	RD	088036	1E-03	2E+01	1E+01	Metal	ARSENIC	C,NC	1.8725 - 110	4.10E+01	27/34	1.07E-03	56.6 %	5.4 %	0 %	38 %	2.62E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	34 - 530	2.66E+02	34/34	--	--	--	--	--	1.67E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	1160 - 22000	9.16E+03	34/34	--	--	--	--	--	1.09E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.02 - 0.095	9.50E-02	3/25	2.55E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI		COC	Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
24	RD	088037	4E-04	3E+01	2E+01	Metal	ARSENIC	C	0.95 - 14.5	1.45E+01	4/7	3.79E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	40 - 300	1.82E+02	7/7	--	--	--	--	--	1.14E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	3400 - 16000	1.33E+04	7/7	--	--	--	--	--	1.58E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	4.7 - 35	3.50E+01	4/7	--	--	--	--	--	6.97E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
24	RD	089030	8E-05	7E+00	2E+00	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/2	8.10E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	25700 - 33900	3.39E+04	2/2	--	--	--	--	--	1.54E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							NICKEL	NC	52.1 - 607	6.07E+02	2/2	6.24E-08	--	--	--	--	2.01E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	64.3 - 72.2	7.22E+01	2/2	--	--	--	--	--	1.11E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	089032	1E-04	2E+00	2E+00	Metal	ARSENIC	C	3.8 - 3.8	3.80E+00	1/2	9.93E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	820 - 1400	1.40E+03	2/2	--	--	--	--	--	1.66E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
						PAH	BENZO(A)PYRENE	C	0.0575 - 0.17	1.70E-01	2/2	4.56E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
24	RD	089033	1E-04	4E+00	3E+00	Metal	ARSENIC	C	1.8 - 5.2	3.70E+00	14/14	9.66E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	110 - 3400	2.07E+03	14/14	--	--	--	--	--	2.46E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.018 - 0.51	1.98E-01	9/16	5.30E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
24	RD	089034	1E-04	1E+01	4E+00	Metal	ARSENIC	C	0.83 - 10.8	5.21E+00	17/22	1.36E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	30600 - 61500	5.39E+04	5/5	--	--	--	--	--	2.46E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	270 - 15300	2.82E+03	22/22	--	--	--	--	--	3.35E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	85.3 - 169	1.45E+02	5/5	--	--	--	--	--	2.23E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						VOC	TETRACHLOROETHENE	C	0.014 - 1.3	1.30E+00	4/11	2.69E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
24	RD	089035	7E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	0.94 - 49.3	2.52E+01	25/32	6.59E-04	56.6 %	5.4 %	0 %	38 %	1.61E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	17 - 646	2.31E+02	50/50	--	--	--	--	--	1.45E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	25100 - 37600	3.76E+04	3/3	--	--	--	--	--	1.71E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	290 - 48100	8.28E+03	50/50	--	--	--	--	--	9.83E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	66.1 - 90.9	9.09E+01	3/3	--	--	--	--	--	1.40E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						VOC	TETRACHLOROETHENE	C	0.00273 - 1.7	1.70E+00	3/35	3.52E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
							TRICHLOROETHENE	C	0.006 - 6.4	6.40E+00	32/35	2.17E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--	--	--
24	RD	089036	6E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	1.5 - 116	2.16E+01	23/24	5.64E-04	56.6 %	5.4 %	0 %	38 %	1.38E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	7.8 - 555	2.43E+02	24/24	--	--	--	--	--	1.52E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	35600 - 57600	5.76E+04	3/3	--	--	--	--	--	2.62E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							LEAD	NC	8.8 - 194	1.94E+02	5/5	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	270 - 11100	5.33E+03	24/24	--	--	--	--	--	6.32E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.073 - 45.7	7.69E+00	14/17	--	--	--	--	--	4.84E+00	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							VANADIUM	NC	85.1 - 175	1.75E+02	3/3	--	--	--	--	--	2.70E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
							ZINC	NC	108 - 680	5.19E+02	5/5	--	--	--	--	--	1.39E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
24	RD	089037	4E-04	7E+01	5E+01	Metal	ARSENIC	C,NC	16 - 16	1.60E+01	1/2	4.18E-04	56.6 %	5.4 %	0 %	38 %	1.02E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							CADMIUM	NC	0.27 - 3.8	3.80E+00	2/2	6.44E-09	--	--	--	--	1.10E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							COPPER	NC	12 - 1000	1.00E+03	2/2	--	--	--	--	--	6.28E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	2.0 - 780	7.80E+02	2/2	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	820 - 2800	2.80E+03	2/2	--	--	--	--	--	3.32E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.11 - 77	7.70E+01	2/2	--	--	--	--	--	4.84E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							ZINC	NC	8.8 - 2500	2.50E+03	2/2	--	--	--	--	--	6.70E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
24	RD	090033	3E-04	4E+00	3E+00	Metal	ARSENIC	C	0.54525 - 11	1.10E+01	8/12	2.87E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	449 - 2900	1.73E+03	12/12	--	--	--	--	--	2.05E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.052 - 0.88	4.84E-01	8/13	1.31E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.0605 - 0.8	4.25E-01	8/13	1.14E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.098 - 0.098	9.80E-02	1/13	1.69E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
24	RD	090034	6E-04	7E+00	4E+00	Metal	ARSENIC	C,NC	1.6 - 59.6	2.11E+01	14/15	5.50E-04	56.6 %	5.4 %	0 %	38 %	1.34E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							MANGANESE	NC	450 - 6100	3.47E+03	15/15	--	--	--	--	--	4.12E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.01 - 0.68	4.03E-01	9/15	1.09E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.01 - 0.63	4.02E-01	9/15	1.08E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.077 - 0.077	7.70E-02	2/15	1.33E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
						VOC	TETRACHLOROETHENE	C	0.525 - 0.525	5.25E-01	1/2	1.09E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--	--	--
							TRICHLOROETHENE	C	0.00107 - 17.8	1.78E+01	2/2	6.05E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--	--	--
24	RD	090035	5E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	1.1 - 38	2.03E+01	19/20	5.30E-04	56.6 %	5.4 %	0 %	38 %	1.29E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	59 - 460	2.10E+02	20/20	--	--	--	--	--	1.32E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	2800 - 42000	1.18E+04	20/20	--	--	--	--	--	1.40E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	4.9 - 6.8	6.80E+00	2/18	--	--	--	--	--	1.35E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
						PAH	BENZO(A)PYRENE	C	0.025 - 0.94	1.77E-01	5/20	4.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.055 - 0.38	3.80E-01	3/20	1.12E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.11 - 0.11	1.10E-01	1/20	1.90E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
24	RD	090036	1E-04	6E+00	5E+00	Metal	ARSENIC	C	2.9 - 3.7	3.70E+00	2/2	9.66E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	160 - 6000	4.16E+03	6/6	--	--	--	--	--	4.94E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	090037	8E-04	1E+01	9E+00	Metal	ARSENIC	C,NC	29.6 - 29.6	2.96E+01	1/1	7.73E-04	56.6 %	5.4 %	0 %	38 %	1.89E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	454 - 454	4.54E+02	1/1	--	--	--	--	--	2.85E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	7600 - 7600	7.60E+03	1/1	--	--	--	--	--	9.02E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	090038	1E-04	2E+01	2E+01	Metal	ARSENIC	C	2.17 - 8	5.44E+00	6/9	1.42E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	260 - 14000	1.40E+04	9/9	--	--	--	--	--	1.66E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	091032	8E-06	9E+00	3E+00	Metal	ARSENIC	C	0.31 - 0.31	3.10E-01	1/1	8.10E-06	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	63400 - 63400	6.34E+04	1/1	--	--	--	--	--	2.89E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	1550 - 1550	1.55E+03	1/1	--	--	--	--	--	1.84E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	167 - 167	1.67E+02	1/1	--	--	--	--	--	2.58E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
24	RD	091034	1E-04	9E+00	4E+00	Metal	ARSENIC	C	2.71 - 4.8875	4.89E+00	3/5	1.28E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	51800 - 51800	5.18E+04	1/1	--	--	--	--	--	2.36E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1620 - 2990	2.67E+03	5/5	--	--	--	--	--	3.17E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	105 - 105	1.05E+02	1/1	--	--	--	--	--	1.62E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	091035	1E-04	1E+01	6E+00	Metal	ARSENIC	C	4.8 - 5.3	5.30E+00	3/6	1.38E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	3.65 - 5	5.00E+00	2/2	8.48E-09	--	--	--	--	1.45E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							MANGANESE	NC	1210 - 6600	4.58E+03	6/6	--	--	--	--	--	5.43E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	091036	2E-04	1E+01	7E+00	Metal	ARSENIC	C	4.5 - 7.35	6.04E+00	7/7	1.58E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	47000 - 64200	6.42E+04	3/3	--	--	--	--	--	2.92E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	150 - 5500	4.11E+03	15/15	--	--	--	--	--	4.88E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.13 - 2.425	2.43E+00	3/5	--	--	--	--	--	1.52E+00	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							VANADIUM	NC	118 - 141	1.41E+02	3/3	--	--	--	--	--	2.17E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)PYRENE	C	0.03 - 0.34	1.51E-01	6/13	4.05E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
24	RD	091037	3E-04	9E+01	9E+01	Metal	ARSENIC	C	0.178 - 10.3	1.03E+01	3/3	2.69E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	52.6 - 393	3.93E+02	3/3	--	--	--	--	--	2.47E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	3.66 - 166	1.66E+02	3/3	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	1310 - 6540	6.54E+03	3/3	--	--	--	--	--	7.76E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	1.12 - 124	1.24E+02	3/3	--	--	--	--	--	7.79E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							ZINC	NC	146 - 521	5.21E+02	3/3	--	--	--	--	--	1.40E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
24	RD	091038	2E-04	2E+00	<1	Metal	ARSENIC	C	6.61 - 6.61	6.61E+00	1/2	1.73E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
24	RD	091039	5E-05	1E+01	1E+01	Metal	ARSENIC	C	0.75 - 2.82	1.77E+00	9/13	4.61E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	300 - 12000	8.03E+03	17/17	--	--	--	--	--	9.52E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	1 - 18	1.80E+01	6/13	--	--	--	--	--	3.58E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
24	RD	092030	2E-07	7E+00	2E+00	Metal	IRON	NC	50200 - 50200	5.02E+04	1/1	--	--	--	--	--	2.29E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1300 - 1420	1.42E+03	2/2	--	--	--	--	--	1.68E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	99.8 - 99.8	9.98E+01	1/1	--	--	--	--	--	1.54E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	092034	1E-04	3E+00	2E+00	Metal	ARSENIC	C	3.8 - 3.8	3.80E+00	1/2	9.93E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1000 - 1900	1.90E+03	2/2	--	--	--	--	--	2.25E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	092035	3E-04	6E+00	5E+00	Metal	ARSENIC	C	0.28 - 19.4	1.19E+01	8/9	3.10E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							MANGANESE	NC	870 - 5790	4.02E+03	9/9	--	--	--	--	--	4.77E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	092036	6E-04	5E+01	5E+01	Metal	ARSENIC	C,NC	3.92 - 32	2.22E+01	13/13	5.80E-04	56.6 %	5.4 %	0 %	38 %	1.42E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	45 - 459	2.88E+02	13/13	--	--	--	--	--	1.81E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	1390 - 55300	4.36E+04	13/13	--	--	--	--	--	5.17E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	092037	5E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	1.86 - 18.4	1.84E+01	3/3	4.81E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	96.1 - 259	2.59E+02	3/3	--	--	--	--	--	1.63E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	2230 - 3160	3.16E+03	3/3	--	--	--	--	--	3.75E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	12.9 - 12.9	1.29E+01	1/1	--	--	--	--	--	8.11E+00	6.8 %	0 %	0 %	93.2 %	2.28	Yes
24	RD	092038	3E-04	8E+00	7E+00	Metal	ARSENIC	C	11.4 - 11.4	1.14E+01	1/1	2.98E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							MANGANESE	NC	170 - 5710	5.71E+03	5/5	--	--	--	--	--	6.77E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	093030	3E-04	1E+01	3E+00	Metal	ARSENIC	C	1.1 - 10.8	1.07E+01	7/8	2.79E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	25300 - 59100	4.36E+04	8/8	--	--	--	--	--	1.99E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	286 - 4550	2.23E+03	14/14	--	--	--	--	--	2.64E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	62.8 - 727	4.98E+02	8/8	5.12E-08	--	--	--	--	1.65E+00	19.3 %	0 %	1 %	79.6 %	*	No
							VANADIUM	NC	53 - 108	9.27E+01	8/8	--	--	--	--	--	1.43E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						Pest/PCB	AROCLOR-1260	C,NC	1.4 - 1.5	1.50E+00	2/15	7.11E-06	66.1 %	29.2 %	0 %	4.7 %	1.38E+00	69.6 %	27.3 %	0 %	3.1 %	--	--
24	RD	093031	7E-08	9E+00	3E+00	Metal	IRON	NC	23400 - 43200	4.32E+04	3/3	--	--	--	--	--	1.97E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	624 - 2660	2.66E+03	3/3	--	--	--	--	--	3.16E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	63.4 - 105	1.05E+02	3/3	--	--	--	--	--	1.62E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	093034	2E-04	1E+01	4E+00	Metal	ARSENIC	C	0.84 - 6.4	6.40E+00	3/3	1.67E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	51800 - 51800	5.18E+04	1/1	--	--	--	--	--	2.36E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	550 - 2980	2.98E+03	3/3	--	--	--	--	--	3.54E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	85.9 - 85.9	8.59E+01	1/1	--	--	--	--	--	1.32E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.084 - 0.084	8.40E-02	1/3	2.25E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
24	RD	093035	4E-04	7E+00	5E+00	Metal	ARSENIC	C	1.4 - 14	1.40E+01	3/10	3.66E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	9.9 - 290	1.81E+02	10/10	--	--	--	--	--	1.14E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	900 - 6100	3.82E+03	10/10	--	--	--	--	--	4.53E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	093036	5E-04	2E+01	2E+01	Metal	ARSENIC	C,NC	1.3 - 39	1.80E+01	41/47	4.70E-04	56.6 %	5.4 %	0 %	38 %	1.15E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							COPPER	NC	28.2 - 497	2.07E+02	34/34	--	--	--	--	--	1.30E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	49700 - 73100	7.31E+04	2/2	--	--	--	--	--	3.33E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	196 - 52000	1.25E+04	49/49	--	--	--	--	--	1.48E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	82.6 - 148	1.48E+02	2/2	--	--	--	--	--	2.28E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
24	RD	093037	7E-05	3E+00	2E+00	Metal	ARSENIC	C	2.4 - 2.7	2.70E+00	2/2	7.05E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1310 - 1980	1.98E+03	2/2	--	--	--	--	--	2.35E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
24	RD	094030	4E-04	1E+01	8E+00	Metal	ARSENIC	C,NC	16.9 - 16.9	1.69E+01	1/1	4.41E-04	56.6 %	5.4 %	0 %	38 %	1.08E+00	66.8 %	5.6 %	0.1 %	27.5 %	11.1	Yes
							IRON	NC	50800 - 50800	5.08E+04	1/1	--	--	--	--	--	2.31E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	514 - 8800	6.36E+03	11/11	--	--	--	--	--	7.55E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	145 - 145	1.45E+02	1/1	--	--	--	--	--	2.24E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
24	RD	094034	3E-04	8E+02	7E+02	OrgLead	ORGANIC LEAD	NC	3.9 - 3.9	3.90E+00	1/4	--	--	--	--	--	7.47E+02	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	3.6 - 13	1.30E+01	3/4	3.40E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	19 - 3240	3.24E+03	4/4	--	--	--	--	--	2.04E+01	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							LEAD	NC	3.6 - 723	7.23E+02	3/4	--	--	--	--	--	--	--	--	--	--	8.99	Yes
							MANGANESE	NC	184 - 8100	8.10E+03	4/4	--	--	--	--	--	9.61E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.367 - 22	2.20E+01	3/4	--	--	--	--	--	1.38E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							ZINC	NC	27 - 929	9.29E+02	4/4	--	--	--	--	--	2.49E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.14 - 0.14	1.40E-01	1/4	3.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
24	RD	094035	4E-04	1E+03	1E+03	OrgLead	ORGANIC LEAD	NC	7.3 - 7.3	7.30E+00	1/4	--	--	--	--	--	1.40E+03	66.8 %	18.7 %	0 %	14.5 %	--	--
						Metal	ARSENIC	C	0.56 - 26	1.48E+01	7/7	3.86E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							COPPER	NC	53 - 5550	5.55E+03	7/7	--	--	--	--	--	3.49E+01	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							IRON	NC	45400 - 45400	4.54E+04	1/1	--	--	--	--	--	2.07E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	454 - 15000	9.33E+03	17/17	--	--	--	--	--	1.11E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	0.1 - 58.9	5.89E+01	5/5	--	--	--	--	--	3.70E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							VANADIUM	NC	105 - 105	1.05E+02	1/1	--	--	--	--	--	1.62E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
							ZINC	NC	88 - 1260	1.26E+03	5/5	--	--	--	--	--	3.38E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.01 - 1.2	2.96E-01	7/15	7.93E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.029 - 1.7	3.84E-01	5/15	1.13E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.032 - 0.51	5.10E-01	3/15	1.51E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.028 - 0.3	1.28E-01	4/15	2.21E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
24	RD	094036	7E-05	<1	<1	Metal	ARSENIC	C	2.5 - 2.5	2.50E+00	2/2	6.53E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
24	RD	095032	2E-04	1E+01	3E+00	Metal	ARSENIC	C	3.6 - 11.2	7.49E+00	4/7	1.96E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	Yes
							IRON	NC	24200 - 49200	4.29E+04	7/7	--	--	--	--	--	1.95E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	440 - 3270	2.14E+03	9/9	--	--	--	--	--	2.54E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	40.2 - 121	1.08E+02	7/7	--	--	--	--	--	1.66E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)PYRENE	C	0.36 - 0.36	3.60E-01	1/17	9.65E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.42 - 0.42	4.20E-01	1/17	1.24E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.41 - 0.41	4.10E-01	1/17	1.21E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.099 - 0.099	9.90E-02	1/17	1.71E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
24	RD	096028	8E-05	8E+00	3E+00	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/3	8.10E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	16100 - 41200	4.12E+04	3/3	--	--	--	--	--	1.88E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	392 - 2280	2.28E+03	3/3	--	--	--	--	--	2.70E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	44.2 - 99.6	9.96E+01	3/3	--	--	--	--	--	1.54E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
24	RD	096032	2E-04	8E+00	2E+00	Metal	ARSENIC	C	1.775 - 8.4	8.40E+00	2/5	2.19E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	14700 - 49700	4.97E+04	5/5	--	--	--	--	--	2.26E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	306 - 1415	1.35E+03	5/5	--	--	--	--	--	1.60E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	40.4 - 123	1.23E+02	5/5	--	--	--	--	--	1.90E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
24	RD	097029	1E-04	1E+01	5E+00	Metal	ARSENIC	C	4.9 - 4.9	4.90E+00	1/5	1.28E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	14800 - 31800	3.18E+04	5/5	--	--	--	--	--	1.45E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	303 - 3670	3.67E+03	5/5	--	--	--	--	--	4.35E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	3.1 - 822	8.22E+02	5/5	8.45E-08	--	--	--	--	2.72E+00	19.3 %	0 %	1 %	79.6 %	*	No
							THALLIUM	NC	5.7 - 5.7	5.70E+00	1/5	--	--	--	--	--	1.13E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
							VANADIUM	NC	45.2 - 72.4	6.84E+01	5/5	--	--	--	--	--	1.05E+00	82.9 %	0 %	0 %	17.1 %	117.17	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
26	MU	089044	2E-04	4E+01	2E+01	Metal	ARSENIC	C	1.31 - 6.27	6.27E+00	3/3	1.64E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	63.5 - 1900	1.90E+03	3/3	--	--	--	--	--	1.19E+01	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	270 - 1650	1.65E+03	3/3	--	--	--	--	--	1.96E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							MERCURY	NC	26 - 26	2.60E+01	1/1	--	--	--	--	--	1.63E+01	6.8 %	0 %	0 %	93.2 %	2.28	Yes
							ZINC	NC	40 - 1320	1.32E+03	3/3	--	--	--	--	--	3.54E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)PYRENE	C	0.15 - 0.15	1.50E-01	1/4	4.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	090042	2E-07	4E+00	4E+00	Metal	MANGANESE	NC	480 - 3100	3.10E+03	2/2	--	--	--	--	--	3.68E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
26	MU	091041	4E-04	9E+00	5E+00	Metal	ARSENIC	C	1.8 - 4.1	2.95E+00	4/6	7.71E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							CADMIUM	NC	1.9 - 6	5.62E+00	6/6	9.53E-09	--	--	--	--	1.63E+00	8.8 %	0 %	0 %	91.1 %	3.14	Yes
							MANGANESE	NC	530 - 2900	1.72E+03	10/10	--	--	--	--	--	2.04E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	2-METHYLNAPHTHALENE	NC	0.009 - 280	2.80E+02	2/3	--	--	--	--	--	1.93E+00	46.4 %	0 %	53.6 %	0 %	--	--
							BENZO(A)ANTHRACENE	C	0.008 - 32	9.14E+00	5/10	2.47E-05	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.008 - 14	4.05E+00	5/10	1.08E-04	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	6.4 - 6.4	6.40E+00	1/10	1.89E-05	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.14 - 1.6	1.60E+00	3/10	4.73E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							CHRYSENE	C	0.01 - 44	1.26E+01	5/10	3.80E-06	62 %	25.5 %	0 %	12.5 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	3.4 - 3.4	3.40E+00	1/10	5.87E-05	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.18 - 1.7	1.70E+00	2/10	4.89E-06	65.3 %	26.8 %	0 %	8 %	--	--	--	--	--	--	--
						VOC	NAPHTHALENE	C,NC	0.009 - 97	9.70E+01	2/10	5.82E-05	31.3 %	0 %	68.7 %	0 %	1.73E+00	3.6 %	0 %	96.4 %	0 %	--	--
26	MU	091042	2E-06	5E+00	2E+00	Metal	IRON	NC	23500 - 23500	2.35E+04	1/1	--	--	--	--	--	1.07E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	420 - 1850	1.85E+03	3/3	--	--	--	--	--	2.19E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.0595 - 0.0595	5.95E-02	1/3	1.59E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	091043	8E-05	3E+00	<1	Metal	ARSENIC	C	0.87 - 1.5	1.50E+00	3/3	3.92E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
						PAH	BENZO(A)ANTHRACENE	C	0.2 - 1.3	1.30E+00	2/9	3.51E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.19 - 1.1	1.10E+00	2/9	2.95E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.13 - 0.13	1.30E-01	1/9	2.25E-06	66.2 %	27.2 %	0 %	6.7 %	--	--	--	--	--	--	--
26	MU	092039	1E-04	2E+01	1E+01	Metal	ARSENIC	C	0.87 - 5.1	4.59E+00	6/6	1.20E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	178 - 9500	8.54E+03	11/11	--	--	--	--	--	1.01E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	3.7 - 5.5	5.50E+00	3/6	--	--	--	--	--	1.09E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
26	MU	092040	1E-04	2E+01	1E+01	Metal	ARSENIC	C	1.7 - 7	3.97E+00	6/10	1.04E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	3.4 - 710	7.10E+02	10/10	--	--	--	--	--	4.46E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							MANGANESE	NC	450 - 12000	1.20E+04	10/10	--	--	--	--	--	1.42E+01	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.026 - 0.053	5.30E-02	2/10	1.42E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	092041	2E-04	4E+00	2E+00	Metal	ARSENIC	C	6.1 - 6.1	6.10E+00	1/2	1.59E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	1300 - 2100	2.10E+03	2/2	--	--	--	--	--	2.49E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
						PAH	BENZO(A)PYRENE	C	0.099 - 0.1	1.00E-01	2/2	2.68E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	092042	1E-04	6E+00	2E+00	Metal	ARSENIC	C	0.4 - 3.9	3.34E+00	5/7	8.73E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	22200 - 28600	2.77E+04	4/4	--	--	--	--	--	1.26E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	35.4 - 77.3	7.41E+01	4/4	--	--	--	--	--	1.14E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
						PAH	BENZO(A)PYRENE	C	0.076 - 0.36	3.60E-01	3/9	9.65E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	092043	7E-05	5E+00	2E+00	Metal	ARSENIC	C	1.2 - 2	2.00E+00	3/4	5.22E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							COPPER	NC	57 - 280	2.49E+02	4/4	--	--	--	--	--	1.56E+00	5.5 %	0 %	0 %	94.5 %	124.31	Yes
							ZINC	NC	39 - 430	4.30E+02	4/4	--	--	--	--	--	1.15E+00	1.6 %	0 %	0 %	98.4 %	109.86	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.031 - 1.6	1.15E+00	6/13	3.12E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--	--	--
							BENZO(A)PYRENE	C	0.11 - 0.47	2.42E-01	5/13	6.49E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.098 - 1.5	1.17E+00	4/13	3.45E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.17 - 0.94	3.54E-01	4/13	1.05E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--	--	--

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
26	MU	093042	--	2E+00	2E+00	Metal	MANGANESE	NC	640 - 1300	1.30E+03	2/2	--	--	--	--	--	1.54E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
26	MU	093043	5E-05	1E+01	5E+00	Metal	ARSENIC	C	1.9 - 1.9	1.90E+00	1/3	4.96E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	17200 - 36700	3.67E+04	3/3	--	--	--	--	--	1.67E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	600 - 1780	1.54E+03	5/5	--	--	--	--	--	1.82E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							NICKEL	NC	19.3 - 1640	1.64E+03	3/3	1.69E-07	--	--	--	--	5.43E+00	19.3 %	0 %	1 %	79.6 %	*	No
26	MU	094040	2E-08	5E+00	2E+00	Metal	IRON	NC	26300 - 26300	2.63E+04	1/1	--	--	--	--	--	1.20E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1240 - 1240	1.24E+03	1/1	--	--	--	--	--	1.47E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
26	MU	094041	5E-08	1E+01	3E+00	Metal	IRON	NC	71000 - 71000	7.10E+04	1/1	--	--	--	--	--	3.23E+00	93.6 %	0 %	0 %	6.4 %	58000	Yes
							MANGANESE	NC	2600 - 2600	2.60E+03	1/1	--	--	--	--	--	3.08E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							THALLIUM	NC	5.4 - 5.4	5.40E+00	1/1	--	--	--	--	--	1.07E+00	97.3 %	0 %	0 %	2.7 %	0.81	Yes
							VANADIUM	NC	179 - 179	1.79E+02	1/1	--	--	--	--	--	2.76E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
26	MU	095038	2E-04	1E+01	5E+00	Metal	ARSENIC	C	1.7 - 7.7	7.70E+00	3/3	2.01E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	41400 - 41400	4.14E+04	1/1	--	--	--	--	--	1.88E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	1700 - 3700	3.70E+03	3/3	--	--	--	--	--	4.39E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	121 - 121	1.21E+02	1/1	--	--	--	--	--	1.87E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
26	MU	095039	1E-04	4E+00	4E+00	Metal	ARSENIC	C	0.29 - 4.9	4.90E+00	4/4	1.28E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							MANGANESE	NC	990 - 3200	3.06E+03	4/4	--	--	--	--	--	3.64E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
26	MU	095042	2E-06	7E+00	2E+00	Metal	IRON	NC	39600 - 46300	4.63E+04	2/2	--	--	--	--	--	2.11E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	949 - 959	9.59E+02	2/2	--	--	--	--	--	1.14E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	104 - 144	1.44E+02	2/2	--	--	--	--	--	2.22E+00	82.9 %	0 %	0 %	17.1 %	117.17	Yes
						PAH	BENZO(A)PYRENE	C	0.02 - 0.065	6.50E-02	2/4	1.74E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--	--	--
26	MU	098041	6E-05	5E+00	2E+00	Metal	ARSENIC	C	0.88 - 2.2	2.20E+00	2/3	5.75E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	29300 - 33600	3.36E+04	3/3	--	--	--	--	--	1.53E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							VANADIUM	NC	70.7 - 102	1.02E+02	3/3	--	--	--	--	--	1.57E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
26	MU	098042	3E-04	1E+01	5E+00	Metal	ARSENIC	C	3.9 - 11	1.10E+01	2/3	2.87E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	22200 - 37400	3.74E+04	3/3	--	--	--	--	--	1.70E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	593 - 3430	3.43E+03	3/3	--	--	--	--	--	4.07E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	Yes
							VANADIUM	NC	62.4 - 97.9	9.79E+01	3/3	--	--	--	--	--	1.51E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
26	MU	099042	9E-05	7E+00	2E+00	Metal	ARSENIC	C	1.3 - 3.6	3.60E+00	3/3	9.40E-05	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--	11.1	No
							IRON	NC	29900 - 43100	4.31E+04	3/3	--	--	--	--	--	1.96E+00	93.6 %	0 %	0 %	6.4 %	58000	No
							MANGANESE	NC	846 - 1280	1.28E+03	3/3	--	--	--	--	--	1.52E+00	44.9 %	0 %	2.9 %	52.2 %	1431.18	No
							VANADIUM	NC	83 - 112	1.12E+02	3/3	--	--	--	--	--	1.73E+00	82.9 %	0 %	0 %	17.1 %	117.17	No
20B	E/C	AX10	1E-05	<1	<1	Metal	ARSENIC	C	2.4 - 6.2	3.42E+00	11/14	7.89E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.09 - 0.67	5.13E-01	5/16	2.92E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
20B	E/C	AY09	1E-05	<1	<1	Metal	ARSENIC	C	1.8 - 9.3	5.17E+00	6/8	1.19E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.21 - 0.21	2.10E-01	1/8	1.20E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
20B	E/C	AY10	1E-04	3E+00	3E+00	Metal	ARSENIC	C	0.93 - 245	2.42E+01	34/36	5.57E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
						PAH	BENZO(A)PYRENE	C	0.028 - 0.25	2.16E-01	4/13	1.23E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
						Pest/PCB	AROCLOR-1260	C,NC	0.026 - 270	3.93E+01	25/45	3.91E-05	35.1 %	64.9 %	0 %		2.74E+00	35.1 %	64.9 %	0 %		--	--
						VOC	1,4-DICHLOROBENZENE	C	0.00821 - 34.2	5.63E+00	9/29	1.24E-06	1.9 %	0 %	98.1 %		<1	--	--	--		--	--
20B	E/C	AY11	2E-05	<1	<1	Metal	ARSENIC	C	0.99 - 6.9	4.85E+00	8/10	1.12E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						VOC	1,4-DICHLOROBENZENE	C	0.85 - 15.5	1.55E+01	3/30	3.41E-06	1.9 %	0 %	98.1 %		<1	--	--	--		--	--
							TRICHLOROETHENE	C	0.003 - 36	3.60E+01	46/60	5.48E-06	1.5 %	0 %	98.5 %		<1	--	--	--		--	--
20B	E/C	AZ08	1E-05	<1	<1	Metal	ARSENIC	C	1.36 - 10	4.93E+00	13/18	1.14E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.03 - 0.57	2.45E-01	4/18	1.39E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
20B	E/C	AZ10	4E-05	<1	<1	Metal	ARSENIC	C	17.5 - 17.5	1.75E+01	1/2	4.04E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
20B	E/C	AZ11	7E-06	<1	<1	Metal	ARSENIC	C	3.1 - 3.1	3.10E+00	1/2	7.15E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
20B	E/C	BA09	5E-05	<1	<1	Metal	ARSENIC	C	7.1 - 14	1.40E+01	3/8	3.23E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
							LEAD	NC	8.6 - 1700	1.70E+03	6/8	--	--	--	--		--	--	--	--		8.99	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.017 - 6.02	2.20E+00	5/8	1.25E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							BENZO(A)PYRENE	C	0.022 - 5.52	2.02E+00	4/8	1.15E-05	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							BENZO(B)FLUORANTHENE	C	0.018 - 8.02	2.93E+00	4/8	1.67E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							BENZO(K)FLUORANTHENE	C	0.047 - 2.62	2.62E+00	2/8	1.49E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							INDENO(1,2,3-CD)PYRENE	C	2.27 - 2.27	2.27E+00	1/8	1.29E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
22	E/C	AY06	2E-05	<1	<1	Metal	ARSENIC	C	9.3 - 9.3	9.30E+00	1/2	2.14E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
22	E/C	AZ07	1E-05	<1	<1	Metal	ARSENIC	C	1.1 - 4.1	2.57E+00	7/13	5.92E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.04 - 0.63	6.30E-01	3/12	3.59E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
22	E/C	BA07	1E-04	<1	<1	Metal	ARSENIC	C	2.5 - 40	4.00E+01	12/16	9.22E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
							LEAD	NC	1.11 - 675	6.75E+02	13/16	--	--	--	--		--	--	--	--		8.99	Yes
						PAH	BENZO(A)PYRENE	C	0.016 - 0.56975	4.47E-01	10/16	2.54E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
						VOC	TETRACHLOROETHENE	C	0.002 - 1.6	1.60E+00	5/5	1.07E-06	14.1 %	0 %	85.9 %		<1	--	--	--		--	--
22	E/C	BA08	1E-04	<1	<1	Metal	ARSENIC	C	0.31 - 200	3.62E+01	95/139	8.36E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
							LEAD	NC	0.45 - 2000	1.37E+03	122/143	--	--	--	--		--	--	--	--		8.99	Yes
						PAH	BENZO(A)PYRENE	C	0.013 - 21	1.35E+00	88/136	7.70E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
						VOC	VINYL CHLORIDE	C	0.003 - 0.25	2.50E-01	2/30	4.58E-06	0.7 %	0 %	99.3 %		<1	--	--	--		--	--
22	E/C	BB03	4E-06	1E+01	1E+01	OrgLead	ORGANIC LEAD	NC	0.93 - 0.93	9.30E-01	1/1	--	--	--	--		1.06E+01	43.1 %	56.9 %	0 %		--	--
						Metal	ARSENIC	C	1.6 - 1.6	1.60E+00	1/2	3.69E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
22	E/C	BB06	3E-05	<1	<1	Metal	ARSENIC	C	1.5 - 30.4	1.14E+01	16/25	2.62E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
						PAH	BENZO(A)PYRENE	C	0.031 - 0.79	2.87E-01	13/18	1.63E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
22	E/C	BB07	1E-05	<1	<1	Metal	ARSENIC	C	0.48 - 4.3	4.30E+00	9/14	9.92E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
25	E/C	BB08	1E-05	<1	<1	Metal	ARSENIC	C	0.437 - 30.1	2.62E+00	30/87	6.04E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
						PAH	BENZO(A)PYRENE	C	0.016 - 2	2.04E-01	38/86	1.16E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
						VOC	BENZENE	C	0.0014 - 1.9	3.94E-01	6/24	1.01E-06	0.7 %	0 %	99.3 %		<1	--	--	--		--	--
25	E/C	BB09	1E-05	<1	<1	Metal	ARSENIC	C	0.669 - 5	4.62E+00	8/20	1.07E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
25	E/C	BC07	9E-06	<1	<1	Metal	ARSENIC	C	0.46 - 3.8	3.02E+00	4/13	6.96E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
						PAH	BENZO(A)PYRENE	C	0.0265 - 0.2	2.00E-01	3/14	1.14E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
25	E/C	BC08	6E-06	<1	<1	Metal	ARSENIC	C	2.2 - 2.3	2.30E+00	2/9	5.30E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
25	E/C	BC09	2E-05	<1	<1	Metal	ARSENIC	C	0.89 - 8.7	6.15E+00	7/7	1.42E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
							LEAD	NC	7.5 - 939	9.39E+02	7/7	--	--	--	--		--	--	--	--		8.99	Yes
						PAH	BENZO(A)PYRENE	C	0.029 - 0.36	2.43E-01	4/7	1.38E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
25	E/C	BC10	5E-06	<1	<1	Metal	ARSENIC	C	2.1 - 2.1	2.10E+00	1/1	4.84E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
25	E/C	BD08	4E-05	<1	<1	Metal	ARSENIC	C	6.6 - 17.9	1.79E+01	3/3	4.13E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
25	E/C	BD09	1E-05	<1	<1	Metal	ARSENIC	C	2.8 - 4.5	4.50E+00	2/2	1.04E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AV15	4E-05	<1	<1	Metal	ARSENIC	C	5.5 - 15.8	1.58E+01	3/3	3.64E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
CMI-1	MI	AV18	1E-05	<1	<1	Metal	ARSENIC	C	1.1 - 8.4	5.35E+00	18/20	1.23E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AY16	1E-05	<1	<1	Metal	ARSENIC	C	2.77 - 6.95	6.00E+00	6/6	1.38E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AZ16	2E-05	<1	<1	Metal	ARSENIC	C	1.31 - 6.27	6.27E+00	3/3	1.45E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No

TABLE 3-6: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
CMI-1	MI	BB18	4E-04	<1	<1	Metal	ARSENIC	C	1.8 - 89	8.90E+01	4/11	2.05E-04	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	Yes
						PAH	BENZO(A)ANTHRACENE	C	0.068 - 30	3.00E+01	3/8	1.71E-05	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							BENZO(A)PYRENE	C	0.47 - 27	2.70E+01	2/8	1.54E-04	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							BENZO(B)FLUORANTHENE	C	0.077 - 27	2.70E+01	3/8	1.54E-05	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							BENZO(K)FLUORANTHENE	C	0.34 - 6.5	6.50E+00	2/8	3.70E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							CHRYSENE	C	0.064 - 37	3.70E+01	3/8	2.11E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							DIBENZ(A,H)ANTHRACENE	C	3.9 - 3.9	3.90E+00	1/8	1.35E-05	36.8 %	63.2 %	0 %		--	--	--	--		--	--
							INDENO(1,2,3-CD)PYRENE	C	0.35 - 14	1.40E+01	2/8	7.97E-06	36.8 %	63.2 %	0 %		--	--	--	--		--	--
CMI-1	MI	BB19	7E-06	<1	<1	Metal	ARSENIC	C	2.2 - 2.8	2.80E+00	2/6	6.46E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BC15	3E-05	<1	<1	Metal	ARSENIC	C	0.88 - 11	1.10E+01	7/9	2.54E-05	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BC18	8E-06	<1	<1	Metal	ARSENIC	C	1.9 - 3.5	3.35E+00	4/5	7.72E-06	71.6 %	28.4 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BD04	NA	NA	NA	Metal	LEAD	NC	1.2 - 410	4.10E+02	13/13	--	--	--	--		--	--	--	--		8.99	Yes

Notes: All concentrations shown in mg/kg.

--	Not applicable or chemical is not a COC for this endpoint
*	Not available; comparison to ambient levels based on regression analysis
	Not evaluated because exposure pathway is incomplete
bgs	Below ground surface
BHC	Benzene hexachloride
C	Cancer effect
COC	Chemical of concern
DF	Detection frequency
E/C	Educational/cultural (industrial exposure scenario)
EPC	Exposure point concentration
HI	Hazard index
HPAL	Hunters Point ambient level
mg/kg	Milligram per kilogram
MI	Maritime/Industrial (industrial exposure scenario)
MU	Mixed use (residential exposure scenario)
NA	Not applicable; lead is the only detected chemical for this grid and quantitative risks for lead are unavailable
NC	Noncancer effect
OrgLead	Organic lead
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
Pest	Pesticide
RD	Residential development
RME	Reasonable maximum exposure
SVOC	Semivolatile organic compound
VOC	Volatile organic compound

TABLE 3-7: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-Specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
10	MU	AQ09	4E-06	<1	<1	Metal	Arsenic	C	1.6 - 6.8	5.20E+00	7/7	3.20E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
10	MU	AQ10	3E-06	2E+00	<1	Metal	Arsenic	C	3.1 - 3.3	3.30E+00	2/2	2.03E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
10	MU	AR10	5E-06	<1	<1	Metal	Arsenic	C	1 - 8.1	4.31E+00	37/50	2.66E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
						PAH	Benzo(a)pyrene	C	0.008 - 1.9	1.22E+00	25/74	1.89E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
10	MU	AS10	4E-06	<1	<1	Metal	Arsenic	C	1.2 - 11.3	5.78E+00	33/52	3.56E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
11	MU	AR08	5E-06	<1	<1	Metal	Arsenic	C	1.6 - 5.5	3.71E+00	15/24	2.29E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
11	MU	AR09	2E-06	<1	<1	Metal	Arsenic	C	1.6 - 7.1	2.93E+00	23/42	1.80E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
11	MU	AS07	2E-06	<1	<1	Metal	Arsenic	C	2.5 - 2.5	2.50E+00	1/3	1.54E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
11	MU	AS08	2E-06	2E+00	<1	Metal	Arsenic	C	1.9 - 3.5	3.35E+00	5/5	2.06E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
11	MU	AS09	2E-06	<1	<1	Metal	Arsenic	C	0.81 - 4.6	2.66E+00	27/32	1.64E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
11	MU	AT09	3E-06	<1	<1	Metal	Arsenic	C	5 - 5	5.00E+00	1/1	3.08E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
13	MU	AU10	3E-06	2E+00	<1	Metal	Arsenic	C	1.5 - 4.4	4.40E+00	2/2	2.71E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
13	MU	AV10	2E-06	<1	<1	Metal	Arsenic	C	1 - 3	2.44E+00	5/6	1.51E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
13	MU	AW10	2E-06	2E+00	<1	Metal	Arsenic	C	0.61 - 5.7	3.74E+00	9/11	2.31E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
18	RD	AU12	2E-06	<1	<1	Metal	Arsenic	C	3 - 3	3.00E+00	1/1	1.85E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
18	RD	AU14	4E-06	<1	<1	Metal	Arsenic	C	4.1 - 6.1	6.10E+00	2/2	3.76E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
18	RD	AU15	4E-06	<1	<1	Metal	Arsenic	C	2.5 - 6.5	5.98E+00	4/4	3.69E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
18	RD	AV13	6E-06	<1	<1	Metal	Arsenic	C	2.3 - 16.4	8.21E+00	16/18	5.06E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
18	RD	AV14	4E-06	<1	<1	Metal	Arsenic	C	2.1 - 9.8	5.98E+00	20/20	3.69E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
18	RD	AW13	5E-06	<1	<1	Metal	Arsenic	C	3.2 - 8.3	8.30E+00	2/2	5.12E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
18	RD	AW14	5E-06	<1	<1	Metal	Arsenic	C	1.3 - 8.8	7.07E+00	4/5	4.36E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20A	RD	AX11	3E-06	2E+00	<1	Metal	Arsenic	C	0.73 - 3.9	3.43E+00	7/7	2.12E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20A	RD	AX12	7E-06	2E+00	<1	Metal	Arsenic	C	4.4 - 11.1	1.11E+01	2/5	6.84E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
23	RD	AX13	5E-06	2E+00	<1	Metal	Arsenic	C	1.7 - 9.6	8.62E+00	5/6	5.31E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
23	RD	AX14	6E-06	2E+00	<1	Metal	Arsenic	C	0.255 - 16.1	7.89E+00	21/38	4.86E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
23	RD	AX15	1E-05	2E+00	<1	Metal	Arsenic	C	2.2 - 21.1	1.86E+01	4/4	1.14E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
23	RD	AY14	1E-05	4E+01	4E+01	OrgLead	Organic Lead	NC	0.4325 - 2.5	4.84E-01	9/48	--	--	--	--		3.72E+01	42 %	58 %	0 %		--	--
						Metal	Arsenic	C	0.86 - 70.5	1.88E+01	54/78	1.16E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
23	RD	AY15	5E-06	7E+01	7E+01	OrgLead	Organic Lead	NC	0.31 - 0.94	9.40E-01	3/30	--	--	--	--		7.23E+01	42 %	58 %	0 %		--	--
						Metal	Arsenic	C	0.91 - 18.3	6.44E+00	18/35	3.97E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
23	RD	AZ14	8E-06	1E+02	1E+02	OrgLead	Organic Lead	NC	0.5075 - 62	1.86E+00	9/124	--	--	--	--		1.43E+02	42 %	58 %	0 %		--	--
						Metal	Arsenic	C	0.6 - 86	1.15E+01	147/172	7.12E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
23	RD	AZ15	6E-06	3E+01	3E+01	OrgLead	Organic Lead	NC	0.36 - 0.36	3.60E-01	1/43	--	--	--	--		2.77E+01	42 %	58 %	0 %		--	--
						Metal	Arsenic	C	0.6175 - 6.9	5.57E+00	23/32	3.43E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
						Pest/PCB	Aroclor-1260	NC	0.019 - 67	2.21E+00	32/87	5.98E-07	--	--	--		1.05E+00	34.1 %	65.9 %	0 %		--	--
24	RD	AY12	4E-06	2E+00	<1	Metal	Arsenic	C	1.1 - 9	5.04E+00	7/10	3.11E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
24	RD	AY13	1E-05	3E+00	<1	Metal	Arsenic	C	0.95 - 110	2.13E+01	47/61	1.31E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
24	RD	AZ12	4E-06	2E+00	<1	Metal	Arsenic	C	0.31 - 59.6	6.27E+00	58/71	3.87E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
24	RD	AZ13	1E-05	3E+00	<1	Metal	Arsenic	C	0.178 - 116	1.58E+01	84/97	9.73E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
24	RD	BA11	1E-05	2E+00	<1	Metal	Arsenic	C	1.1 - 16.9	1.69E+01	8/13	1.04E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
24	RD	BA12	6E-06	3E+02	3E+02	OrgLead	Organic Lead	NC	3.9 - 3.9	3.90E+00	1/6	--	--	--	--		3.00E+02	42 %	58 %	0 %		--	--
						Metal	Arsenic	C	0.84 - 13	8.43E+00	7/9	5.20E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Manganese	NC	184 - 8100	7.44E+03	9/9	--	--	--	--		1.08E+00	92.7 %	0 %	7.3 %		1431.18	Yes
24	RD	BB10	2E-06	<1	<1	Metal	Arsenic	C	3.1 - 3.1	3.10E+00	1/3	1.91E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
24	RD	BB11	3E-06	2E+00	<1	Metal	Arsenic	C	4.9 - 4.9	4.90E+00	1/5	3.02E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
26	MU	BA14	4E-06	2E+00	<1	Metal	Arsenic	C	0.87 - 11.4	6.63E+00	13/18	4.09E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
26	MU	BA15	3E-06	<1	<1	Metal	Arsenic	C	0.4 - 6.1	3.29E+00	10/17	2.03E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20B	E/C	AX10	3E-06	<1	<1	Metal	Arsenic	C	2.4 - 6.2	3.42E+00	11/14	2.11E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20B	E/C	AY09	4E-06	2E+00	<1	Metal	Arsenic	C	1.8 - 9.3	5.17E+00	6/8	3.19E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20B	E/C	AY10	3E-05	2E+01	2E+01	Metal	Arsenic	C	0.93 - 245	2.42E+01	34/36	1.49E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
						Pest/PCB	Aroclor-1260	C,NC	0.026 - 270	3.93E+01	25/45	1.06E-05	34.1 %	65.9 %	0 %		1.86E+01	34.1 %	65.9 %	0 %		--	--

TABLE 3-7: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-Specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
20B	E/C	AY11	4E-06	2E+00	<1	Metal	Arsenic	C	0.99 - 6.9	4.85E+00	8/10	2.99E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20B	E/C	AZ08	4E-06	<1	<1	Metal	Arsenic	C	1.36 - 10	4.93E+00	13/18	3.04E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20B	E/C	AZ10	1E-05	3E+00	2E+00	Metal	Arsenic	C	17.5 - 17.5	1.75E+01	1/2	1.08E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Manganese	NC	600 - 10200	1.02E+04	2/2	--	--	--	--		1.48E+00	92.7 %	0 %	7.3 %		1431.18	Yes
20B	E/C	AZ11	2E-06	<1	<1	Metal	Arsenic	C	3.1 - 3.1	3.10E+00	1/2	1.91E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
20B	E/C	BA09	1E-05	<1	<1	Metal	Arsenic	C	7.1 - 14	1.40E+01	3/8	8.63E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Lead	NC	8.6 - 1700	1.70E+03	6/8	--	--	--	--		--	--	--	--		8.99	Yes
						PAH	Benzo(a)pyrene	C	0.022 - 5.52	2.02E+00	4/8	3.13E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
22	E/C	AY06	6E-06	<1	<1	Metal	Arsenic	C	9.3 - 9.3	9.30E+00	1/2	5.73E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
22	E/C	AZ07	3E-06	<1	<1	Metal	Arsenic	C	1.1 - 4.1	2.57E+00	7/13	1.58E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
22	E/C	BA07	3E-05	3E+00	<1	Metal	Arsenic	C	2.5 - 40	4.00E+01	12/16	2.47E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Lead	NC	1.11 - 675	6.75E+02	13/16	--	--	--	--		--	--	--	--		8.99	Yes
22	E/C	BA08	3E-05	5E+00	3E+00	Metal	Arsenic	C	0.31 - 200	3.62E+01	95/139	2.24E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Lead	NC	0.45 - 2000	1.37E+03	122/143	--	--	--	--		--	--	--	--		8.99	Yes
							Thallium	NC	1.42 - 60.9	6.09E+01	4/7	--	--	--	--		2.98E+00	100 %	0 %	0 %		0.81	Yes
						PAH	Benzo(a)pyrene	C	0.013 - 21	1.35E+00	88/136	2.09E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
22	E/C	BB03	1E-06	7E+01	7E+01	OrgLead	Organic Lead	NC	0.93 - 0.93	9.30E-01	1/1	--	--	--	--		7.15E+01	42 %	58 %	0 %		--	--
22	E/C	BB06	8E-06	<1	<1	Metal	Arsenic	C	1.5 - 30.4	1.14E+01	16/25	7.02E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
22	E/C	BB07	3E-06	<1	<1	Metal	Arsenic	C	0.48 - 4.3	4.30E+00	9/14	2.65E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
25	E/C	BB08	2E-06	<1	<1	Metal	Arsenic	C	0.437 - 30.1	2.62E+00	30/87	1.62E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
25	E/C	BB09	3E-06	<1	<1	Metal	Arsenic	C	0.669 - 5	4.62E+00	8/20	2.85E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
25	E/C	BC07	2E-06	2E+00	<1	Metal	Arsenic	C	0.46 - 3.8	3.02E+00	4/13	1.86E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
25	E/C	BC08	2E-06	<1	<1	Metal	Arsenic	C	2.2 - 2.3	2.30E+00	2/9	1.42E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
25	E/C	BC09	4E-06	<1	<1	Metal	Arsenic	C	0.89 - 8.7	6.15E+00	7/7	3.79E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
							Lead	NC	7.5 - 939	9.39E+02	7/7	--	--	--	--		--	--	--	--		8.99	Yes
25	E/C	BD08	1E-05	3E+00	2E+00	Metal	Arsenic	C	6.6 - 17.9	1.79E+01	3/3	1.10E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Manganese	NC	2970 - 11300	1.13E+04	3/3	--	--	--	--		1.64E+00	92.7 %	0 %	7.3 %		1431.18	Yes
25	E/C	BD09	3E-06	<1	<1	Metal	Arsenic	C	2.8 - 4.5	4.50E+00	2/2	2.77E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AV15	1E-05	<1	<1	Metal	Arsenic	C	5.5 - 15.8	1.58E+01	3/3	9.74E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
CMI-1	MI	AV18	4E-06	<1	<1	Metal	Arsenic	C	1.1 - 8.4	5.35E+00	18/20	3.30E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AY16	4E-06	<1	<1	Metal	Arsenic	C	2.77 - 6.95	6.00E+00	6/6	3.70E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	AZ16	4E-06	<1	<1	Metal	Arsenic	C	1.31 - 6.27	6.27E+00	3/3	3.87E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BB18	1E-04	3E+00	<1	Metal	Arsenic	C	1.8 - 89	8.90E+01	4/11	5.49E-05	70.7 %	29.3 %	0 %		<1	70.6 %	29.3 %	0.1 %		11.1	Yes
						PAH	Benzo(a)anthracene	C	0.068 - 30	3.00E+01	3/8	4.64E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
							Benzo(a)pyrene	C	0.47 - 27	2.70E+01	2/8	4.18E-05	35.8 %	64.2 %	0 %		--	--	--	--		--	--
							Benzo(b)fluoranthene	C	0.077 - 27	2.70E+01	3/8	4.18E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
							Benzo(k)fluoranthene	C	0.34 - 6.5	6.50E+00	2/8	1.01E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
							Dibenz(a,h)anthracene	C	3.9 - 3.9	3.90E+00	1/8	3.67E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
							Indeno(1,2,3-cd)pyrene	C	0.35 - 14	1.40E+01	2/8	2.17E-06	35.8 %	64.2 %	0 %		--	--	--	--		--	--
CMI-1	MI	BB19	2E-06	<1	<1	Metal	Arsenic	C	2.2 - 2.8	2.80E+00	2/6	1.73E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BC15	7E-06	<1	<1	Metal	Arsenic	C	0.88 - 11	1.10E+01	7/9	6.78E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
CMI-1	MI	BC18	2E-06	<1	<1	Metal	Arsenic	C	1.9 - 3.5	3.35E+00	4/5	2.06E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-1	OS	AW09	3E-06	<1	<1	Metal	Arsenic	C	4.3 - 4.3	4.30E+00	1/1	2.65E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-1	OS	AX07	5E-06	<1	<1	Metal	Arsenic	C	7.8 - 7.8	7.80E+00	1/1	4.81E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-1	OS	AX09	9E-06	<1	<1	Metal	Arsenic	C	1.6 - 14.2	1.42E+01	5/6	8.76E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
COS-1	OS	AY07	5E-06	<1	<1	Metal	Arsenic	C	0.4 - 8.1	8.10E+00	8/11	4.99E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BB05	5E-06	2E+00	<1	Metal	Arsenic	C	0.44175 - 14	7.34E+00	7/17	4.52E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
COS-2	OS	BC03	2E-06	<1	<1	Metal	Arsenic	C	0.845 - 4	3.55E+00	4/4	2.19E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BC04	1E-05	<1	<1	Metal	Arsenic	C	2.1 - 17	1.70E+01	6/15	1.05E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
COS-2	OS	BC05	9E-06	2E+00	<1	Metal	Arsenic	C	0.92 - 13	1.30E+01	7/14	8.02E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
COS-2	OS	BC06	8E-06	2E+00	<1	Metal	Arsenic	C	1.5 - 43.1	1.21E+01	12/22	7.46E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes

TABLE 3-7: TOTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-Specific HI	Contribution by Exposure Pathway to Total RME HI				Metals	
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion	HPAL	Maximum Concentration Exceeds HPAL?
COS-2	OS	BD03	3E-06	<1	<1	Metal	Arsenic	C	0.48 - 19	4.18E+00	29/35	2.58E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
COS-2	OS	BD04	5E-06	<1	<1	Metal	Arsenic	C	0.6225 - 16.7	7.21E+00	16/17	4.45E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Lead	NC	1.2 - 410	4.10E+02	13/13	--	--	--	--		--	--	--	--		8.99	Yes
COS-2	OS	BD05	2E-06	<1	<1	Metal	Arsenic	C	2.4 - 2.4	2.40E+00	1/4	1.48E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-2	OS	BE04	4E-06	2E+00	<1	Metal	Arsenic	C	1.1 - 7.2	7.20E+00	5/10	4.44E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BA13	1E-05	6E+02	6E+02	OrgLead	Organic Lead	NC	7.3 - 7.3	7.30E+00	1/4	--	--	--	--		5.61E+02	42 %	58 %	0 %		--	--
						Metal	Arsenic	C	0.28 - 39	1.63E+01	79/93	1.01E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Manganese	NC	196 - 55300	8.72E+03	105/105	--	--	--	--		1.27E+00	92.7 %	0 %	7.3 %		1431.18	Yes
COS-3	OS	BB12	8E-06	2E+00	<1	Metal	Arsenic	C	1.775 - 11.2	1.12E+01	6/12	6.91E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
COS-3	OS	BB14	3E-06	<1	<1	Metal	Arsenic	C	0.29 - 7.7	5.33E+00	7/7	3.29E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BC12	3E-06	<1	<1	Metal	Arsenic	C	2.6 - 6.5	5.47E+00	6/8	3.37E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BD07	4E-06	2E+00	<1	Metal	Arsenic	C	2.1 - 6.2	6.20E+00	3/3	3.82E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BD10	2E-06	2E+00	<1	Metal	Arsenic	C	2.5 - 2.5	2.50E+00	1/3	1.54E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BD11	5E-06	<1	<1	Metal	Arsenic	C	0.78 - 5.9	5.90E+00	2/2	3.64E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BD12	3E-06	2E+00	<1	Metal	Arsenic	C	3 - 5.4	5.40E+00	2/5	3.33E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BE05	7E-06	4E+00	2E+00	Metal	Arsenic	C	2.7 - 15.5	1.06E+01	6/7	6.53E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
							Manganese	NC	712 - 12100	1.21E+04	7/7	--	--	--	--		1.76E+00	92.7 %	0 %	7.3 %		1431.18	Yes
COS-3	OS	BE06	1E-05	2E+00	<1	Metal	Arsenic	C	3.4 - 20.3	2.03E+01	2/2	1.25E-05	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	Yes
COS-3	OS	BE07	2E-06	2E+00	<1	Metal	Arsenic	C	1.2 - 2.7	2.70E+00	3/3	1.66E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No
COS-3	OS	BF07	3E-06	2E+00	<1	Metal	Arsenic	C	2.5 - 4.4	4.40E+00	3/3	2.71E-06	70.7 %	29.3 %	0 %		<1	--	--	--		11.1	No

Notes:
All concentrations shown in mg/kg.

--	Not applicable or chemical is not a COC for this endpoint	MI	Maritime/Industrial (industrial exposure scenario)
	Not evaluated because exposure pathway is incomplete	MU	Mixed use (residential exposure scenario)
bgs	Below ground surface	NC	Noncancer effect
C	Cancer effect	PAH	Polynuclear aromatic hydrocarbon
COC	Chemical of concern	PCB	Polychlorinated biphenyl
DF	Detection frequency	Pest	Pesticide
E/C	Educational/cultural (industrial exposure scenario)	OrgLead	Organic lead
EPC	Exposure point concentration	OS	Open space (recreational exposure scenario)
HI	Hazard index	RD	Residential development
HPAL	Hunters Point ambient level	RME	Reasonable maximum exposure
mg/kg	Milligram per kilogram		

TABLE 3-8: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
10	MU	063027	--	<1	<1
10	MU	063028	--	<1	<1
10	MU	064024	--	<1	<1
10	MU	066025	3E-07	<1	<1
10	MU	066026	1E-06	<1	<1
10	MU	066027	**2E-06**	<1	<1
10	MU	066028	--	<1	<1
10	MU	067025	--	<1	<1
10	MU	067026	**7E-05**	<1	<1
10	MU	068025	**7E-06**	5E+00	**3E+00**
10	MU	068026	**1E-05**	4E+00	**2E+00**
10	MU	068027	--	<1	<1
10	MU	069025	--	<1	<1
10	MU	069026	3E-08	<1	<1
10	MU	069027	4E-07	2E+00	**2E+00**
10	MU	070025	3E-08	<1	<1
11	MU	065021	--	<1	<1
11	MU	065024	--	<1	<1
11	MU	066022	**2E-05**	2E+00	**2E+00**
11	MU	066023	**3E-06**	<1	<1
11	MU	066024	1E-07	5E+00	**5E+00**
11	MU	067022	1E-08	<1	<1
11	MU	067023	2E-07	2E+00	**2E+00**
11	MU	067024	**2E-06**	4E+00	**4E+00**
11	MU	068024	**2E-06**	<1	<1
11	MU	069024	--	<1	<1
11	MU	070024	--	<1	<1
11	MU	071019	--	<1	<1
11	MU	071024	--	<1	<1
13	MU	075027	1E-07	4E+00	**3E+00**
13	MU	077028	9E-08	5E+00	**3E+00**
13	MU	078028	--	<1	<1
13	MU	079027	--	4E+00	**4E+00**
13	MU	079030	--	1E+01	**4E+00**
13	MU	080025	**6E-06**	3E+00	**3E+00**
13	MU	080026	--	9E+00	**4E+00**
13	MU	082026	**7E-05**	<1	<1
13	MU	082027	--	3E+00	**2E+00**
18	RD	075043	--	<1	<1
18	RD	075044	--	<1	<1
18	RD	076034	--	<1	<1
18	RD	076043	--	<1	<1
18	RD	077035	--	<1	<1
18	RD	077038	**2E-06**	<1	<1

TABLE 3-8: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
18	RD	077039	3E-07	<1	<1
18	RD	077040	--	<1	<1
18	RD	078032	--	<1	<1
18	RD	078037	**7E-06**	<1	<1
18	RD	078038	**2E-06**	<1	<1
18	RD	078039	**3E-06**	<1	<1
18	RD	078040	5E-08	<1	<1
18	RD	078041	--	<1	<1
18	RD	079037	**3E-06**	<1	<1
18	RD	079038	1E-06	<1	<1
18	RD	079039	2E-08	2E+00	**2E+00**
18	RD	079041	**3E-06**	2E+00	<1
18	RD	080038	9E-08	<1	<1
18	RD	080040	3E-08	<1	<1
18	RD	082035	--	2E+00	**2E+00**
18	RD	084036	8E-08	<1	<1
20A	RD	081029	3E-09	<1	<1
20A	RD	081030	**7E-06**	<1	<1
20A	RD	081031	--	<1	<1
20A	RD	083032	8E-08	1E+01	**1E+01**
20A	RD	084028	--	<1	<1
20A	RD	084030	**3E-06**	<1	<1
20A	RD	084035	1E-08	8E+00	**8E+00**
20A	RD	085030	7E-07	4E+00	**2E+00**
20A	RD	085031	**1E-05**	2E+01	**1E+01**
20A	RD	085032	5E-07	<1	<1
20A	RD	086030	3E-09	2E+00	**2E+00**
20A	RD	086031	5E-07	1E+01	**9E+00**
20A	RD	086032	**1E-05**	1E+01	**6E+00**
23	RD	083043	**6E-04**	5E+00	**3E+00**
23	RD	084039	**1E-05**	<1	<1
23	RD	085036	--	<1	<1
23	RD	085037	--	<1	<1
23	RD	085038	--	8E+00	**6E+00**
23	RD	085039	**2E-04**	6E+00	**3E+00**
23	RD	085042	1E-09	<1	<1
23	RD	086037	8E-10	<1	<1
23	RD	086039	6E-08	4E+00	**4E+00**
23	RD	086042	4E-08	<1	<1
23	RD	086043	5E-09	<1	<1
23	RD	087043	**5E-04**	8E+00	**5E+00**
23	RD	088038	**3E-04**	7E+00	**6E+00**
23	RD	088039	**5E-06**	<1	<1
23	RD	088040	**3E-04**	5E+02	**5E+02**

TABLE 3-8: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
23	RD	088042	**6E-05**	2E+02	**2E+02**
23	RD	088043	**2E-06**	3E+00	<1
23	RD	088044	8E-08	--	**--**
23	RD	089038	**7E-04**	1E+01	**9E+00**
23	RD	089039	**6E-04**	1E+02	**1E+02**
23	RD	089040	**4E-04**	4E+03	**4E+03**
23	RD	089041	**7E-06**	8E+00	**6E+00**
23	RD	089042	**--**	<1	<1
23	RD	090039	**2E-03**	2E+02	**1E+02**
23	RD	090040	**5E-05**	2E+01	**1E+01**
23	RD	090041	**1E-05**	1E+01	**8E+00**
23	RD	091040	**8E-04**	1E+04	**1E+04**
24	RD	086034	9E-07	<1	<1
24	RD	087036	9E-07	8E+00	**6E+00**
24	RD	088032	**--**	<1	<1
24	RD	088035	**--**	2E+00	**2E+00**
24	RD	088036	**2E-03**	2E+01	**1E+01**
24	RD	089030	1E-08	<1	<1
24	RD	089034	**--**	5E+00	**5E+00**
24	RD	089035	**5E-04**	1E+01	**1E+01**
24	RD	089036	**4E-04**	4E+01	**4E+01**
24	RD	089037	**4E-04**	7E+01	**5E+01**
24	RD	090033	**--**	2E+00	**2E+00**
24	RD	090034	**9E-06**	2E+00	**2E+00**
24	RD	090035	**2E-06**	4E+00	**4E+00**
24	RD	090037	**8E-04**	1E+01	**9E+00**
24	RD	090038	**2E-06**	2E+00	**2E+00**
24	RD	091034	**--**	4E+00	**4E+00**
24	RD	091035	6E-09	6E+00	**4E+00**
24	RD	091036	**--**	8E+00	**8E+00**
24	RD	091037	**--**	9E+01	**8E+01**
24	RD	091039	3E-07	7E+00	**5E+00**
24	RD	092034	**--**	2E+00	**2E+00**
24	RD	092035	**4E-04**	7E+00	**5E+00**
24	RD	092036	**6E-04**	7E+01	**7E+01**
24	RD	092037	**5E-04**	1E+01	**1E+01**
24	RD	092038	**3E-04**	8E+00	**7E+00**
24	RD	093029	**--**	--[a]	**--**[a]
24	RD	093030	**7E-06**	7E+00	**4E+00**
24	RD	093031	**--**	<1	<1
24	RD	093035	**--**	4E+00	**4E+00**
24	RD	093036	**6E-04**	2E+01	**1E+01**
24	RD	094035	**5E-06**	9E+00	**9E+00**
24	RD	095032	4E-09	<1	<1

TABLE 3-8: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
24	RD	096028	--	3E+00	**3E+00**
24	RD	097029	--	<1	<1
26	MU	091041	5E-07	3E+00	**2E+00**
26	MU	092039	5E-09	<1	<1
26	MU	092040	6E-07	<1	<1
26	MU	092041	**4E-06**	2E+00	**2E+00**
26	MU	092042	3E-09	<1	<1
26	MU	094040	--	<1	<1
26	MU	094041	5E-08	1E+01	**3E+00**
26	MU	094042	3E-08	<1	<1
26	MU	095042	**2E-06**	<1	<1
26	MU	098041	3E-07	<1	<1
26	MU	098042	--	<1	<1
26	MU	099042	--	<1	<1
20B	E/C	AX10	**5E-06**	<1	<1
20B	E/C	AY09	**2E-06**	<1	<1
20B	E/C	AY10	**6E-04**	2E+00	<1
20B	E/C	AY11	2E-07	<1	<1
20B	E/C	AZ08	**5E-06**	<1	<1
20B	E/C	AZ10	**4E-05**	<1	<1
20B	E/C	AZ11	4E-09	<1	<1
20B	E/C	BA09	4E-07	<1	<1
22	E/C	AY06	--	<1	<1
22	E/C	AZ07	3E-07	<1	<1
22	E/C	BA03	6E-07	<1	<1
22	E/C	BA07	**4E-05**	<1	<1
22	E/C	BA08	**4E-06**	<1	<1
22	E/C	BB03	6E-07	<1	<1
22	E/C	BB06	**5E-05**	<1	<1
25	E/C	BB08	1E-06	<1	<1
25	E/C	BC07	1E-06	<1	<1
25	E/C	BC08	2E-07	<1	<1
25	E/C	BD08	**3E-05**	<1	<1
25	E/C	BD09	4E-10	<1	<1
CMI-1	MI	AV15	4E-07	<1	<1
CMI-1	MI	AV18	1E-06	<1	<1
CMI-1	MI	AY16	2E-08	--	--
CMI-1	MI	BA18	--	<1	<1
CMI-1	MI	BA19	9E-09	<1	<1
CMI-1	MI	BB18	--	<1	<1
CMI-1	MI	BB19	--	<1	<1
CMI-1	MI	BC15	7E-09	<1	<1
CMI-1	MI	BC18	--	<1	<1
COS-1	OS	AW09	3E-08	<1	<1

TABLE 3-8: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SURFACE SOIL (0 TO 2 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
COS-1	OS	AX09	**3E-06**	<1	<1
COS-1	OS	AY07	**--**	<1	<1
COS-1	OS	AY08	3E-07	<1	<1
COS-2	OS	BB05	**9E-06**	<1	<1
COS-2	OS	BC03	6E-08	<1	<1
COS-2	OS	BC04	1E-06	<1	<1
COS-2	OS	BC05	**4E-05**	<1	<1
COS-2	OS	BC06	**--**	<1	<1
COS-2	OS	BD03	8E-07	<1	<1
COS-2	OS	BD04	**3E-06**	<1	<1
COS-2	OS	BE04	**--**	<1	<1
COS-3	OS	BA13	**6E-05**	<1	<1
COS-3	OS	BB12	3E-10	<1	<1
COS-3	OS	BC11	7E-07	<1	<1
COS-3	OS	BC12	**--**	<1	<1
COS-3	OS	BD06	**--**	<1	<1
COS-3	OS	BD07	**--**	<1	<1
COS-3	OS	BD10	**--**	<1	<1
COS-3	OS	BD11	1E-06	<1	<1
COS-3	OS	BD12	**--**	<1	<1
COS-3	OS	BE05	**4E-05**	<1	<1
COS-3	OS	BE06	**5E-05**	<1	<1
COS-3	OS	BE07	**4E-06**	<1	<1
COS-3	OS	BF07	8E-07	<1	<1
COS-3	OS	BF09	2E-07	<1	<1

Notes: Values shown in **boldface** exceed the threshold level of 1E-06 for cancer risks and 1.0 for segregated noncancer hazards.

a Chemicals of potential concern for this grid are limited to lead; detected concentrations do not exceed risk-based concentrations for lead for any samples in this grid (see Table C2-23 of Attachment C2).

-- Not applicable
bgs Below ground surface
E/C Educational/Cultural (industrial exposure scenario)
MI Maritime/Industrial (industrial exposure scenario)
MU Mixed use (residential exposure scenario)
OS Open space (recreational exposure scenario)
RD Research and development (residential exposure scenario)
RME Reasonable maximum exposure

TABLE 3-9: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
10	MU	063024	--	<1	<1
10	MU	063027	--	<1	<1
10	MU	063028	--	<1	<1
10	MU	064024	**2E-05**	<1	<1
10	MU	064026	3E-07	<1	<1
10	MU	064027	7E-08	<1	<1
10	MU	064028	**1E-05**	2E+00	<1
10	MU	064029	--	<1	<1
10	MU	065026	**5E-06**	<1	<1
10	MU	065027	**4E-06**	<1	<1
10	MU	065028	**2E-05**	2E+00	**2E+00**
10	MU	065029	2E-07	5E+00	**4E+00**
10	MU	066025	4E-07	<1	<1
10	MU	066026	1E-06	<1	<1
10	MU	066027	**1E-05**	<1	<1
10	MU	066028	**2E-05**	<1	<1
10	MU	067025	--	2E+00	**2E+00**
10	MU	067026	**5E-05**	2E+00	<1
10	MU	067027	**5E-06**	4E+00	**3E+00**
10	MU	067028	2E-07	6E+00	**5E+00**
10	MU	068025	**2E-05**	5E+00	**2E+00**
10	MU	068026	**2E-04**	4E+00	**2E+00**
10	MU	068027	**1E-05**	9E+00	**6E+00**
10	MU	069025	--	<1	<1
10	MU	069026	8E-07	6E+00	**3E+00**
10	MU	069027	4E-07	2E+00	**2E+00**
10	MU	070025	2E-07	5E+00	**3E+00**
10	MU	070026	--	2E+00	**2E+00**
11	MU	064020	4E-08	<1	<1
11	MU	064023	4E-07	<1	<1
11	MU	065020	5E-07	<1	<1
11	MU	065021	6E-07	2E+00	**2E+00**
11	MU	065022	**2E-04**	<1	<1
11	MU	065023	**1E-05**	2E+00	<1
11	MU	065024	8E-08	<1	<1
11	MU	066020	8E-07	<1	<1
11	MU	066021	1E-06	<1	<1
11	MU	066022	**1E-04**	6E+00	**2E+00**
11	MU	066023	**8E-06**	5E+00	**2E+00**
11	MU	066024	7E-07	5E+00	**5E+00**
11	MU	067019	**4E-06**	<1	<1
11	MU	067020	**2E-06**	5E+00	**5E+00**
11	MU	067021	**7E-06**	<1	<1
11	MU	067022	**3E-05**	<1	<1
11	MU	067023	2E-07	2E+00	**2E+00**
11	MU	067024	**2E-06**	3E+00	**3E+00**

TABLE 3-9: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
11	MU	068019	2E-07	<1	<1
11	MU	068020	**2E-06**	4E+00	**3E+00**
11	MU	068022	**8E-06**	<1	<1
11	MU	068024	**6E-06**	3E+00	**2E+00**
11	MU	069022	**1E-05**	2E+00	<1
11	MU	069023	3E-08	<1	<1
11	MU	069024	1E-07	4E+00	**3E+00**
11	MU	070024	**--**	<1	<1
11	MU	071019	2E-08	<1	<1
11	MU	071024	**--**	<1	<1
13	MU	075027	1E-07	6E+00	**3E+00**
13	MU	077028	9E-08	5E+00	**2E+00**
13	MU	078028	**--**	<1	<1
13	MU	079027	**--**	4E+00	**4E+00**
13	MU	079029	**--**	<1	<1
13	MU	079030	**--**	1E+01	**4E+00**
13	MU	080025	**6E-06**	3E+00	**3E+00**
13	MU	080026	4E-07	9E+00	**4E+00**
13	MU	080029	**--**	<1	<1
13	MU	081027	**--**	--[a]	**--**[a]
13	MU	082026	**7E-05**	<1	<1
13	MU	082027	**--**	3E+00	**2E+00**
18	RD	075039	4E-08	<1	<1
18	RD	075043	**--**	<1	<1
18	RD	075044	**--**	<1	<1
18	RD	076034	**--**	<1	<1
18	RD	076038	**8E-06**	<1	<1
18	RD	076039	**1E-05**	<1	<1
18	RD	076040	9E-07	<1	<1
18	RD	076043	4E-07	<1	<1
18	RD	077035	**--**	<1	<1
18	RD	077037	**3E-04**	<1	<1
18	RD	077038	**1E-05**	<1	<1
18	RD	077039	**3E-05**	<1	<1
18	RD	077040	1E-07	<1	<1
18	RD	078032	**--**	<1	<1
18	RD	078036	**4E-04**	7E+00	**5E+00**
18	RD	078037	**2E-05**	<1	<1
18	RD	078038	**1E-05**	<1	<1
18	RD	078039	**1E-05**	<1	<1
18	RD	078040	4E-08	<1	<1
18	RD	078041	6E-08	<1	<1
18	RD	079037	**3E-06**	<1	<1
18	RD	079038	**5E-06**	<1	<1
18	RD	079039	2E-07	2E+00	<1
18	RD	079040	2E-09	3E+00	<1

TABLE 3-9: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
18	RD	079041	**4E-04**	3E+00	<1
18	RD	080038	**5E-06**	2E+00	<1
18	RD	080039	1E-07	<1	<1
18	RD	080040	**8E-06**	<1	<1
18	RD	081037	3E-09	<1	<1
18	RD	081038	7E-07	<1	<1
18	RD	082035	**--**	2E+00	**2E+00**
18	RD	084036	8E-08	<1	<1
20A	RD	081029	3E-09	<1	<1
20A	RD	081030	**8E-06**	<1	<1
20A	RD	081031	**--**	<1	<1
20A	RD	081032	**--**	<1	<1
20A	RD	083032	8E-08	1E+01	**1E+01**
20A	RD	083033	**--**	<1	<1
20A	RD	083034	9E-07	<1	<1
20A	RD	084028	**--**	<1	<1
20A	RD	084029	**2E-06**	4E+00	**3E+00**
20A	RD	084030	**5E-06**	2E+00	<1
20A	RD	084035	1E-08	1E+01	**6E+00**
20A	RD	085029	4E-08	<1	<1
20A	RD	085030	8E-07	4E+00	**2E+00**
20A	RD	085031	**1E-05**	1E+01	**8E+00**
20A	RD	085032	5E-07	5E+00	**3E+00**
20A	RD	086030	**4E-06**	4E+00	**2E+00**
20A	RD	086031	**2E-05**	2E+01	**1E+01**
20A	RD	086032	**5E-05**	1E+01	**8E+00**
20A	RD	087031	**2E-05**	7E+00	**4E+00**
20A	RD	087032	**5E-06**	5E+00	**3E+00**
23	RD	083043	**6E-04**	8E+00	**3E+00**
23	RD	084039	**1E-05**	8E+00	**6E+00**
23	RD	085036	**--**	<1	<1
23	RD	085037	**--**	<1	<1
23	RD	085038	**4E-04**	3E+01	**1E+01**
23	RD	085039	**2E-04**	5E+00	**2E+00**
23	RD	085042	1E-09	<1	<1
23	RD	086037	8E-10	2E+00	**2E+00**
23	RD	086039	6E-08	4E+00	**4E+00**
23	RD	086040	1E-06	<1	<1
23	RD	086042	**6E-04**	<1	<1
23	RD	086043	5E-09	<1	<1
23	RD	087037	2E-08	2E+01	**2E+01**
23	RD	087038	**4E-04**	1E+02	**1E+02**
23	RD	087042	**1E-05**	2E+00	**2E+00**
23	RD	087043	**5E-04**	7E+00	**5E+00**
23	RD	088038	**1E-03**	1E+02	**9E+01**
23	RD	088039	**3E-04**	2E+02	**2E+02**

TABLE 3-9: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
23	RD	088040	**3E-04**	5E+02	**5E+02**
23	RD	088041	**2E-06**	2E+00	**2E+00**
23	RD	088042	**6E-05**	2E+02	**2E+02**
23	RD	088043	**3E-06**	2E+02	**2E+02**
23	RD	088044	8E-08	2E+00	**2E+00**
23	RD	089038	**6E-04**	4E+01	**3E+01**
23	RD	089039	**2E-04**	6E+02	**6E+02**
23	RD	089040	**5E-04**	2E+03	**2E+03**
23	RD	089041	**4E-05**	2E+01	**7E+00**
23	RD	089042	**1E-05**	4E+00	<1
23	RD	089043	9E-08	2E+00	<1
23	RD	090039	**1E-03**	2E+02	**1E+02**
23	RD	090040	**3E-05**	1E+01	**3E+00**
23	RD	090041	**3E-05**	8E+01	**7E+01**
23	RD	091040	**4E-04**	1E+04	**1E+04**
24	RD	086034	9E-07	<1	<1
24	RD	087033	2E-09	<1	<1
24	RD	087036	**1E-03**	2E+01	**1E+01**
24	RD	088032	3E-08	<1	<1
24	RD	088034	**2E-06**	6E+00	**3E+00**
24	RD	088035	3E-08	5E+01	**5E+01**
24	RD	088036	**1E-03**	2E+01	**1E+01**
24	RD	088037	**4E-04**	3E+01	**2E+01**
24	RD	089030	1E-08	<1	<1
24	RD	089032	**6E-06**	<1	<1
24	RD	089033	**8E-06**	3E+00	**2E+00**
24	RD	089034	**4E-06**	9E+00	**4E+00**
24	RD	089035	**7E-04**	2E+01	**1E+01**
24	RD	089036	**6E-04**	2E+01	**1E+01**
24	RD	089037	**4E-04**	7E+01	**5E+01**
24	RD	090033	**2E-05**	3E+00	**2E+00**
24	RD	090034	**6E-04**	6E+00	**4E+00**
24	RD	090035	**5E-04**	2E+01	**1E+01**
24	RD	090036	2E-09	5E+00	**5E+00**
24	RD	090037	**8E-04**	1E+01	**9E+00**
24	RD	090038	**2E-06**	2E+01	**2E+01**
24	RD	091032	**--**	8E+00	**3E+00**
24	RD	091033	3E-11	<1	<1
24	RD	091034	8E-08	4E+00	**4E+00**
24	RD	091035	8E-09	9E+00	**5E+00**
24	RD	091036	**6E-06**	1E+01	**7E+00**
24	RD	091037	**--**	9E+01	**9E+01**
24	RD	091039	8E-07	1E+01	**1E+01**
24	RD	092030	2E-07	<1	<1
24	RD	092033	**--**	<1	<1
24	RD	092034	**--**	2E+00	**2E+00**

TABLE 3-9: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
24	RD	092035	**3E-04**	6E+00	**5E+00**
24	RD	092036	**6E-04**	5E+01	**5E+01**
24	RD	092037	**5E-04**	2E+01	**1E+01**
24	RD	092038	**3E-04**	8E+00	**7E+00**
24	RD	093029	**--**	--[a]	**--**[a]
24	RD	093030	**7E-06**	8E+00	**3E+00**
24	RD	093031	**--**	3E+00	**3E+00**
24	RD	093034	**4E-06**	4E+00	**4E+00**
24	RD	093035	**4E-04**	7E+00	**5E+00**
24	RD	093036	**5E-04**	2E+01	**1E+01**
24	RD	093037	**--**	3E+00	**2E+00**
24	RD	094030	**4E-04**	1E+01	**8E+00**
24	RD	094034	**3E-04**	8E+02	**7E+02**
24	RD	094035	**4E-04**	1E+03	**1E+03**
24	RD	095032	**2E-04**	6E+00	**3E+00**
24	RD	096028	**--**	3E+00	**3E+00**
24	RD	096032	**--**	3E+00	**2E+00**
24	RD	097029	**--**	6E+00	**5E+00**
26	MU	089044	**7E-06**	3E+01	**2E+01**
26	MU	090042	2E-07	4E+00	**4E+00**
26	MU	091041	**3E-04**	8E+00	**5E+00**
26	MU	091042	**2E-06**	2E+00	**2E+00**
26	MU	091043	**4E-05**	<1	<1
26	MU	092039	7E-09	1E+01	**1E+01**
26	MU	092040	**3E-06**	2E+01	**1E+01**
26	MU	092041	**4E-06**	3E+00	**2E+00**
26	MU	092042	**1E-05**	<1	<1
26	MU	092043	**2E-05**	3E+00	**2E+00**
26	MU	093043	**--**	2E+00	**2E+00**
26	MU	094040	**--**	<1	<1
26	MU	094041	5E-08	1E+01	**3E+00**
26	MU	094042	3E-08	<1	<1
26	MU	095038	**--**	7E+00	**5E+00**
26	MU	095039	**--**	4E+00	**4E+00**
26	MU	095042	**2E-06**	3E+00	**2E+00**
26	MU	098041	3E-07	<1	<1
26	MU	098042	1E-08	6E+00	**4E+00**
26	MU	099042	**--**	<1	<1
20B	E/C	AX10	**4E-06**	<1	<1
20B	E/C	AY09	**2E-06**	<1	<1
20B	E/C	AY10	**1E-04**	3E+00	**3E+00**
20B	E/C	AY11	**1E-05**	<1	<1
20B	E/C	AZ08	**3E-06**	<1	<1
20B	E/C	AZ10	**4E-05**	<1	<1
20B	E/C	AZ11	4E-09	<1	<1
20B	E/C	BA09	**5E-05**	<1	<1

TABLE 3-9: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS) (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
22	E/C	AY06	**--**	<1	<1
22	E/C	AZ07	**5E-06**	<1	<1
22	E/C	BA03	6E-07	<1	<1
22	E/C	BA07	**1E-04**	<1	<1
22	E/C	BA08	**1E-04**	<1	<1
22	E/C	BB03	6E-07	1E+01	**1E+01**
22	E/C	BB06	**3E-05**	<1	<1
22	E/C	BB07	8E-07	<1	<1
25	E/C	BB08	**1E-05**	<1	<1
25	E/C	BB09	1E-06	<1	<1
25	E/C	BC07	**2E-06**	<1	<1
25	E/C	BC08	7E-07	<1	<1
25	E/C	BC09	**2E-06**	<1	<1
25	E/C	BC10	3E-10	<1	<1
25	E/C	BD08	**4E-05**	<1	<1
25	E/C	BD09	4E-10	<1	<1
CMI-1	MI	AV15	**4E-05**	<1	<1
CMI-1	MI	AV18	1E-06	<1	<1
CMI-1	MI	AY16	2E-08	<1	<1
CMI-1	MI	AZ16	1E-06	<1	<1
CMI-1	MI	BA18	**--**	<1	<1
CMI-1	MI	BA19	9E-09	<1	<1
CMI-1	MI	BB18	**4E-04**	<1	<1
CMI-1	MI	BB19	1E-06	<1	<1
CMI-1	MI	BC15	1E-08	<1	<1
CMI-1	MI	BC18	**--**	<1	<1

Notes:

Values shown in **boldface** exceed the threshold level of 1E-06 for cancer risks and 1.0 for segregated noncancer hazards.

a Chemicals of potential concern for this grid are limited to lead; detected concentrations do not exceed risk-based concentrations for lead for any samples in this grid (see Table C2-23 of Attachment C2).

-- Not applicable

bgs Below ground surface

E/C Educational/cultural (industrial exposure scenario)

MI Maritime/Industrial (industrial exposure scenario)

MU Mixed use (residential exposure scenario)

RD Research and development (residential exposure scenario)

RME Reasonable maximum exposure

TABLE 3-10: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
10	MU	AQ09	6E-07	<1	<1
10	MU	AQ10	5E-07	<1	<1
10	MU	AQ11	--	<1	<1
10	MU	AR10	**3E-06**	<1	<1
10	MU	AR11	4E-09	<1	<1
10	MU	AS10	**4E-06**	<1	<1
11	MU	AQ08	2E-09	<1	<1
11	MU	AR07	2E-07	<1	<1
11	MU	AR08	**3E-06**	<1	<1
11	MU	AR09	4E-07	<1	<1
11	MU	AS07	9E-09	<1	<1
11	MU	AS08	4E-07	<1	<1
11	MU	AS09	4E-07	<1	<1
11	MU	AT07	4E-10	<1	<1
11	MU	AT09	--	<1	<1
13	MU	AU10	2E-09	<1	<1
13	MU	AV10	5E-09	<1	<1
13	MU	AV11	--	2E+00	<1
13	MU	AW10	1E-07	<1	<1
18	RD	AU12	--	<1	<1
18	RD	AU14	6E-07	<1	<1
18	RD	AU15	8E-09	<1	<1
18	RD	AU16	--	<1	<1
18	RD	AV12	--	<1	<1
18	RD	AV13	**6E-06**	<1	<1
18	RD	AV14	7E-07	<1	<1
18	RD	AW13	7E-11	<1	<1
18	RD	AW14	2E-07	<1	<1
20A	RD	AW11	5E-07	<1	<1
20A	RD	AW12	--	<1	<1
20A	RD	AX11	4E-07	<1	<1
20A	RD	AX12	6E-08	<1	<1
23	RD	AX13	2E-09	<1	<1
23	RD	AX14	**6E-06**	2E+00	<1
23	RD	AX15	**1E-05**	2E+00	<1
23	RD	AY14	**1E-05**	4E+01	**4E+01**
23	RD	AY15	**5E-06**	7E+01	**7E+01**
23	RD	AZ14	**8E-06**	1E+02	**1E+02**
23	RD	AZ15	**2E-06**	3E+01	**3E+01**
24	RD	AY12	6E-07	<1	<1
24	RD	AY13	**1E-05**	2E+00	<1
24	RD	AZ12	**4E-06**	2E+00	<1
24	RD	AZ13	**1E-05**	3E+00	<1

TABLE 3-10: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
24	RD	BA11	**1E-05**	2E+00	<1
24	RD	BA12	**6E-06**	3E+02	**3E+02**
24	RD	BB10	**--**	<1	<1
24	RD	BB11	**--**	<1	<1
26	MU	BA14	**4E-06**	<1	<1
26	MU	BA15	5E-07	<1	<1
26	MU	BB15	1E-07	<1	<1
20B	E/C	AX10	1E-06	<1	<1
20B	E/C	AY09	5E-07	<1	<1
20B	E/C	AY10	**3E-05**	2E+01	**2E+01**
20B	E/C	AY11	8E-07	<1	<1
20B	E/C	AZ08	7E-07	<1	<1
20B	E/C	AZ10	**1E-05**	3E+00	**2E+00**
20B	E/C	AZ11	3E-10	<1	<1
20B	E/C	BA09	**1E-05**	<1	<1
22	E/C	AY06	**--**	<1	<1
22	E/C	AZ07	1E-06	<1	<1
22	E/C	BA03	2E-07	<1	<1
22	E/C	BA07	**3E-05**	2E+00	<1
22	E/C	BA08	**3E-05**	4E+00	**3E+00**
22	E/C	BB03	2E-07	7E+01	**7E+01**
22	E/C	BB06	**8E-06**	<1	<1
22	E/C	BB07	2E-07	<1	<1
25	E/C	BB08	**2E-06**	<1	<1
25	E/C	BB09	3E-07	<1	<1
25	E/C	BC07	5E-07	<1	<1
25	E/C	BC08	9E-08	<1	<1
25	E/C	BC09	6E-07	<1	<1
25	E/C	BC10	1E-11	<1	<1
25	E/C	BD08	**1E-05**	2E+00	**2E+00**
25	E/C	BD09	2E-11	<1	<1
CMI-1	MI	AV15	**1E-05**	<1	<1
CMI-1	MI	AV18	3E-07	<1	<1
CMI-1	MI	AY16	4E-09	<1	<1
CMI-1	MI	AZ16	4E-07	<1	<1
CMI-1	MI	BA18	**--**	<1	<1
CMI-1	MI	BA19	4E-10	<1	<1
CMI-1	MI	BB18	**1E-04**	3E+00	<1
CMI-1	MI	BB19	3E-07	<1	<1
CMI-1	MI	BC15	2E-09	<1	<1
CMI-1	MI	BC18	**--**	<1	<1
COS-1	OS	AW09	7E-09	<1	<1

TABLE 3-10: INCREMENTAL RISK - SUMMARY OF CANCER RISKS AND HAZARD INDICES BY PLANNED REUSE, SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	RME Cancer Risk	RME Hazard Index	RME Segregated Hazard Index
COS-1	OS	AX09	**9E-06**	<1	<1
COS-1	OS	AY07	1E-07	<1	<1
COS-1	OS	AY08	5E-08	<1	<1
COS-2	OS	BB05	**5E-06**	<1	<1
COS-2	OS	BC03	1E-08	<1	<1
COS-2	OS	BC04	**1E-05**	<1	<1
COS-2	OS	BC05	**9E-06**	<1	<1
COS-2	OS	BC06	**8E-06**	<1	<1
COS-2	OS	BD02	8E-09	<1	<1
COS-2	OS	BD03	**3E-06**	<1	<1
COS-2	OS	BD04	**5E-06**	<1	<1
COS-2	OS	BD05	3E-07	<1	<1
COS-2	OS	BE04	6E-09	<1	<1
COS-3	OS	BA13	**1E-05**	6E+02	**6E+02**
COS-3	OS	BB12	**8E-06**	<1	<1
COS-3	OS	BB14	**--**	<1	<1
COS-3	OS	BC11	1E-07	<1	<1
COS-3	OS	BC12	**--**	<1	<1
COS-3	OS	BD06	4E-09	<1	<1
COS-3	OS	BD07	7E-09	<1	<1
COS-3	OS	BD10	**--**	<1	<1
COS-3	OS	BD11	9E-07	<1	<1
COS-3	OS	BD12	1E-08	<1	<1
COS-3	OS	BE05	**7E-06**	3E+00	**2E+00**
COS-3	OS	BE06	**1E-05**	<1	<1
COS-3	OS	BE07	8E-07	<1	<1
COS-3	OS	BF07	2E-07	<1	<1
COS-3	OS	BF08	**--**	<1	<1
COS-3	OS	BF09	4E-08	<1	<1

Notes: Values shown in **boldface** exceed the threshold level of 1E-06 for cancer risks and 1.0 for segregated noncancer hazards.

-- Not applicable
bgs Below ground surface
E/C Educational/cultural (industrial exposure scenario)
MI Maritime/Industrial (industrial exposure scenario)
MU Mixed use (residential exposure scenario)
OS Open space (recreational exposure scenario)
RD Research and development (residential exposure scenario)
RME Reasonable maximum exposure

TABLE 3-11: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
10	MU	066027	2E-06	<1	<1	Pest/PCB	AROCLOR-1260	C	0.46 - 0.46	4.60E-01	1/1	2.18E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
10	MU	067026	7E-05	<1	<1	PAH	BENZO(A)ANTHRACENE	C	1.8 - 1.8	1.80E+00	1/11	4.87E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.011 - 1.9	1.90E+00	2/11	5.09E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.03 - 3	3.00E+00	2/11	8.87E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	1.1 - 1.1	1.10E+00	1/10	3.25E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.13 - 0.13	1.30E-01	1/10	2.25E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.51 - 0.51	5.10E-01	1/11	1.47E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
10	MU	068025	7E-06	5E+00	3E+00	SVOC	3,3'-DICHLOROBENZIDINE	C	0.036 - 0.036	3.60E-02	1/4	4.48E-06	1.5 %	0.5 %	0 %	98 %	--	--	--	--	--
						Metal	IRON	NC	35800 - 58200	5.66E+04	4/4	--	--	--	--	--	2.58E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	894 - 2050	1.91E+03	4/4	--	--	--	--	--	2.26E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.078 - 0.078	7.80E-02	1/5	2.09E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
10	MU	068026	1E-05	4E+00	2E+00	Metal	ANTIMONY	NC	2.5 - 15.5	1.55E+01	7/11	--	--	--	--	--	1.52E+00	32.7 %	0 %	0 %	67.3 %
							MANGANESE	NC	433 - 1670	1.01E+03	11/11	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.31 - 0.31	3.10E-01	1/1	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.51 - 0.51	5.10E-01	1/1	1.51E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
						Pest/PCB	DIELDRIN	C	0.002 - 0.002	2.00E-03	1/4	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
10	MU	069026	3E-08	<1	<1	Metal	LEAD	NC	12.5 - 218	2.18E+02	3/3	--	--	--	--	--	--	--	--	--	--
10	MU	069027	4E-07	2E+00	2E+00	Metal	ANTIMONY	NC	6.6 - 15.5	1.55E+01	3/4	--	--	--	--	--	1.52E+00	32.7 %	0 %	0 %	67.3 %
							LEAD	NC	15.6 - 239	2.39E+02	4/4	--	--	--	--	--	--	--	--	--	--
11	MU	066022	2E-05	2E+00	2E+00	PAH	BENZO(A)PYRENE	C	0.21 - 0.21	2.10E-01	1/1	5.63E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C,NC	2.4 - 2.4	2.40E+00	1/1	1.14E-05	66.1 %	29.2 %	0 %	4.7 %	2.20E+00	69.6 %	27.3 %	0 %	3.1 %
11	MU	066023	3E-06	<1	<1	PAH	BENZO(A)ANTHRACENE	C	0.42 - 0.42	4.20E-01	1/4	1.14E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.34 - 0.34	3.40E-01	1/4	1.00E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
11	MU	066024	1E-07	5E+00	5E+00	Metal	MANGANESE	NC	3890 - 3890	3.89E+03	1/1	--	--	--	--	--	4.61E+00	44.9 %	0 %	2.9 %	52.2 %
11	MU	067023	2E-07	2E+00	2E+00	Metal	MANGANESE	NC	780 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %
11	MU	067024	2E-06	4E+00	4E+00	Metal	MANGANESE	NC	951 - 3200	3.20E+03	3/3	--	--	--	--	--	3.80E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.038 - 0.038	3.80E-02	1/3	1.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
11	MU	068024	2E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.046 - 0.046	4.60E-02	1/1	1.23E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
13	MU	075027	1E-07	4E+00	3E+00	Metal	IRON	NC	70600 - 70600	7.06E+04	1/1	--	--	--	--	--	3.21E+00	93.6 %	0 %	0 %	6.4 %
13	MU	077028	9E-08	5E+00	3E+00	Metal	MANGANESE	NC	525 - 2110	2.11E+03	6/6	--	--	--	--	--	2.50E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	124 - 124	1.24E+02	1/1	--	--	--	--	--	1.91E+00	82.9 %	0 %	0 %	17.1 %
13	MU	079027	--	4E+00	4E+00	Metal	MANGANESE	NC	2960 - 2960	2.96E+03	1/1	--	--	--	--	--	3.51E+00	44.9 %	0 %	2.9 %	52.2 %
13	MU	079030	--	1E+01	4E+00	Metal	IRON	NC	59300 - 59300	5.93E+04	1/1	--	--	--	--	--	2.70E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	3150 - 3150	3.15E+03	1/1	--	--	--	--	--	3.74E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	165 - 165	1.65E+02	1/1	--	--	--	--	--	2.54E+00	82.9 %	0 %	0 %	17.1 %
13	MU	080025	6E-06	3E+00	3E+00	Metal	MANGANESE	NC	1950 - 1950	1.95E+03	1/1	--	--	--	--	--	2.31E+00	44.9 %	0 %	2.9 %	52.2 %
						Pest/PCB	DIELDRIN	C	0.004 - 0.004	4.00E-03	1/1	6.07E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
13	MU	080026	--	9E+00	4E+00	Metal	IRON	NC	41800 - 58100	5.57E+04	6/6	--	--	--	--	--	2.54E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	157 - 4480	2.58E+03	16/16	--	--	--	--	--	3.06E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	90.2 - 147	1.32E+02	6/6	--	--	--	--	--	2.04E+00	82.9 %	0 %	0 %	17.1 %
13	MU	082026	7E-05	<1	<1	Pest/PCB	DIELDRIN	C	0.045 - 0.045	4.50E-02	1/1	6.83E-05	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
13	MU	082027	--	3E+00	2E+00	Metal	VANADIUM	NC	150 - 150	1.50E+02	1/1	--	--	--	--	--	2.31E+00	82.9 %	0 %	0 %	17.1 %
18	RD	077038	2E-06	<1	<1	VOC	BENZENE	C	0.26 - 0.26	2.60E-01	1/2	1.46E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	078037	7E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.14 - 0.14	1.40E-01	1/7	3.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						VOC	BENZENE	C	0.006 - 0.23	2.30E-01	4/5	1.29E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	078039	3E-06	<1	<1	Pest/PCB	GAMMA-BHC (LINDANE)	C	0.0089 - 0.0089	8.90E-03	1/2	3.36E-06	0.5 %	0.1 %	0 %	99.4 %	<1	--	--	--	--
18	RD	079037	3E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.078 - 0.078	7.80E-02	1/2	2.09E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
18	RD	079039	2E-08	2E+00	2E+00	Metal	VANADIUM	NC	121 - 121	1.21E+02	1/1	--	--	--	--	--	1.87E+00	82.9 %	0 %	0 %	17.1 %
18	RD	079041	3E-06	2E+00	<1	SVOC	BIS(2-ETHYLHEXYL)PHTHALATE	C	1.5 - 1.5	1.50E+00	1/1	1.31E-06	2.5 %	0.8 %	0 %	96.7 %	<1	--	--	--	--

TABLE 3-11: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
18	RD	082035	--	2E+00	2E+00	Metal	MANGANESE	NC	1660 - 1660	1.66E+03	1/1	--	--	--	--	--	1.97E+00	44.9 %	0 %	2.9 %	52.2 %
20A	RD	081030	7E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.26 - 0.26	2.60E-01	1/1	6.97E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
20A	RD	083032	8E-08	1E+01	1E+01	Metal	COPPER	NC	10 - 192	1.92E+02	5/5	--	--	--	--	--	1.21E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	200 - 8990	8.99E+03	5/5	--	--	--	--	--	1.07E+01	44.9 %	0 %	2.9 %	52.2 %
20A	RD	084030	3E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.091 - 0.091	9.10E-02	1/1	2.44E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
20A	RD	084035	1E-08	8E+00	8E+00	Metal	MANGANESE	NC	1560 - 6550	6550	4/4	--	--	--	--	--	7.77E+00	44.9 %	0 %	2.9 %	52.2 %
20A	RD	085030	7E-07	4E+00	2E+00	Metal	MANGANESE	NC	558 - 1908.5	1797.23021	4/4	--	--	--	--	--	2.13E+00	44.9 %	0 %	2.9 %	52.2 %
							ZINC	NC	41.8 - 855	745.478149	4/4	--	--	--	--	--	2.00E+00	1.6 %	0 %	0 %	98.4 %
20A	RD	085031	1E-05	2E+01	1E+01	Metal	COPPER	NC	36 - 690	690	5/5	--	--	--	--	--	4.34E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	630 - 3120	2492.67571	5/5	--	--	--	--	--	2.96E+00	44.9 %	0 %	2.9 %	52.2 %
							ZINC	NC	46 - 5600	3835.46572	5/5	--	--	--	--	--	1.03E+01	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)ANTHRACENE	C	0.039 - 0.37	0.37	2/5	1.00E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.0375 - 0.24	2.40E-01	2/5	6.43E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.054 - 0.44	4.40E-01	2/5	1.30E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
20A	RD	086030	3E-09	2E+00	2E+00	Metal	MANGANESE	NC	103 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %
20A	RD	086031	5E-07	1E+01	9E+00	Metal	CADMIUM	NC	5.04 - 5.04	5.04E+00	1/3	8.54E-09	--	--	--	--	1.46E+00	8.8 %	0 %	0 %	91.2 %
							ZINC	NC	35.5 - 3201.5	3.20E+03	3/3	--	--	--	--	--	8.58E+00	1.6 %	0 %	0 %	98.4 %
20A	RD	086032	1E-05	1E+01	6E+00	Metal	MANGANESE	NC	445 - 6540	4.99E+03	5/5	--	--	--	--	--	5.92E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	139 - 139	1.39E+02	1/1	--	--	--	--	--	2.14E+00	82.9 %	0 %	0 %	17.1 %
							ZINC	NC	36 - 540	5.40E+02	5/5	--	--	--	--	--	1.45E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.095 - 0.266	2.66E-01	2/5	7.13E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.17 - 0.344	3.44E-01	2/5	1.02E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
23	RD	083043	6E-04	5E+00	3E+00	Metal	ARSENIC	C,NC	21.1 - 21.1	2.11E+01	1/1	5.51E-04	56.6 %	5.4 %	0 %	38 %	1.35E+00	66.8 %	5.6 %	0.1 %	27.5 %
							VANADIUM	NC	166 - 166	1.66E+02	1/1	--	--	--	--	--	2.56E+00	82.9 %	0 %	0 %	17.1 %
23	RD	084039	1E-05	<1	<1	PAH	BENZO(A)PYRENE	C	0.31 - 0.31	3.10E-01	1/2	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	HEPTACHLOR EPOXIDE	C	0.0009 - 0.0009	9.00E-04	1/1	1.67E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--
23	RD	085038	--	8E+00	6E+00	Metal	MANGANESE	NC	5400 - 5400	5.40E+03	1/1	--	--	--	--	--	6.41E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	120 - 120	1.20E+02	1/1	--	--	--	--	--	1.85E+00	82.9 %	0 %	0 %	17.1 %
23	RD	085039	2E-04	6E+00	3E+00	Metal	ARSENIC	C	2.8 - 14	5.62E+00	9/12	1.47E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							CADMIUM	NC	0.285 - 4.5	4.50E+00	6/15	7.63E-09	--	--	--	--	1.30E+00	8.8 %	0 %	0 %	91.2 %
							LEAD	NC	12.5 - 215	1.14E+02	2/2	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	304 - 3400	2.08E+03	12/12	--	--	--	--	--	2.46E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)ANTHRACENE	C	0.014 - 0.53	5.30E-01	3/9	1.43E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.021 - 0.4	4.00E-01	2/9	1.07E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.36 - 0.36	3.60E-01	1/9	1.06E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.28 - 0.28	2.80E-01	1/9	1.33E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
23	RD	086039	6E-08	4E+00	4E+00	Metal	MANGANESE	NC	3330 - 3330	3.33E+03	1/1	--	--	--	--	--	3.95E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	087043	5E-04	8E+00	5E+00	Metal	ARSENIC	C,NC	3.72 - 18.3	1.83E+01	3/3	4.78E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	21.9 - 160	1.60E+02	3/3	--	--	--	--	--	1.01E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	600 - 4450	4.45E+03	3/3	--	--	--	--	--	5.28E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	088038	3E-04	7E+00	6E+00	Metal	ARSENIC	C	2.8 - 16.6	1.05E+01	7/8	2.75E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							MANGANESE	NC	416 - 5020	5.02E+03	8/8	--	--	--	--	--	5.95E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	088039	5E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.13 - 0.13	1.30E-01	1/3	3.48E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
23	RD	088040	3E-04	5E+02	5E+02	OrgLead	ORGANIC LEAD	NC	2.5 - 2.5	2.50E+00	1/1	--	--	--	--	--	4.79E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	12.8 - 12.8	1.28E+01	1/1	3.34E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	396 - 396	3.96E+02	1/1	--	--	--	--	--	2.49E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	225 -225	2.25E+02	1/1	--	--	--	--	--	--	--	--	--	--
							ZINC	NC	497 - 497	4.97E+02	1/1	--	--	--	--	--	1.33E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.13 - 0.13	1.30E-01	1/1	3.48E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--

TABLE 3-11: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
23	RD	088042	6E-05	2E+02	2E+02	OrgLead	ORGANIC LEAD	NC	0.86 - 0.86	8.60E-01	1/2	--	--	--	--	--	1.65E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	COPPER	NC	29 - 1600	1.60E+03	3/3	--	--	--	--	--	1.01E+01	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	3.9 - 240	8.33E+01	3/3	--	--	--	--	--	--	--	--	--	--
							ZINC	NC	47 - 1300	1.30E+03	3/3	--	--	--	--	--	3.48E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)ANTHRACENE	C	0.017 - 1.4	1.40E+00	2/3	3.79E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.019 - 1.2	1.20E+00	2/3	3.22E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.014 - 1.5	1.50E+00	3/3	4.43E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.65 - 0.65	6.50E-01	1/3	1.92E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.17 - 0.17	1.70E-01	1/3	2.94E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.48 - 0.48	4.80E-01	1/3	1.38E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C,NC	0.87 - 0.87	8.70E-01	1/3	9.36E-06	29.1 %	12.9 %	0 %	58 %	1.46E+00	38.2 %	15 %	0 %	46.8 %
							AROCLOR-1260	C	0.7 - 0.7	7.00E-01	1/3	3.32E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
						VOC	NAPHTHALENE	C	1.7 - 1.7	1.70E+00	1/3	1.02E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--
23	RD	088043	2E-06	3E+00	<1	PAH	BENZO(A)PYRENE	C	0.026 - 0.048	4.50E-02	6/8	1.21E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
23	RD	089038	7E-04	1E+01	9E+00	Metal	ARSENIC	C,NC	2 - 28.65	2.87E+01	3/3	7.48E-04	56.6 %	5.4 %	0 %	38 %	1.83E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	9.3 - 200	2.00E+02	3/3	--	--	--	--	--	1.26E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	223 - 7700	7.70E+03	3/3	--	--	--	--	--	9.13E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	089039	6E-04	1E+02	1E+02	OrgLead	ORGANIC LEAD	NC	0.5075 - 0.5075	5.08E-01	1/6	--	--	--	--	--	9.71E+01	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C,NC	2.95 - 40	2.03E+01	10/11	5.31E-04	56.6 %	5.4 %	0 %	38 %	1.30E+00	66.8 %	5.6 %	0.1 %	27.5 %
							CADMIUM	NC	0.53 - 5.8	3.76E+00	6/7	6.37E-09	--	--	--	--	1.09E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	16 - 605	6.05E+02	11/11	--	--	--	--	--	3.80E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	161 - 3010	1.64E+03	12/12	--	--	--	--	--	1.94E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)ANTHRACENE	C	0.016 - 0.48	4.80E-01	3/7	1.30E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.029 - 0.66	6.60E-01	3/7	1.77E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.076 - 0.62	6.20E-01	4/7	1.83E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.245 - 0.66	6.60E-01	2/7	1.95E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.011 - 0.15	1.50E-01	2/7	2.59E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.023 - 0.45	4.50E-01	2/7	1.30E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
23	RD	089040	4E-04	4E+03	4E+03	OrgLead	ORGANIC LEAD	NC	0.72 - 21	2.10E+01	2/5	--	--	--	--	--	4.02E+03	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	2.8 - 20	1.16E+01	10/10	3.03E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	30.8 - 714	3.52E+02	18/18	--	--	--	--	--	2.21E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	3.0 - 1730	2.62E+02	17/17	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	544 - 1670	1.01E+03	21/21	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	24.7 - 226	1.98E+02	4/4	--	--	--	--	--	3.06E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)ANTHRACENE	C	0.01 - 2.6	2.60E+00	10/13	7.03E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.018 - 1.9	7.66E-01	9/13	2.05E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.022 - 2	8.46E-01	8/13	2.50E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.021 - 1.3	5.62E-01	6/13	1.66E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.023 - 0.31	1.67E-01	4/13	2.89E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C,NC	0.018 - 4.6	4.60E+00	13/18	2.18E-05	66.1 %	29.2 %	0 %	4.7 %	4.22E+00	69.6 %	27.3 %	0 %	3.1 %
23	RD	089041	7E-06	8E+00	6E+00	Metal	COPPER	NC	45.4 - 1000	1.00E+03	6/6	--	--	--	--	--	6.28E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	9.9 - 265	1.34E+02	4/4	--	--	--	--	--	--	--	--	--	--
							ZINC	NC	130 - 592	5.92E+02	2/2	--	--	--	--	--	1.59E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.051 - 0.057	5.70E-02	2/2	1.53E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.1 - 0.1	1.00E-01	1/5	1.08E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--
							AROCLOR-1260	C	0.0355 - 0.58	4.98E-01	5/5	2.36E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--

TABLE 3-11: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
23	RD	090039	2E-03	2E+02	1E+02	OrgLead	ORGANIC LEAD	NC	0.73 - 0.73	7.30E-01	1/8	--	--	--	--	--	1.40E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C,NC	2.9 - 74.5	6.40E+01	8/8	1.67E-03	56.6 %	5.4 %	0 %	38 %	4.09E+00	66.8 %	5.6 %	0.1 %	27.5 %
							CADMIUM	NC	0.38 - 5.1	5.10E+00	5/12	8.65E-09	--	--	--	--	1.48E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	40.6 - 295	1.63E+02	12/12	--	--	--	--	--	1.02E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	880 - 14500	6.14E+03	12/12	--	--	--	--	--	7.29E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.028 - 0.3	1.85E-01	7/12	4.96E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
23	RD	090040	5E-05	2E+01	1E+01	Metal	COPPER	NC	25.1 - 3200	2.05E+03	9/9	--	--	--	--	--	1.29E+01	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	340 - 4420	2.68E+03	9/9	--	--	--	--	--	3.18E+00	44.9 %	0 %	2.9 %	52.2 %
							LEAD	NC	1.6 - 490	6.68E+01	11/11	--	--	--	--	--	--	--	--	--	--
						PAH	BENZO(A)ANTHRACENE	C	0.008 - 1.3	1.30E+00	6/9	3.51E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.008 - 1	1.00E+00	5/9	2.68E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.012 - 0.8	8.00E-01	5/9	2.36E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.14 - 1	5.56E-01	4/9	1.64E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.014 - 0.27	2.14E-01	4/9	3.69E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.15 - 0.44	4.40E-01	3/11	4.73E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--
							AROCLOR-1260	C	0.0215 - 1.2	4.73E-01	7/11	2.24E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
23	RD	090041	1E-05	1E+01	8E+00	Metal	COPPER	NC	75.8 - 1332.5	1.33E+03	2/2	--	--	--	--	--	8.37E+00	5.5 %	0 %	0 %	94.5 %
							ZINC	NC	43.1 - 642.75	6.43E+02	2/2	--	--	--	--	--	1.72E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.285 - 0.285	2.85E-01	1/2	7.64E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.35 - 0.35	3.50E-01	1/2	1.03E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
23	RD	091040	8E-04	1E+04	1E+04	OrgLead	ORGANIC LEAD	NC	62 - 62	6.20E+01	1/8	--	--	--	--	--	1.19E+04	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C,NC	0.6 - 32	3.20E+01	8/8	8.36E-04	56.6 %	5.4 %	0 %	38 %	2.04E+00	66.8 %	5.6 %	0.1 %	27.5 %
							MANGANESE	NC	700 - 16000	9.98E+03	10/10	--	--	--	--	--	1.18E+01	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	1.7 - 7.7	7.70E+00	3/8	--	--	--	--	--	1.53E+00	97.3 %	0 %	0 %	2.7 %
24	RD	087036	9E-07	8E+00	6E+00	Metal	MANGANESE	NC	870 - 5200	5.20E+03	4/4	--	--	--	--	--	6.17E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	088035	--	2E+00	2E+00	Metal	MANGANESE	NC	1485 - 1485	1.49E+03	1/1	--	--	--	--	--	1.76E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	088036	2E-03	2E+01	1E+01	Metal	ARSENIC	C,NC	1.8725 - 100	6.72E+01	10/11	1.76E-03	56.6 %	5.4 %	0 %	38 %	4.29E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	53.5 - 490	2.68E+02	11/11	--	--	--	--	--	1.68E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	1160 - 15000	8.13E+03	11/11	--	--	--	--	--	9.64E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.02 - 0.095	9.50E-02	3/10	2.55E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	089034	--	5E+00	5E+00	Metal	MANGANESE	NC	3935 - 3935	3.94E+03	1/1	--	--	--	--	--	4.67E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	089035	5E-04	1E+01	1E+01	Metal	ARSENIC	C,NC	4.3 - 22	2.04E+01	4/5	5.33E-04	56.6 %	5.4 %	0 %	38 %	1.30E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	36.9 - 350	2.54E+02	9/9	--	--	--	--	--	1.60E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	937 - 13000	7.96E+03	9/9	--	--	--	--	--	9.44E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	089036	4E-04	4E+01	4E+01	Metal	ARSENIC	C,NC	3.5 - 24	1.62E+01	6/6	4.23E-04	56.6 %	5.4 %	0 %	38 %	1.03E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	7.8 - 555	3.39E+02	6/6	--	--	--	--	--	2.13E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	9.7 - 194	1.02E+02	2/2	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	270 - 6100	5.76E+03	6/6	--	--	--	--	--	6.83E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.1175 - 45.7	4.57E+01	3/4	--	--	--	--	--	2.87E+01	6.8 %	0 %	0 %	93.2 %
							THALLIUM	NC	8 - 8	8.00E+00	1/6	--	--	--	--	--	1.59E+00	97.3 %	0 %	0 %	2.7 %
							ZINC	NC	108 - 680	6.80E+02	2/2	--	--	--	--	--	1.82E+00	1.6 %	0 %	0 %	98.4 %
24	RD	089037	4E-04	7E+01	5E+01	Metal	ARSENIC	C,NC	16 - 16	1.60E+01	1/1	4.18E-04	56.6 %	5.4 %	0 %	38 %	1.02E+00	66.8 %	5.6 %	0.1 %	27.5 %
							CADMIUM	NC	3.8 - 3.8	3.80E+00	1/1	6.44E-09	--	--	--	--	1.10E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	1000 - 1000	1.00E+03	1/1	--	--	--	--	--	6.28E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	780 - 780	7.80E+02	1/1	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	2800 - 2800	2.80E+03	1/1	--	--	--	--	--	3.32E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	77 - 77	7.70E+01	1/1	--	--	--	--	--	4.84E+01	6.8 %	0 %	0 %	93.2 %
							ZINC	NC	2500 - 2500	2.50E+03	1/1	--	--	--	--	--	6.70E+00	1.6 %	0 %	0 %	98.4 %
24	RD	090033	--	2E+00	2E+00	Metal	MANGANESE	NC	1640 - 1640	1.64E+03	1/1	--	--	--	--	--	1.95E+00	44.9 %	0 %	2.9 %	52.2 %

TABLE 3-11: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
24	RD	090034	9E-06	2E+00	2E+00	Metal	MANGANESE	NC	1770 - 1770	1.77E+03	1/1	--	--	--	--	--	2.10E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.2125 - 0.2125	2.13E-01	1/1	5.70E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.077 - 0.077	7.70E-02	1/1	1.33E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
24	RD	090035	2E-06	4E+00	4E+00	Metal	MANGANESE	NC	3545 - 3545	3.55E+03	1/1	--	--	--	--	--	4.21E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.054 - 0.054	5.40E-02	1/1	1.45E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	090037	8E-04	1E+01	9E+00	Metal	ARSENIC	C,NC	29.6 - 29.6	2.96E+01	1/1	7.73E-04	56.6 %	5.4 %	0 %	38 %	1.89E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	454 - 454	4.54E+02	1/1	--	--	--	--	--	2.85E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	7600 - 7600	7.60E+03	1/1	--	--	--	--	--	9.02E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	090038	2E-06	2E+00	2E+00	Metal	MANGANESE	NC	393 - 1900	1.90E+03	2/2	--	--	--	--	--	2.25E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	091034	--	4E+00	4E+00	Metal	MANGANESE	NC	1954 - 2990	2.99E+03	2/2	--	--	--	--	--	3.55E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	091035	6E-09	6E+00	4E+00	Metal	CADMIUM	NC	3.65 - 3.65	3.65E+00	1/1	6.19E-09	--	--	--	--	1.06E+00	8.8 %	0 %	0 %	91.2 %
							MANGANESE	NC	1210 - 3250	3.25E+03	3/3	--	--	--	--	--	3.86E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	091036	--	8E+00	8E+00	Metal	MANGANESE	NC	150 - 5340	5.34E+03	4/4	--	--	--	--	--	6.33E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	2.425 - 2.425	2.43E+00	1/1	--	--	--	--	--	1.52E+00	6.8 %	0 %	0 %	93.2 %
24	RD	091037	--	9E+01	8E+01	Metal	COPPER	NC	77.5 - 393	3.93E+02	2/2	--	--	--	--	--	2.47E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	20.6 - 166	9.33E+01	2/2	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	1310 - 4710	4.71E+03	2/2	--	--	--	--	--	5.59E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	5.41 - 124	1.24E+02	2/2	--	--	--	--	--	7.79E+01	6.8 %	0 %	0 %	93.2 %
							ZINC	NC	146 - 521	5.21E+02	2/2	--	--	--	--	--	1.40E+00	1.6 %	0 %	0 %	98.4 %
24	RD	091039	3E-07	7E+00	5E+00	Metal	MANGANESE	NC	300 - 7300	4.16E+03	10/10	--	--	--	--	--	4.94E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	092034	--	2E+00	2E+00	Metal	MANGANESE	NC	1900 - 1900	1.90E+03	1/1	--	--	--	--	--	2.25E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	092035	4E-04	7E+00	5E+00	Metal	ARSENIC	C	0.28 - 14	1.39E+01	5/5	3.64E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							MANGANESE	NC	870 - 5070	4.55E+03	5/5	--	--	--	--	--	5.39E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	092036	6E-04	7E+01	7E+01	Metal	ARSENIC	C,NC	3.92 - 32	2.32E+01	8/8	6.07E-04	56.6 %	5.4 %	0 %	38 %	1.48E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	45 - 408	2.39E+02	8/8	--	--	--	--	--	1.50E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	1390 - 55300	5.53E+04	8/8	--	--	--	--	--	6.56E+01	44.9 %	0 %	2.9 %	52.2 %
24	RD	092037	5E-04	1E+01	1E+01	Metal	ARSENIC	C,NC	4.25 - 18.4	1.84E+01	2/2	4.81E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	198 - 259	2.59E+02	2/2	--	--	--	--	--	1.63E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	2230 - 2360	2.36E+03	2/2	--	--	--	--	--	2.80E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	12.9 - 12.9	1.29E+01	1/1	--	--	--	--	--	8.11E+00	6.8 %	0 %	0 %	93.2 %
24	RD	092038	3E-04	8E+00	7E+00	Metal	ARSENIC	C	11.4 - 11.4	1.14E+01	1/1	2.98E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							MANGANESE	NC	990 - 5710	5.71E+03	2/2	--	--	--	--	--	6.77E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	093030	7E-06	7E+00	4E+00	Metal	COPPER	NC	41.2 - 207	2.07E+02	2/2	--	--	--	--	--	1.30E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	645 - 2810	2.81E+03	4/4	--	--	--	--	--	3.33E+00	44.9 %	0 %	2.9 %	52.2 %
						Pest/PCB	AROCLOR-1260	C,NC	1.4 - 1.5	1.50E+00	2/5	7.11E-06	66.1 %	29.2 %	0 %	4.7 %	1.38E+00	69.6 %	27.3 %	0 %	3.1 %
24	RD	093035	--	4E+00	4E+00	Metal	MANGANESE	NC	1800 - 3800	3.24E+03	5/5	--	--	--	--	--	3.85E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	093036	6E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	2 - 21.65	2.17E+01	10/14	5.66E-04	56.6 %	5.4 %	0 %	38 %	1.38E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	45 - 335	1.86E+02	11/11	--	--	--	--	--	1.17E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	390 - 14500	1.21E+04	15/15	--	--	--	--	--	1.43E+01	44.9 %	0 %	2.9 %	52.2 %
24	RD	094035	5E-06	9E+00	9E+00	Metal	MANGANESE	NC	678 - 7240	7.24E+03	2/2	--	--	--	--	--	8.59E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.032 - 0.093	9.30E-02	2/2	2.49E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.028 - 0.06	6.00E-02	2/2	1.04E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
24	RD	096028	--	3E+00	3E+00	Metal	MANGANESE	NC	2280 - 2280	2.28E+03	1/1	--	--	--	--	--	2.70E+00	44.9 %	0 %	2.9 %	52.2 %
26	MU	091041	5E-07	3E+00	2E+00	Metal	CADMIUM	NC	4.7 - 4.7	4.70E+00	1/1	7.97E-09	--	--	--	--	1.36E+00	8.8 %	0 %	0 %	91.2 %
							MANGANESE	NC	583 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %
26	MU	092041	4E-06	2E+00	2E+00	Metal	MANGANESE	NC	2100 - 2100	2.10E+03	1/1	--	--	--	--	--	2.49E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.099 - 0.099	9.90E-02	1/1	2.65E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--

TABLE 3-11: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SURFACE SOIL (0 TO 2 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
26	MU	094041	5E-08	1E+01	3E+00	Metal	IRON	NC	71000 - 71000	7.10E+04	1/1	--	--	--	--	--	3.23E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	2600 - 2600	2.60E+03	1/1	--	--	--	--	--	3.08E+00	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	5.4 - 5.4	5.40E+00	1/1	--	--	--	--	--	1.07E+00	97.3 %	0 %	0 %	2.7 %
							VANADIUM	NC	179 - 179	1.79E+02	1/1	--	--	--	--	--	2.76E+00	82.9 %	0 %	0 %	17.1 %
26	MU	095042	2E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.02 - 0.065	6.50E-02	2/2	1.74E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
20B	E/C	AX10	5E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.09 - 0.67	6.70E-01	4/8	3.82E-06	36.8 %	63.2 %	0 %		--	--	--	--	
20B	E/C	AY09	2E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.21 - 0.21	2.10E-01	1/4	1.20E-06	36.8 %	63.2 %	0 %		--	--	--	--	
20B	E/C	AY10	6E-04	2E+00	<1	Metal	ARSENIC	C	0.93 - 245	2.45E+02	10/10	5.65E-04	71.6 %	28.4 %	0 %		<1	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.028 - 0.25	2.47E-01	4/5	1.40E-06	36.8 %	63.2 %	0 %		--	--	--	--	
						Pest/PCB	AROCLOR-1260	C	0.57 - 14	1.40E+01	3/7	1.39E-05	35.1 %	64.9 %	0 %		<1	--	--	--	
20B	E/C	AZ08	5E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.03 - 0.57	5.70E-01	4/9	3.25E-06	36.8 %	63.2 %	0 %		--	--	--	--	
20B	E/C	AZ10	4E-05	<1	<1	Metal	ARSENIC	C	17.5 - 17.5	1.75E+01	1/1	4.04E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
20B	E/C	BA09	4E-07	<1	<1	Metal	LEAD	NC	8.6 - 1700	1.70E+03	3/3	--	--	--	--		--	--	--	--	
22	E/C	BA07	4E-05	<1	<1	Metal	ARSENIC	C	14.8 - 14.8	1.48E+01	1/1	3.41E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.2 - 0.2	2.00E-01	1/1	1.14E-06	36.8 %	63.2 %	0 %		--	--	--	--	
22	E/C	BA08	4E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.028 - 1.1	4.60E-01	17/19	2.62E-06	36.8 %	63.2 %	0 %		--	--	--	--	
22	E/C	BB06	5E-05	<1	<1	Metal	ARSENIC	C	2.6 - 21	2.10E+01	4/4	4.84E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.031 - 0.79	6.92E-01	4/4	3.94E-06	36.8 %	63.2 %	0 %		--	--	--	--	
25	E/C	BD08	3E-05	<1	<1	Metal	ARSENIC	C	12.1 - 12.1	1.21E+01	1/1	2.79E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
COS-1	OS	AX09	3E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.25 - 0.25	2.50E-01	1/6	1.91E-06	28.1 %	71.9 %	0 %		--	--	--	--	
COS-2	OS	BB05	9E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.77 - 0.77	7.70E-01	1/2	5.89E-06	28.1 %	71.9 %	0 %		--	--	--	--	
COS-2	OS	BC05	4E-05	<1	<1	Metal	ARSENIC	C	13 - 13	1.30E+01	1/1	3.50E-05	62.8 %	37.2 %	0 %		<1	--	--	--	
COS-2	OS	BD04	3E-06	<1	<1	Metal	LEAD	NC	1.2 - 410	4.10E+02	3/3	--	--	--	--		--	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.06625 - 0.3	3.00E-01	2/5	2.30E-06	28.1 %	71.9 %	0 %		--	--	--	--	
COS-3	OS	BA13	6E-05	<1	<1	Metal	ARSENIC	C	0.28 - 32	2.13E+01	27/35	5.74E-05	62.8 %	37.2 %	0 %		<1	--	--	--	
COS-3	OS	BE05	4E-05	<1	<1	Metal	ARSENIC	C	5.2 - 15.5	1.55E+01	2/3	4.17E-05	62.8 %	37.2 %	0 %		<1	--	--	--	
COS-3	OS	BE06	5E-05	<1	<1	Metal	ARSENIC	C	20.3 - 20.3	2.03E+01	1/1	5.46E-05	62.8 %	37.2 %	0 %		<1	--	--	--	
COS-3	OS	BE07	4E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.3 - 0.3	3.00E-01	1/2	2.30E-06	28.1 %	71.9 %	0 %		--	--	--	--	

Notes:

All concentrations shown in mg/kg.

--	Not applicable or chemical is not a COC for this endpoint
	Not evaluated because exposure pathway is incomplete
bgs	Below ground surface
C	Cancer effect
COC	Chemical of concern
DF	Detection frequency
E/C	Educational/Cultural (industrial exposure scenario)
EPC	Exposure point concentration
HI	Hazard index
mg/kg	Milligram per kilogram
MU	Mixed use (residential exposure scenario)
NC	Noncancer effect
OrgLead	Organic lead
OS	Open space (recreational exposure scenario)
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
Pest	Pesticide
RD	Research and development (residential exposure scenario)
RME	Reasonable maximum exposure
SVOC	Semivolatile organic compound
VOC	Volatile organic compound

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
10	MU	064024	2E-05	<1	<1	Metal	LEAD	NC	1.3 - 380	3.69E+02	10/10	--	--	--	--	--	--	--	--	--	--
						PAH	BENZO(A)PYRENE	C	0.02 - 0.53	5.30E-01	3/10	1.42E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.018 - 0.5	5.00E-01	4/10	1.48E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.026 - 0.43	4.30E-01	2/10	1.27E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
10	MU	064028	1E-05	2E+00	<1	PAH	BENZO(A)PYRENE	C	0.012 - 0.12	9.93E-02	4/5	2.66E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.034 - 1.2	1.20E+00	3/5	5.69E-06	66.1 %	29.2 %	0 %	4.7 %	<1	69.6 %	27.3 %	0 %	3.1 %
						VOC	TETRACHLOROETHENE	C	0.002 - 1.1	9.22E-01	4/4	1.91E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
10	MU	065026	5E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.011 - 0.04	4.00E-02	3/4	1.07E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.039 - 0.84	6.00E-01	5/6	2.84E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
10	MU	065027	4E-06	<1	<1	Pest/PCB	AROCLOR-1260	C	0.007 - 0.67	6.70E-01	3/4	3.17E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
10	MU	065028	2E-05	2E+00	2E+00	Metal	MANGANESE	NC	134 - 1710	1.59E+03	4/4	--	--	--	--	--	1.89E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.028 - 0.52	5.20E-01	2/9	1.39E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.03 - 0.65	6.50E-01	2/9	1.92E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.035 - 0.44	4.40E-01	2/9	1.30E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.065 - 0.065	6.50E-02	1/9	1.12E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.019 - 0.23	2.30E-01	3/10	1.09E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
						VOC	TETRACHLOROETHENE	C	0.59 - 0.59	5.90E-01	1/3	1.22E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
10	MU	065029	2E-07	5E+00	4E+00	Metal	ANTIMONY	NC	7.6 - 12.3	1.23E+01	2/3	--	--	--	--	--	1.20E+00	32.7 %	0 %	0 %	67.3 %
							MANGANESE	NC	352 - 3030	3.03E+03	3/3	--	--	--	--	--	3.59E+00	44.9 %	0 %	2.9 %	52.2 %
10	MU	066027	1E-05	<1	<1	PAH	BENZO(A)PYRENE	C	0.026 - 0.25	1.82E-01	5/7	4.87E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.029 - 0.48	3.51E-01	4/5	1.04E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.048 - 0.46	3.35E-01	5/5	1.59E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
10	MU	066028	2E-05	<1	<1	PAH	BENZO(A)ANTHRACENE	C	0.54 - 0.54	5.40E-01	1/10	1.46E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.51 - 0.51	5.10E-01	1/10	1.37E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.44 - 0.44	4.40E-01	1/10	1.30E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.58 - 0.58	5.80E-01	1/10	1.71E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.071 - 0.071	7.10E-02	1/10	1.23E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
10	MU	067025	--	2E+00	2E+00	Metal	MANGANESE	NC	609 - 2200	1.45E+03	10/10	--	--	--	--	--	1.72E+00	44.9 %	0 %	2.9 %	52.2 %
10	MU	067026	5E-05	2E+00	<1	PAH	BENZO(A)ANTHRACENE	C	0.056 - 1.8	8.27E-01	8/27	2.24E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.011 - 1.9	1.27E+00	10/27	3.41E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.019 - 3	1.12E+00	10/27	3.31E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.039 - 1.1	1.10E+00	3/25	3.25E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.017 - 0.13	1.23E-01	4/25	2.13E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
10	MU	067027	5E-06	4E+00	3E+00	Metal	ANTIMONY	NC	3.7 - 15.6	1.19E+01	5/7	--	--	--	--	--	1.17E+00	32.7 %	0 %	0 %	67.3 %
							MANGANESE	NC	300 - 2890	2.28E+03	7/7	--	--	--	--	--	2.71E+00	44.9 %	0 %	2.9 %	52.2 %
						Pest/PCB	HEPTACHLOR EPOXIDE	C	0.002 - 0.002	2.00E-03	1/6	3.71E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--
10	MU	067028	2E-07	6E+00	5E+00	Metal	ANTIMONY	NC	2.1 - 11.3	1.13E+01	2/4	--	--	--	--	--	1.11E+00	32.7 %	0 %	0 %	67.3 %
							MANGANESE	NC	425 - 3940	3.94E+03	4/4	--	--	--	--	--	4.67E+00	44.9 %	0 %	2.9 %	52.2 %

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
10	MU	068025	2E-05	5E+00	2E+00	SVOC	3,3'-DICHLOROBENZIDINE	C	0.036 - 0.036	3.60E-02	1/8	4.48E-06	1.5 %	0.5 %	0 %	98 %	--	--	--	--	--
						Metal	ANTIMONY	NC	2.8 - 17	1.12E+01	5/9	--	--	--	--	--	1.10E+00	32.7 %	0 %	0 %	67.3 %
							IRON	NC	27200 - 58200	4.42E+04	9/9	--	--	--	--	--	2.01E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	252 - 2050	1.27E+03	10/10	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.027 - 0.11	1.09E-01	4/12	2.93E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	GAMMA-BHC (LINDANE)	C	0.005 - 0.005	5.00E-03	1/6	1.89E-06	0.5 %	0.1 %	0 %	99.4 %	<1	--	--	--	--
							HEPTACHLOR EPOXIDE	C	0.004 - 0.004	4.00E-03	1/6	7.43E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--
10	MU	068026	2E-04	4E+00	2E+00	Metal	ARSENIC	C	1.2 - 11.3	5.07E+00	17/22	1.32E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							LEAD	NC	6.3 - 192	1.40E+02	21/22	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	306 - 2440	1.06E+03	22/22	--	--	--	--	--	1.25E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.052 - 0.31	3.10E-01	2/8	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.0515 - 0.51	5.10E-01	2/8	1.51E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
						Pest/PCB	DIELDRIN	C	0.002 - 0.002	2.00E-03	2/15	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
							HEPTACHLOR EPOXIDE	C	0.002 - 0.003	3.00E-03	2/15	5.57E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--
						VOC	NAPHTHALENE	C	2.5 - 6.3	6.30E+00	2/5	3.78E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--
10	MU	068027	1E-05	9E+00	6E+00	Metal	MANGANESE	NC	204 - 1680	1.02E+03	10/10	--	--	--	--	--	1.20E+00	44.9 %	0 %	2.9 %	52.2 %
							NICKEL	NC	234 - 2690	1.79E+03	10/10	1.84E-07	--	--	--	--	5.91E+00	19.3 %	0 %	1 %	79.7 %
						Pest/PCB	DIELDRIN	C	0.004 - 0.004	4.00E-03	1/8	6.07E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
							HEPTACHLOR EPOXIDE	C	0.003 - 0.003	3.00E-03	1/8	5.57E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--
10	MU	069026	8E-07	6E+00	3E+00	Metal	ANTIMONY	NC	12.2 - 26.1	1.74E+01	7/12	--	--	--	--	--	1.70E+00	32.7 %	0 %	0 %	67.3 %
							IRON	NC	27000 - 84000	5.85E+04	12/12	--	--	--	--	--	2.66E+00	93.6 %	0 %	0 %	6.4 %
							LEAD	NC	1.6 - 218	2.18E+02	6/12	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	413 - 2170	1.29E+03	12/12	--	--	--	--	--	1.52E+00	44.9 %	0 %	2.9 %	52.2 %
10	MU	069027	4E-07	2E+00	2E+00	Metal	ANTIMONY	NC	6.6 - 15.9	1.36E+01	5/7	--	--	--	--	--	1.33E+00	32.7 %	0 %	0 %	67.3 %
							LEAD	NC	15.6 - 239	2.39E+02	4/7	--	--	--	--	--	--	--	--	--	--
10	MU	070025	2E-07	5E+00	3E+00	Metal	ANTIMONY	NC	1.7 - 30.1	3.01E+01	4/4	--	--	--	--	--	2.95E+00	32.7 %	0 %	0 %	67.3 %
							MANGANESE	NC	87.8 - 1870	1.64E+03	4/4	--	--	--	--	--	1.94E+00	44.9 %	0 %	2.9 %	52.2 %
10	MU	070026	--	2E+00	2E+00	Metal	ANTIMONY	NC	16.15 - 16.15	1.62E+01	1/1	--	--	--	--	--	1.58E+00	32.7 %	0 %	0 %	67.3 %
11	MU	065021	6E-07	2E+00	2E+00	Metal	MANGANESE	NC	518 - 1540	1.11E+03	7/7	--	--	--	--	--	1.31E+00	44.9 %	0 %	2.9 %	52.2 %
11	MU	065022	2E-04	<1	<1	PAH	BENZO(A)ANTHRACENE	C	0.013 - 5.4	5.40E+00	3/6	1.46E-05	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.013 - 4.8	4.80E+00	3/6	1.29E-04	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.015 - 6.9	6.90E+00	3/6	2.04E-05	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.014 - 4.4	4.40E+00	2/6	1.30E-05	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							CHRYSENE	C	0.016 - 6.8	6.80E+00	4/6	2.06E-06	62 %	25.5 %	0 %	12.5 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	1 - 1	1.00E+00	1/6	1.73E-05	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.011 - 2	2.00E+00	2/6	5.76E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.17 - 0.45	4.50E-01	2/6	2.13E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
11	MU	065023	1E-05	2E+00	<1	PAH	BENZO(A)PYRENE	C	0.014 - 0.34	2.26E-01	10/11	6.07E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.064 - 0.064	6.40E-02	1/8	1.11E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.021 - 1.4	6.02E-01	10/16	2.85E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
11	MU	066022	1E-04	6E+00	2E+00	Metal	COPPER	NC	10.2 - 374	2.67E+02	15/15	--	--	--	--	--	1.67E+00	5.5 %	0 %	0 %	94.5 %
						PAH	BENZO(A)PYRENE	C	0.21 - 0.32	3.20E-01	2/10	8.58E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C,NC	0.026 - 2.95	1.71E+00	6/21	8.12E-06	66.1 %	29.2 %	0 %	4.7 %	1.57E+00	69.6 %	27.3 %	0 %	3.1 %
						VOC	1,2-DICHLOROETHANE	C	0.00349 - 12	5.41E+00	6/30	1.95E-05	4 %	0 %	96 %	0 %	<1	--	--	--	--
							1,4-DICHLOROBENZENE	C	0.00309 - 94	1.21E+01	14/30	6.03E-06	7.6 %	0 %	92.4 %	0 %	<1	--	--	--	--
							NAPHTHALENE	C	0.00304 - 5.45	5.45E+00	3/19	3.27E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--
							TETRACHLOROETHENE	C	0.004 - 139	2.23E+01	7/30	4.62E-05	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
							TRICHLOROETHENE	C	0.00206 - 20.5	6.57E+00	9/30	2.23E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--
							VINYL CHLORIDE	C	0.004 - 1.5	4.98E-01	11/30	2.05E-05	5.7 %	0 %	94.3 %	0 %	<1	--	--	--	--
11	MU	066023	8E-06	5E+00	2E+00	Metal	MANGANESE	NC	570 - 1580	1.27E+03	7/7	--	--	--	--	--	1.51E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.011 - 0.043	4.30E-02	4/14	1.15E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.02075 - 2.5	9.06E-01	5/9	4.29E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
11	MU	066024	7E-07	5E+00	5E+00	Metal	MANGANESE	NC	423 - 3890	3.89E+03	6/6	--	--	--	--	--	4.61E+00	44.9 %	0 %	2.9 %	52.2 %
11	MU	067019	4E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.021 - 0.11	1.10E-01	3/3	2.95E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
11	MU	067020	2E-06	5E+00	5E+00	Metal	MANGANESE	NC	366 - 3880	3.88E+03	4/4	--	--	--	--	--	4.60E+00	44.9 %	0 %	2.9 %	52.2 %
11	MU	067021	7E-06	<1	<1	VOC	1,4-DICHLOROBENZENE	C	2.58 - 2.58	2.58E+00	1/1	1.28E-06	7.6 %	0 %	92.4 %	0 %	<1	--	--	--	--
							TETRACHLOROETHENE	C	2.37 - 2.37	2.37E+00	1/1	4.91E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
11	MU	067022	3E-05	<1	<1	VOC	1,2-DICHLOROETHANE	C	0.027 - 8.52	8.52E+00	2/14	3.07E-05	4 %	0 %	96 %	0 %	<1	--	--	--	--
11	MU	067023	2E-07	2E+00	2E+00	Metal	MANGANESE	NC	780 - 1500	1.50E+03	3/3	--	--	--	--	--	1.78E+00	44.9 %	0 %	2.9 %	52.2 %
11	MU	067024	2E-06	3E+00	3E+00	Metal	MANGANESE	NC	321 - 3200	2.22E+03	8/8	--	--	--	--	--	2.63E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.038 - 0.038	3.80E-02	1/6	1.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
11	MU	068020	2E-06	4E+00	3E+00	Metal	MANGANESE	NC	575 - 3480	2.72E+03	5/5	--	--	--	--	--	3.22E+00	44.9 %	0 %	2.9 %	52.2 %
11	MU	068022	8E-06	<1	<1	VOC	TRICHLOROETHENE	C	1.29 - 18.4	1.84E+01	2/2	6.25E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--
							VINYL CHLORIDE	C	0.0291 - 0.0395	3.95E-02	2/2	1.62E-06	5.7 %	0 %	94.3 %	0 %	<1	--	--	--	--
11	MU	068024	6E-06	3E+00	2E+00	Metal	MANGANESE	NC	205 - 3360	1.09E+03	18/18	--	--	--	--	--	1.29E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.011 - 0.15	1.50E-01	4/11	4.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
11	MU	069022	1E-05	2E+00	<1	VOC	NAPHTHALENE	C	0.0088 - 19	3.45E+00	6/21	2.07E-06	31.3 %	0 %	68.7 %	0 %	--	--	--	--	
							TRICHLOROETHENE	C	0.003 - 120	2.32E+01	17/21	7.89E-06	6 %	0 %	94 %	0 %	--	--	--	--	
11	MU	069024	1E-07	4E+00	3E+00	Metal	IRON	NC	53400 - 68900	6.89E+04	2/2	--	--	--	--	--	3.14E+00	93.6 %	0 %	0 %	6.4 %
13	MU	075027	1E-07	6E+00	3E+00	Metal	IRON	NC	49600 - 70600	7.06E+04	2/2	--	--	--	--	--	3.21E+00	93.6 %	0 %	0 %	6.4 %
							VANADIUM	NC	56 - 149	1.49E+02	2/2	--	--	--	--	--	2.30E+00	82.9 %	0 %	0 %	17.1 %
13	MU	077028	9E-08	5E+00	2E+00	Metal	MANGANESE	NC	381 - 2110	1.45E+03	10/10	--	--	--	--	--	1.72E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	80.3 - 124	1.24E+02	2/2	--	--	--	--	--	1.91E+00	82.9 %	0 %	0 %	17.1 %
13	MU	079027	--	4E+00	4E+00	Metal	MANGANESE	NC	1210 - 2960	2.96E+03	2/2	--	--	--	--	--	3.51E+00	44.9 %	0 %	2.9 %	52.2 %
13	MU	079030	--	1E+01	4E+00	Metal	IRON	NC	44600 - 59300	5.93E+04	2/2	--	--	--	--	--	2.70E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	528 - 3150	3.15E+03	2/2	--	--	--	--	--	3.74E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	25.7 - 165	1.65E+02	2/2	--	--	--	--	--	2.54E+00	82.9 %	0 %	0 %	17.1 %
13	MU	080025	6E-06	3E+00	3E+00	Metal	MANGANESE	NC	1950 - 1950	1.95E+03	1/1	--	--	--	--	--	2.31E+00	44.9 %	0 %	2.9 %	52.2 %
						Pest/PCB	DIELDRIN	C	0.004 - 0.004	4.00E-03	1/1	6.07E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
13	MU	080026	4E-07	9E+00	4E+00	Metal	IRON	NC	21600 - 58100	5.54E+04	7/7	--	--	--	--	--	2.52E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	157 - 4480	2.89E+03	23/23	--	--	--	--	--	3.42E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	41.1 - 147	1.29E+02	7/7	--	--	--	--	--	1.98E+00	82.9 %	0 %	0 %	17.1 %

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
13	MU	082026	7E-05	<1	<1	Pest/PCB	DIELDRIN	C	0.045 - 0.045	4.50E-02	1/2	6.83E-05	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
13	MU	082027	--	3E+00	2E+00	Metal	VANADIUM	NC	68 - 150	1.50E+02	2/2	--	--	--	--	--	2.31E+00	82.9 %	0 %	0 %	17.1 %
18	RD	076038	8E-06	<1	<1	VOC	BENZENE	C	0.002 - 3.5	1.24E+00	17/23	6.95E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	076039	1E-05	<1	<1	VOC	BENZENE	C	0.0057 - 5	1.70E+00	20/31	9.51E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	077037	3E-04	<1	<1	Metal	ARSENIC	C	4.5 - 12.8	1.28E+01	2/2	3.34E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
18	RD	077038	1E-05	<1	<1	VOC	BENZENE	C	0.001 - 5.7	1.61E+00	26/31	9.00E-06	2.8 %	0 %	97.2 %	0 %	--	--	--	--	
18	RD	077039	3E-05	<1	<1	VOC	BENZENE	C	0.00083 - 4.5	4.50E+00	20/24	2.52E-05	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	078036	4E-04	7E+00	5E+00	Metal	ARSENIC	C,NC	8.9 - 16.4	1.64E+01	2/2	4.28E-04	56.6 %	5.4 %	0 %	38 %	1.05E+00	66.8 %	5.6 %	0.1 %	27.5 %
							MANGANESE	NC	783 - 3660	3.66E+03	2/2	--	--	--	--	--	4.34E+00	44.9 %	0 %	2.9 %	52.2 %
18	RD	078037	2E-05	<1	<1	PAH	BENZO(A)PYRENE	C	0.052 - 0.14	1.40E-01	2/26	3.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						VOC	BENZENE	C	0.001 - 8.95	1.83E+00	21/26	1.02E-05	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	078038	1E-05	<1	<1	PAH	BENZO(A)PYRENE	C	0.011 - 0.0615	5.20E-02	6/30	1.39E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						VOC	BENZENE	C	0.0018 - 9.1	2.03E+00	33/35	1.13E-05	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	078039	1E-05	<1	<1	Pest/PCB	GAMMA-BHC (LINDANE)	C	0.0089 - 0.0089	8.90E-03	1/5	3.36E-06	0.5 %	0.1 %	0 %	99.4 %	<1	--	--	--	--
							HEPTACHLOR EPOXIDE B	C	0.0035 - 0.0035	3.50E-03	1/1	6.50E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--
18	RD	079037	3E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.078 - 0.078	7.80E-02	1/10	2.09E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
18	RD	079038	5E-06	<1	<1	VOC	BENZENE	C	0.0009 - 0.54	5.40E-01	3/4	3.02E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	079041	4E-04	3E+00	<1	Metal	ARSENIC	C	5.5 - 15.8	1.58E+01	3/3	4.13E-04	56.6 %	5.4 %	0 %	38 %	<1	66.8 %	5.6 %	0.1 %	27.5 %
						SVOC	BIS(2-ETHYLHEXYL)PHTHALA	C	1.5 - 1.5	1.50E+00	1/3	1.31E-06	2.5 %	0.8 %	0 %	96.7 %	<1	--	--	--	--
18	RD	080038	5E-06	2E+00	<1	VOC	BENZENE	C	0.002 - 3.9	8.98E-01	10/19	5.03E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	080040	8E-06	<1	<1	VOC	BENZENE	C	0.0006 - 7.4	1.38E+00	13/26	7.75E-06	2.8 %	0 %	97.2 %	0 %	<1	--	--	--	--
18	RD	082035	--	2E+00	2E+00	Metal	MANGANESE	NC	1660 - 1660	1.66E+03	1/1	--	--	--	--	--	1.97E+00	44.9 %	0 %	2.9 %	52.2 %
20A	RD	081030	8E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.043 - 0.26	2.60E-01	2/10	6.97E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
20A	RD	083032	8E-08	1E+01	1E+01	Metal	MANGANESE	NC	200 - 8990	8.99E+03	8/8	--	--	--	--	--	1.07E+01	44.9 %	0 %	2.9 %	52.2 %
20A	RD	084029	2E-06	4E+00	3E+00	SVOC	HEXACHLOROBENZENE	C	0.082 - 0.082	8.20E-02	1/3	1.52E-06	15.2 %	4.8 %	0 %	80 %	<1	--	--	--	--
						Metal	IRON	NC	31300 - 59200	5.92E+04	3/3	--	--	--	--	--	2.70E+00	93.6 %	0 %	0 %	6.4 %
20A	RD	084030	5E-06	2E+00	<1	PAH	BENZO(A)PYRENE	C	0.091 - 0.091	9.10E-02	1/3	2.44E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
20A	RD	084035	1E-08	1E+01	6E+00	Metal	MANGANESE	NC	867 - 6550	4.81E+03	10/10	--	--	--	--	--	5.71E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	72.5 - 120	1.20E+02	2/2	--	--	--	--	--	1.85E+00	82.9 %	0 %	0 %	17.1 %
20A	RD	085030	8E-07	4E+00	2E+00	Metal	MANGANESE	NC	260 - 1908.5	1.24E+03	9/9	--	--	--	--	--	1.47E+00	44.9 %	0 %	2.9 %	52.2 %
							ZINC	NC	27.1 - 855	8.40E+02	8/8	--	--	--	--	--	2.25E+00	1.6 %	0 %	0 %	98.4 %
20A	RD	085031	1E-05	1E+01	8E+00	Metal	COPPER	NC	12 - 1300	1.20E+03	11/11	--	--	--	--	--	7.52E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	350 - 3120	1.75E+03	11/11	--	--	--	--	--	2.07E+00	44.9 %	0 %	2.9 %	52.2 %
							ZINC	NC	46 - 5600	1.99E+03	11/11	--	--	--	--	--	5.34E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)ANTHRACENE	C	0.039 - 0.37	0.37	3/11	1.00035E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.0375 - 0.24	0.24	3/11	6.43286E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.054 - 0.44	0.44	3/11	1.30047E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
						VOC	TRICHLOROETHENE	C	0.0041 - 22	5.7320526	10/11	1.94722E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--
20A	RD	085032	5E-07	5E+00	3E+00	Metal	IRON	NC	40300 - 60500	60500	2/2	--	--	--	--	--	2.75E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	702 - 1600	1600	4/4	--	--	--	--	--	1.90E+00	44.9 %	0 %	2.9 %	52.2 %

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI		COC	Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
20A	RD	086030	4E-06	4E+00	2E+00	Metal	MANGANESE	NC	103 - 2450	1053.91002	28/28	--	--	--	--	--	1.25E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	19 - 152	109.898965	6/6	--	--	--	--	--	1.69E+00	82.9 %	0 %	0 %	17.1 %
						Pest/PCB	AROCLOR-1260	C	0.13 - 2.4	0.62448855	5/14	2.95905E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
20A	RD	086031	2E-05	2E+01	1E+01	Metal	CADMIUM	NC	3.5 - 10.6	1.06E+01	3/24	1.80E-08	--	--	--	--	3.07E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	2.7 - 2700	3.73E+02	24/24	--	--	--	--	--	2.35E+00	5.5 %	0 %	0 %	94.5 %
							IRON	NC	63800 - 63800	6.38E+04	1/1	--	--	--	--	--	2.90E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	100 - 6200	1.32E+03	30/30	--	--	--	--	--	1.56E+00	44.9 %	0 %	2.9 %	52.2 %
							ZINC	NC	18 - 36000	5.06E+03	29/29	--	--	--	--	--	1.35E+01	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.05325 - 0.27	8.77E-02	6/30	2.35E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						VOC	1,4-DICHLOROBENZENE	C	0.85 - 15.5	1.55E+01	2/14	7.70E-06	7.6 %	0 %	92.4 %	0 %	<1	--	--	--	--
							TETRACHLOROETHENE	C	0.0008 - 1.45	1.45E+00	3/30	3.00E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
							TRICHLOROETHENE	C	0.00245 - 36	9.77E+00	30/30	3.32E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--
20A	RD	086032	5E-05	1E+01	8E+00	Metal	MANGANESE	NC	445 - 6540	5.90E+03	10/10	--	--	--	--	--	7.00E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	84.8 - 139	1.39E+02	2/2	--	--	--	--	--	2.14E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)ANTHRACENE	C	0.14 - 1.8	1.80E+00	3/10	4.87E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.095 - 1.2	1.20E+00	3/10	3.22E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.17 - 2	2.00E+00	3/10	5.91E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.055 - 0.7	7.00E-01	3/10	2.07E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
20A	RD	087031	2E-05	7E+00	4E+00	Metal	COPPER	NC	6.4 - 1100	6.30E+02	12/12	--	--	--	--	--	3.96E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	120 - 2950	1.78E+03	12/12	--	--	--	--	--	2.12E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)ANTHRACENE	C	0.62 - 0.62	6.20E-01	1/12	1.68E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.64 - 0.64	6.40E-01	1/12	1.72E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.92 - 0.92	9.20E-01	1/12	2.72E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.35 - 0.35	3.50E-01	1/12	1.03E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.63 - 0.63	6.30E-01	1/12	1.81E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
20A	RD	087032	5E-06	5E+00	3E+00	Metal	MANGANESE	NC	74 - 2700	2.70E+03	6/6	--	--	--	--	--	3.20E+00	44.9 %	0 %	2.9 %	52.2 %
							ZINC	NC	16 - 662	6.62E+02	6/6	--	--	--	--	--	1.77E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.12 - 0.12	1.20E-01	1/6	3.22E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
23	RD	083043	6E-04	8E+00	3E+00	Metal	ARSENIC	C,NC	2.2 - 21.1	2.11E+01	3/3	5.51E-04	56.6 %	5.4 %	0 %	38 %	1.35E+00	66.8 %	5.6 %	0.1 %	27.5 %
							IRON	NC	52600 - 71500	7.15E+04	3/3	--	--	--	--	--	3.26E+00	93.6 %	0 %	0 %	6.4 %
							VANADIUM	NC	166 - 177	1.77E+02	3/3	--	--	--	--	--	2.73E+00	82.9 %	0 %	0 %	17.1 %
23	RD	084039	1E-05	8E+00	6E+00	Metal	MANGANESE	NC	948 - 5510	4.87E+03	4/4	--	--	--	--	--	5.78E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	51.4 - 118	1.18E+02	4/4	--	--	--	--	--	1.82E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)PYRENE	C	0.31 - 0.31	3.10E-01	1/5	8.31E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	HEPTACHLOR EPOXIDE	C	0.0009 - 0.0009	9.00E-04	1/4	1.67E-06	0.8 %	0.2 %	0 %	99 %	<1	--	--	--	--
23	RD	085038	4E-04	3E+01	1E+01	Metal	ARSENIC	C,NC	1.5 - 16.1	1.61E+01	4/6	4.21E-04	56.6 %	5.4 %	0 %	38 %	1.03E+00	66.8 %	5.6 %	0.1 %	27.5 %
							CADMIUM	NC	2.9 - 8.2	8.20E+00	2/6	1.39E-08	--	--	--	--	2.37E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	35 - 345	3.45E+02	6/6	--	--	--	--	--	2.17E+00	5.5 %	0 %	0 %	94.5 %
							IRON	NC	42200 - 125000	1.25E+05	2/2	--	--	--	--	--	5.69E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	1080 - 8780	6.92E+03	6/6	--	--	--	--	--	8.20E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	46.9 - 636	6.36E+02	6/6	--	--	--	--	--	9.81E+00	82.9 %	0 %	0 %	17.1 %

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
23	RD	085039	2E-04	5E+00	2E+00	Metal	ARSENIC	C	0.255 - 14	6.07E+00	13/28	1.59E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							LEAD	NC	1.9 - 215	2.15E+02	3/3	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	304 - 4270	1.76E+03	28/28	--	--	--	--	--	2.08E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)ANTHRACENE	C	0.014 - 0.53	5.30E-01	3/25	1.43E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.021 - 0.4	4.00E-01	2/25	1.07E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.36 - 0.36	3.60E-01	1/25	1.06E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.28 - 0.28	2.80E-01	1/25	1.33E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
23	RD	086037	8E-10	2E+00	2E+00	Metal	MANGANESE	NC	1150 - 1680	1.68E+03	2/2	--	--	--	--	--	1.99E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	086039	6E-08	4E+00	4E+00	Metal	MANGANESE	NC	1340 - 3330	3.33E+03	2/2	--	--	--	--	--	3.95E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	086042	6E-04	<1	<1	SVOC	N-NITROSO-DI-N-PROPYLAM	C	0.11 - 0.11	1.10E-01	1/2	6.36E-04	0.2 %	0.1 %	0 %	99.7 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.81 - 0.81	8.10E-01	1/5	3.84E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
23	RD	087037	2E-08	2E+01	2E+01	Metal	CADMIUM	NC	2.4 - 11	1.10E+01	2/2	1.86E-08	--	--	--	--	3.18E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	50 - 190	1.90E+02	2/2	--	--	--	--	--	1.19E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	1900 - 13000	1.30E+04	2/2	--	--	--	--	--	1.54E+01	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	2.2 - 15	1.50E+01	2/2	--	--	--	--	--	2.99E+00	97.3 %	0 %	0 %	2.7 %
23	RD	087038	4E-04	1E+02	1E+02	OrgLead	ORGANIC LEAD	NC	0.63 - 0.63	6.30E-01	1/13	--	--	--	--	--	1.21E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C,NC	0.86 - 16	1.60E+01	4/11	4.18E-04	56.6 %	5.4 %	0 %	38 %	1.02E+00	66.8 %	5.6 %	0.1 %	27.5 %
							CADMIUM	NC	4 - 8.8	8.80E+00	2/7	1.49E-08	--	--	--	--	2.55E+00	8.8 %	0 %	0 %	91.2 %
							MANGANESE	NC	340 - 5200	3.72E+03	14/14	--	--	--	--	--	4.41E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.066 - 0.066	6.60E-02	1/14	1.77E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
23	RD	087042	1E-05	2E+00	2E+00	Pest/PCB	AROCLOR-1260	C,NC	2.3 - 2.3	2.30E+00	1/4	1.09E-05	66.1 %	29.2 %	0 %	4.7 %	2.11E+00	69.6 %	27.3 %	0 %	3.1 %
23	RD	087043	5E-04	7E+00	5E+00	Metal	ARSENIC	C,NC	1.3 - 18.3	1.83E+01	5/8	4.78E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %
							MANGANESE	NC	149 - 4450	4.09E+03	8/8	--	--	--	--	--	4.85E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	088038	1E-03	1E+02	9E+01	OrgLead	ORGANIC LEAD	NC	0.4325 - 0.98	4.55E-01	4/19	--	--	--	--	--	8.70E+01	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C,NC	1.2 - 70.5	3.46E+01	32/44	9.05E-04	56.6 %	5.4 %	0 %	38 %	2.21E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	5.6 - 454	2.02E+02	45/45	--	--	--	--	--	1.27E+00	5.5 %	0 %	0 %	94.5 %
							IRON	NC	36500 - 59100	5.91E+04	3/3	--	--	--	--	--	2.69E+00	93.6 %	0 %	0 %	6.4 %
							LEAD	NC	0.86 - 180	1.80E+02	9/16	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	111 - 21000	7.69E+03	45/45	--	--	--	--	--	9.12E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.089 - 4	4.00E+00	8/9	--	--	--	--	--	2.51E+00	6.8 %	0 %	0 %	93.2 %
							THALLIUM	NC	0.69 - 17	1.16E+01	8/44	--	--	--	--	--	2.30E+00	97.3 %	0 %	0 %	2.7 %
							VANADIUM	NC	70 - 138	1.38E+02	3/3	--	--	--	--	--	2.13E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)ANTHRACENE	C	0.072 - 1.4	1.40E+00	3/23	3.79E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.15 - 2.1	2.10E+00	2/23	5.63E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	2.5 - 2.5	2.50E+00	1/23	7.39E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	1.9 - 1.9	1.90E+00	1/23	5.62E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.49 - 0.49	4.90E-01	1/23	8.46E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	1.3 - 1.3	1.30E+00	1/23	3.74E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
23	RD	088039	3E-04	2E+02	2E+02	OrgLead	ORGANIC LEAD	NC	0.5975 - 0.89	8.90E-01	2/14	--	--	--	--	--	1.70E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	2 - 11.9	5.57E+00	13/14	1.46E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							MANGANESE	NC	112 - 4300	1.46E+03	28/28	--	--	--	--	--	1.73E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.022 - 8.7	1.80E+00	13/22	--	--	--	--	--	1.13E+00	6.8 %	0 %	0 %	93.2 %
						PAH	BENZO(A)ANTHRACENE	C	0.016 - 7.7	3.38E+00	6/27	9.13E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.009 - 4.7	2.91E+00	7/26	7.80E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.01 - 6.7	2.55E+00	7/26	7.53E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.014 - 2.7	1.97E+00	4/25	5.83E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.94 - 0.94	9.40E-01	1/25	1.62E-05	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						VOC	NAPHTHALENE	C	0.018 - 14	1.40E+01	2/26	8.41E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--
23	RD	088040	3E-04	5E+02	5E+02	OrgLead	ORGANIC LEAD	NC	0.59 - 2.5	2.50E+00	2/2	--	--	--	--	--	4.79E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	5.5 - 12.8	1.28E+01	2/2	3.34E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	30.9 - 396	3.96E+02	2/2	--	--	--	--	--	2.49E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	5.4 - 225	2.25E+02	2/2	--	--	--	--	--	--	--	--	--	--
							ZINC	NC	40.4 - 497	4.97E+02	2/2	--	--	--	--	--	1.33E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.035 - 0.13	1.30E-01	2/2	3.48E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
23	RD	088041	2E-06	2E+00	2E+00	Metal	COPPER	NC	13.2 - 297	2.73E+02	4/4	--	--	--	--	--	1.71E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	4.1 -168	1.42E+02	4/4	--	--	--	--	--	--	--	--	--	--
23	RD	088042	6E-05	2E+02	2E+02	OrgLead	ORGANIC LEAD	NC	0.86 - 0.86	8.60E-01	1/7	--	--	--	--	--	1.65E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	COPPER	NC	5.7 - 1600	8.08E+02	11/11	--	--	--	--	--	5.08E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	2.9 - 240	2.40E+02	7/10	--	--	--	--	--	--	--	--	--	--
							ZINC	NC	17 - 1300	5.98E+02	11/11	--	--	--	--	--	1.60E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)ANTHRACENE	C	0.017 - 1.4	1.40E+00	2/11	3.79E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.019 - 1.2	1.20E+00	2/11	3.22E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.014 - 1.5	1.50E+00	3/11	4.43E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.65 - 0.65	6.50E-01	1/11	1.92E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.17 - 0.17	1.70E-01	1/11	2.94E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.48 - 0.48	4.80E-01	1/11	1.38E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C,NC	0.87 - 0.87	8.70E-01	1/11	9.36E-06	29.1 %	12.9 %	0 %	58 %	1.46E+00	38.2 %	15 %	0 %	46.8 %
							AROCLOR-1260	C	0.075 - 0.7	7.00E-01	2/11	3.32E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
						VOC	NAPHTHALENE	C	1.7 - 1.7	1.70E+00	1/11	1.02E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--
23	RD	088043	3E-06	2E+02	2E+02	OrgLead	ORGANIC LEAD	NC	0.31 - 0.94	9.40E-01	2/17	--	--	--	--	--	1.80E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	CADMIUM	NC	2.7 - 4.1	4.10E+00	2/17	6.95E-09	--	--	--	--	1.19E+00	8.8 %	0 %	0 %	91.2 %
							MANGANESE	NC	206 - 1500	1.03E+03	17/17	--	--	--	--	--	1.22E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.026 - 0.048	3.92E-02	7/17	1.05E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
23	RD	088044	8E-08	2E+00	2E+00	Metal	MANGANESE	NC	570 - 1700	1.33E+03	6/6	--	--	--	--	--	1.58E+00	44.9 %	0 %	2.9 %	52.2 %
23	RD	089038	6E-04	4E+01	3E+01	Metal	ARSENIC	C,NC	2 - 86	2.44E+01	25/29	6.36E-04	56.6 %	5.4 %	0 %	38 %	1.56E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	4.2 - 700	4.16E+02	29/29	--	--	--	--	--	2.61E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	130 - 23000	2.13E+04	29/29	--	--	--	--	--	2.52E+01	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	1.35 - 23	2.30E+01	8/28	--	--	--	--	--	4.58E+00	97.3 %	0 %	0 %	2.7 %

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
23	RD	089039	2E-04	6E+02	6E+02	OrgLead	ORGANIC LEAD	NC	0.5075 - 2.95	2.95E+00	3/38	--	--	--	--	--	5.65E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	0.75 - 40	8.73E+00	54/60	2.28E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							CADMIUM	NC	0.53 - 5.8	5.80E+00	16/23	9.83E-09	--	--	--	--	1.68E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	5.8 - 2300	4.52E+02	48/48	--	--	--	--	--	2.84E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	3.6 - 180	7.10E+01	21/23	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	33.3 - 16250	3.43E+03	64/64	--	--	--	--	--	4.07E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	63.7 - 137	1.26E+02	4/4	--	--	--	--	--	1.94E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)PYRENE	C	0.01 - 2.7	2.32E-01	19/44	6.21E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.013 - 3.7	3.58E-01	23/44	1.06E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.011 - 0.93	1.34E-01	6/44	2.32E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
23	RD	089040	5E-04	2E+03	2E+03	OrgLead	ORGANIC LEAD	NC	0.72 - 21	1.28E+01	4/9	--	--	--	--	--	2.45E+03	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	1.4 - 20	1.24E+01	17/18	3.24E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	16 - 714	1.79E+02	44/45	--	--	--	--	--	1.13E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	0.5 - 1730	8.35E+02	38/39	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	73.5 - 7000	1.58E+03	51/51	--	--	--	--	--	1.88E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	17.8 - 226	1.86E+02	8/8	--	--	--	--	--	2.86E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)ANTHRACENE	C	0.01 - 12	4.86E+00	15/29	1.31E-05	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.018 - 8.9	3.21E+00	14/29	8.59E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.016 - 8.8	3.32E+00	13/29	9.80E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.019 - 5.1	1.37E+00	9/29	4.04E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							CHRYSENE	C	0.017 - 11	4.06E+00	17/29	1.23E-06	62 %	25.5 %	0 %	12.5 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.023 - 0.95	7.48E-01	6/29	1.29E-05	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.009 - 3.7	1.75E+00	13/29	5.04E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1260	C	0.015 - 4.6	9.19E-01	22/45	4.35E-06	66.1 %	29.2 %	0 %	4.7 %	<1	--	--	--	--
							DIELDRIN	C	0.002 - 0.002	2.00E-03	1/8	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
23	RD	089041	4E-05	2E+01	7E+00	Metal	COPPER	NC	11 - 7600	7.66E+02	30/31	--	--	--	--	--	4.81E+00	5.5 %	0 %	0 %	94.5 %
							IRON	NC	70700 - 70700	7.07E+04	1/1	--	--	--	--	--	3.22E+00	93.6 %	0 %	0 %	6.4 %
							LEAD	NC	0.94 - 265	2.26E+02	17/19	--	--	--	--	--	--	--	--	--	--
							VANADIUM	NC	192 - 192	1.92E+02	1/1	--	--	--	--	--	2.96E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)PYRENE	C	0.01 - 0.057	5.70E-02	4/13	1.53E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.088 - 0.1	1.00E-01	2/28	1.08E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--
							AROCLOR-1260	C,NC	0.019 - 67	7.03E+00	15/28	3.33E-05	66.1 %	29.2 %	0 %	4.7 %	6.45E+00	69.6 %	27.3 %	0 %	3.1 %
23	RD	089042	1E-05	4E+00	<1	PAH	BENZO(A)PYRENE	C	0.011 - 0.63	1.38E-01	7/22	3.69E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.017 - 0.12	1.20E-01	3/25	2.07E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.073 - 0.43	4.30E-01	3/22	4.62E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--
23	RD	089043	9E-08	2E+00	<1	Metal	LEAD	NC	2.93 - 297	2.97E+02	4/6	--	--	--	--	--	--	--	--	--	--
23	RD	090039	1E-03	2E+02	1E+02	OrgLead	ORGANIC LEAD	NC	0.73 - 0.73	7.30E-01	1/14	--	--	--	--	--	1.40E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C,NC	0.98 - 74.5	4.40E+01	11/14	1.15E-03	56.6 %	5.4 %	0 %	38 %	2.81E+00	66.8 %	5.6 %	0.1 %	27.5 %
							MANGANESE	NC	819 - 14500	6.51E+03	22/22	--	--	--	--	--	7.72E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.024 - 0.3	9.19E-02	10/22	2.46E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
23	RD	090040	3E-05	1E+01	3E+00	Metal	COPPER	NC	25.1 - 3200	4.95E+02	24/24	--	--	--	--	--	3.11E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	116 - 4420	2.16E+03	23/23	--	--	--	--	--	2.56E+00	44.9 %	0 %	2.9 %	52.2 %
							LEAD	NC	0.43 - 695	6.95E+02	26/27	--	--	--	--	--	--	--	--	--	--
							ZINC	NC	30.4 - 2530	7.40E+02	22/22	--	--	--	--	--	1.98E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)ANTHRACENE	C	0.008 - 1.3	4.23E-01	10/22	1.14E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.008 - 1	3.43E-01	10/22	9.20E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.014 - 0.27	1.59E-01	7/21	2.74E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.15 - 0.44	2.04E-01	6/28	2.19E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--
							AROCLOR-1260	C,NC	0.0215 - 2.7	2.59E+00	16/28	1.23E-05	66.1 %	29.2 %	0 %	4.7 %	2.37E+00	69.6 %	27.3 %	0 %	3.1 %
							DIELDRIN	C	0.002 - 0.002	2.00E-03	1/3	3.03E-06	1.7 %	0.5 %	0 %	97.8 %	<1	--	--	--	--
23	RD	090041	3E-05	8E+01	7E+01	OrgLead	ORGANIC LEAD	NC	0.36 - 0.36	3.60E-01	1/4	--	--	--	--	--	6.89E+01	66.8 %	18.7 %	0 %	14.5 %
						Metal	CADMIUM	NC	0.17 - 4.8	4.80E+00	5/7	8.14E-09	--	--	--	--	1.39E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	10 - 1332.5	1.33E+03	7/7	--	--	--	--	--	8.37E+00	5.5 %	0 %	0 %	94.5 %
							ZINC	NC	40 - 1970	1.97E+03	7/7	--	--	--	--	--	5.28E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)ANTHRACENE	C	0.025 - 2	2.00E+00	6/8	5.41E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.066 - 0.71	7.10E-01	4/8	1.90E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
						Pest/PCB	AROCLOR-1254	C	0.06925 - 0.1	1.00E-01	3/7	1.08E-06	29.1 %	12.9 %	0 %	58 %	<1	--	--	--	--
						VOC	NAPHTHALENE	C	0.048 - 6.3	6.30E+00	3/8	3.78E-06	31.3 %	0 %	68.7 %	0 %	<1	--	--	--	--
23	RD	091040	4E-04	1E+04	1E+04	OrgLead	ORGANIC LEAD	NC	62 - 62	6.20E+01	1/23	--	--	--	--	--	1.19E+04	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C,NC	0.6 - 32	1.71E+01	21/23	4.45E-04	56.6 %	5.4 %	0 %	38 %	1.09E+00	66.8 %	5.6 %	0.1 %	27.5 %
							MANGANESE	NC	320 - 35000	7.74E+03	27/27	--	--	--	--	--	9.18E+00	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	1.6 - 9.4	7.34E+00	10/23	--	--	--	--	--	1.46E+00	97.3 %	0 %	0 %	2.7 %
						PAH	BENZO(A)PYRENE	C	0.025 - 0.43	7.55E-02	6/27	2.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	087036	1E-03	2E+01	1E+01	Metal	ARSENIC	C,NC	2.18 - 39	3.90E+01	6/9	1.02E-03	56.6 %	5.4 %	0 %	38 %	2.49E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	7.6 - 350	3.50E+02	9/9	--	--	--	--	--	2.20E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	377 - 11000	1.10E+04	9/9	--	--	--	--	--	1.30E+01	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	2 - 9.6	9.60E+00	3/9	--	--	--	--	--	1.91E+00	97.3 %	0 %	0 %	2.7 %
24	RD	088034	2E-06	6E+00	3E+00	Metal	IRON	NC	33900 - 70900	7.09E+04	3/3	--	--	--	--	--	3.23E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	400 - 3040	1.19E+03	16/16	--	--	--	--	--	1.41E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	088035	3E-08	5E+01	5E+01	Metal	MANGANESE	NC	370 - 4860	2.45E+03	15/15	--	--	--	--	--	2.91E+00	44.9 %	0 %	2.9 %	52.2 %
							LEAD	NC	57.2 - 217	2.17E+02	2/3	--	--	--	--	--	--	--	--	--	--
							MERCURY	NC	0.05 - 75.5	7.55E+01	10/14	--	--	--	--	--	4.74E+01	6.8 %	0 %	0 %	93.2 %
							VANADIUM	NC	70.8 - 122	1.22E+02	3/3	--	--	--	--	--	1.88E+00	82.9 %	0 %	0 %	17.1 %
24	RD	088036	1E-03	2E+01	1E+01	Metal	ARSENIC	C,NC	1.8725 - 110	4.10E+01	27/34	1.07E-03	56.6 %	5.4 %	0 %	38 %	2.62E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	34 - 530	2.66E+02	34/34	--	--	--	--	--	1.67E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	1160 - 22000	9.16E+03	34/34	--	--	--	--	--	1.09E+01	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.02 - 0.095	9.50E-02	3/25	2.55E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	088037	4E-04	3E+01	2E+01	Metal	ARSENIC	C	0.95 - 14.5	1.45E+01	4/7	3.79E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	40 - 300	1.82E+02	7/7	--	--	--	--	--	1.14E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	3400 - 16000	1.33E+04	7/7	--	--	--	--	--	1.58E+01	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	4.7 - 35	3.50E+01	4/7	--	--	--	--	--	6.97E+00	97.3 %	0 %	0 %	2.7 %
24	RD	089032	6E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.0575 - 0.17	1.70E-01	2/2	4.56E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI		COC	Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
24	RD	089033	8E-06	3E+00	2E+00	Metal	MANGANESE	NC	110 - 3400	2.07E+03	14/14	--	--	--	--	--	2.46E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.018 - 0.51	1.98E-01	9/16	5.30E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	089034	4E-06	9E+00	4E+00	Metal	IRON	NC	30600 - 61500	5.39E+04	5/5	--	--	--	--	--	2.46E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	270 - 15300	2.82E+03	22/22	--	--	--	--	--	3.35E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	85.3 - 169	1.45E+02	5/5	--	--	--	--	--	2.23E+00	82.9 %	0 %	0 %	17.1 %
						VOC	TETRACHLOROETHENE	C	0.014 - 1.3	1.30E+00	4/11	2.69E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
24	RD	089035	7E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	0.94 - 49.3	2.52E+01	25/32	6.59E-04	56.6 %	5.4 %	0 %	38 %	1.61E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	17 - 646	2.31E+02	50/50	--	--	--	--	--	1.45E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	290 - 48100	8.28E+03	50/50	--	--	--	--	--	9.83E+00	44.9 %	0 %	2.9 %	52.2 %
						VOC	TETRACHLOROETHENE	C	0.00273 - 1.7	1.70E+00	3/35	3.52E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
							TRICHLOROETHENE	C	0.006 - 6.4	6.40E+00	32/35	2.17E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--
24	RD	089036	6E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	1.5 - 116	2.16E+01	23/24	5.64E-04	56.6 %	5.4 %	0 %	38 %	1.38E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	7.8 - 555	2.43E+02	24/24	--	--	--	--	--	1.52E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	8.8 - 194	1.94E+02	5/5	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	270 - 11100	5.33E+03	24/24	--	--	--	--	--	6.32E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.073 - 45.7	7.69E+00	14/17	--	--	--	--	--	4.84E+00	6.8 %	0 %	0 %	93.2 %
							VANADIUM	NC	85.1 - 175	1.75E+02	3/3	--	--	--	--	--	2.70E+00	82.9 %	0 %	0 %	17.1 %
							ZINC	NC	108 - 680	5.19E+02	5/5	--	--	--	--	--	1.39E+00	1.6 %	0 %	0 %	98.4 %
24	RD	089037	4E-04	7E+01	5E+01	Metal	ARSENIC	C,NC	16 - 16	1.60E+01	1/2	4.18E-04	56.6 %	5.4 %	0 %	38 %	1.02E+00	66.8 %	5.6 %	0.1 %	27.5 %
							CADMIUM	NC	0.27 - 3.8	3.80E+00	2/2	6.44E-09	--	--	--	--	1.10E+00	8.8 %	0 %	0 %	91.2 %
							COPPER	NC	12 - 1000	1.00E+03	2/2	--	--	--	--	--	6.28E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	2.0 - 780	7.80E+02	2/2	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	820 - 2800	2.80E+03	2/2	--	--	--	--	--	3.32E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.11 - 77	7.70E+01	2/2	--	--	--	--	--	4.84E+01	6.8 %	0 %	0 %	93.2 %
							ZINC	NC	8.8 - 2500	2.50E+03	2/2	--	--	--	--	--	6.70E+00	1.6 %	0 %	0 %	98.4 %
24	RD	090033	2E-05	3E+00	2E+00	Metal	MANGANESE	NC	449 - 2900	1.73E+03	12/12	--	--	--	--	--	2.05E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)ANTHRACENE	C	0.052 - 0.88	4.84E-01	8/13	1.31E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.0605 - 0.8	4.25E-01	8/13	1.14E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.098 - 0.098	9.80E-02	1/13	1.69E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
24	RD	090034	6E-04	6E+00	4E+00	Metal	ARSENIC	C,NC	1.6 - 59.6	2.11E+01	14/15	5.50E-04	56.6 %	5.4 %	0 %	38 %	1.34E+00	66.8 %	5.6 %	0.1 %	27.5 %
							MANGANESE	NC	450 - 6100	3.47E+03	15/15	--	--	--	--	--	4.12E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)ANTHRACENE	C	0.01 - 0.68	4.03E-01	9/15	1.09E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.01 - 0.63	4.02E-01	9/15	1.08E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.077 - 0.077	7.70E-02	2/15	1.33E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
						VOC	TETRACHLOROETHENE	C	0.525 - 0.525	5.25E-01	1/2	1.09E-06	40.8 %	0 %	59.2 %	0 %	<1	--	--	--	--
							TRICHLOROETHENE	C	0.00107 - 17.8	1.78E+01	2/2	6.05E-06	6 %	0 %	94 %	0 %	<1	--	--	--	--

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
24	RD	090035	5E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	1.1 - 38	2.03E+01	19/20	5.30E-04	56.6 %	5.4 %	0 %	38 %	1.29E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	59 - 460	2.10E+02	20/20	--	--	--	--	--	1.32E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	2800 - 42000	1.18E+04	20/20	--	--	--	--	--	1.40E+01	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	4.9 - 6.8	6.80E+00	2/18	--	--	--	--	--	1.35E+00	97.3 %	0 %	0 %	2.7 %
						PAH	BENZO(A)PYRENE	C	0.025 - 0.94	1.77E-01	5/20	4.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.055 - 0.38	3.80E-01	3/20	1.12E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.11 - 0.11	1.10E-01	1/20	1.90E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
24	RD	090036	2E-09	5E+00	5E+00	Metal	MANGANESE	NC	160 - 6000	4.16E+03	6/6	--	--	--	--	--	4.94E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	090037	8E-04	1E+01	9E+00	Metal	ARSENIC	C,NC	29.6 - 29.6	2.96E+01	1/1	7.73E-04	56.6 %	5.4 %	0 %	38 %	1.89E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	454 - 454	4.54E+02	1/1	--	--	--	--	--	2.85E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	7600 - 7600	7.60E+03	1/1	--	--	--	--	--	9.02E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	090038	2E-06	2E+01	2E+01	Metal	MANGANESE	NC	260 - 14000	1.40E+04	9/9	--	--	--	--	--	1.66E+01	44.9 %	0 %	2.9 %	52.2 %
24	RD	091032	--	8E+00	3E+00	Metal	IRON	NC	63400 - 63400	6.34E+04	1/1	--	--	--	--	--	2.89E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	1550 - 1550	1.55E+03	1/1	--	--	--	--	--	1.84E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	167 - 167	1.67E+02	1/1	--	--	--	--	--	2.58E+00	82.9 %	0 %	0 %	17.1 %
24	RD	091034	8E-08	4E+00	4E+00	Metal	MANGANESE	NC	1620 - 2990	2.67E+03	5/5	--	--	--	--	--	3.17E+00	44.9 %	0 %	2.9 %	52.2 %
							CADMIUM	NC	3.65 - 5	5.00E+00	2/2	8.48E-09	--	--	--	--	1.45E+00	8.8 %	0 %	0 %	91.2 %
							MANGANESE	NC	1210 - 6600	4.58E+03	6/6	--	--	--	--	--	5.43E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	091036	6E-06	1E+01	7E+00	Metal	IRON	NC	47000 - 64200	6.42E+04	3/3	--	--	--	--	--	2.92E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	150 - 5500	4.11E+03	15/15	--	--	--	--	--	4.88E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.13 - 2.425	2.43E+00	3/5	--	--	--	--	--	1.52E+00	6.8 %	0 %	0 %	93.2 %
							VANADIUM	NC	118 - 141	1.41E+02	3/3	--	--	--	--	--	2.17E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)PYRENE	C	0.03 - 0.34	1.51E-01	6/13	4.05E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	091037	--	9E+01	9E+01	Metal	COPPER	NC	52.6 - 393	3.93E+02	3/3	--	--	--	--	--	2.47E+00	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	3.66 - 166	1.66E+02	3/3	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	1310 - 6540	6.54E+03	3/3	--	--	--	--	--	7.76E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	1.12 - 124	1.24E+02	3/3	--	--	--	--	--	7.79E+01	6.8 %	0 %	0 %	93.2 %
							ZINC	NC	146 - 521	5.21E+02	3/3	--	--	--	--	--	1.40E+00	1.6 %	0 %	0 %	98.4 %
24	RD	091039	8E-07	1E+01	1E+01	Metal	MANGANESE	NC	300 - 12000	8.03E+03	17/17	--	--	--	--	--	9.52E+00	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	1 - 18	1.80E+01	6/13	--	--	--	--	--	3.58E+00	97.3 %	0 %	0 %	2.7 %
24	RD	092034	--	2E+00	2E+00	Metal	MANGANESE	NC	1000 - 1900	1.90E+03	2/2	--	--	--	--	--	2.25E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	092035	3E-04	6E+00	5E+00	Metal	ARSENIC	C	0.28 - 19.4	1.19E+01	8/9	3.10E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							MANGANESE	NC	870 - 5790	4.02E+03	9/9	--	--	--	--	--	4.77E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	092036	6E-04	5E+01	5E+01	Metal	ARSENIC	C,NC	3.92 - 32	2.22E+01	13/13	5.80E-04	56.6 %	5.4 %	0 %	38 %	1.42E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	45 - 459	2.88E+02	13/13	--	--	--	--	--	1.81E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	1390 - 55300	4.36E+04	13/13	--	--	--	--	--	5.17E+01	44.9 %	0 %	2.9 %	52.2 %
24	RD	092037	5E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	1.86 - 18.4	1.84E+01	3/3	4.81E-04	56.6 %	5.4 %	0 %	38 %	1.17E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	96.1 - 259	2.59E+02	3/3	--	--	--	--	--	1.63E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	2230 - 3160	3.16E+03	3/3	--	--	--	--	--	3.75E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	12.9 - 12.9	1.29E+01	1/1	--	--	--	--	--	8.11E+00	6.8 %	0 %	0 %	93.2 %
24	RD	092038	3E-04	8E+00	7E+00	Metal	ARSENIC	C	11.4 - 11.4	1.14E+01	1/1	2.98E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							MANGANESE	NC	170 - 5710	5.71E+03	5/5	--	--	--	--	--	6.77E+00	44.9 %	0 %	2.9 %	52.2 %

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
24	RD	093030	7E-06	8E+00	3E+00	Metal	IRON	NC	25300 - 59100	4.36E+04	8/8	--	--	--	--	--	1.99E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	286 - 4550	2.23E+03	14/14	--	--	--	--	--	2.64E+00	44.9 %	0 %	2.9 %	52.2 %
						Pest/PCB	AROCLOR-1260	C,NC	1.4 - 1.5	1.50E+00	2/15	7.11E-06	66.1 %	29.2 %	0 %	4.7 %	1.38E+00	69.6 %	27.3 %	0 %	3.1 %
24	RD	093031	--	3E+00	3E+00	Metal	MANGANESE	NC	624 - 2660	2.66E+03	3/3	--	--	--	--	--	3.16E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	093034	4E-06	4E+00	4E+00	Metal	MANGANESE	NC	550 - 2980	2.98E+03	3/3	--	--	--	--	--	3.54E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.084 - 0.084	8.40E-02	1/3	2.25E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	093035	4E-04	7E+00	5E+00	Metal	ARSENIC	C	1.4 - 14	1.40E+01	3/10	3.66E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	9.9 - 290	1.81E+02	10/10	--	--	--	--	--	1.14E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	900 - 6100	3.82E+03	10/10	--	--	--	--	--	4.53E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	093036	5E-04	2E+01	1E+01	Metal	ARSENIC	C,NC	1.3 - 39	1.80E+01	41/47	4.70E-04	56.6 %	5.4 %	0 %	38 %	1.15E+00	66.8 %	5.6 %	0.1 %	27.5 %
							COPPER	NC	28.2 - 497	2.07E+02	34/34	--	--	--	--	--	1.30E+00	5.5 %	0 %	0 %	94.5 %
							IRON	NC	49700 - 73100	7.31E+04	2/2	--	--	--	--	--	3.33E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	196 - 52000	1.25E+04	49/49	--	--	--	--	--	1.48E+01	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	82.6 - 148	1.48E+02	2/2	--	--	--	--	--	2.28E+00	82.9 %	0 %	0 %	17.1 %
24	RD	093037	--	3E+00	2E+00	Metal	MANGANESE	NC	1310 - 1980	1.98E+03	2/2	--	--	--	--	--	2.35E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	094030	4E-04	1E+01	8E+00	Metal	ARSENIC	C,NC	16.9 - 16.9	1.69E+01	1/1	4.41E-04	56.6 %	5.4 %	0 %	38 %	1.08E+00	66.8 %	5.6 %	0.1 %	27.5 %
							MANGANESE	NC	514 - 8800	6.36E+03	11/11	--	--	--	--	--	7.55E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	145 - 145	1.45E+02	1/1	--	--	--	--	--	2.24E+00	82.9 %	0 %	0 %	17.1 %
24	RD	094034	3E-04	8E+02	7E+02	OrgLead	ORGANIC LEAD	NC	3.9 - 3.9	3.90E+00	1/4	--	--	--	--	--	7.47E+02	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	3.6 - 13	1.30E+01	3/4	3.40E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	19 - 3240	3.24E+03	4/4	--	--	--	--	--	2.04E+01	5.5 %	0 %	0 %	94.5 %
							LEAD	NC	3.6 - 723	7.23E+02	3/4	--	--	--	--	--	--	--	--	--	--
							MANGANESE	NC	184 - 8100	8.10E+03	4/4	--	--	--	--	--	9.61E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.367 - 22	2.20E+01	3/4	--	--	--	--	--	1.38E+01	6.8 %	0 %	0 %	93.2 %
							ZINC	NC	27 - 929	9.29E+02	4/4	--	--	--	--	--	2.49E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.14 - 0.14	1.40E-01	1/4	3.75E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
24	RD	094035	4E-04	1E+03	1E+03	OrgLead	ORGANIC LEAD	NC	7.3 - 7.3	7.30E+00	1/4	--	--	--	--	--	1.40E+03	66.8 %	18.7 %	0 %	14.5 %
						Metal	ARSENIC	C	0.56 - 26	1.48E+01	7/7	3.86E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							COPPER	NC	53 - 5550	5.55E+03	7/7	--	--	--	--	--	3.49E+01	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	454 - 15000	9.33E+03	17/17	--	--	--	--	--	1.11E+01	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	0.1 - 58.9	5.89E+01	5/5	--	--	--	--	--	3.70E+01	6.8 %	0 %	0 %	93.2 %
							ZINC	NC	88 - 1260	1.26E+03	5/5	--	--	--	--	--	3.38E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.01 - 1.2	2.96E-01	7/15	7.93E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.029 - 1.7	3.84E-01	5/15	1.13E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.032 - 0.51	5.10E-01	3/15	1.51E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.028 - 0.3	1.28E-01	4/15	2.21E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
24	RD	095032	2E-04	6E+00	3E+00	Metal	ARSENIC	C	3.6 - 11.2	7.49E+00	4/7	1.96E-04	56.6 %	5.4 %	0 %	38 %	<1	--	--	--	--
							MANGANESE	NC	440 - 3270	2.14E+03	9/9	--	--	--	--	--	2.54E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	40.2 - 121	1.08E+02	7/7	--	--	--	--	--	1.66E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)PYRENE	C	0.36 - 0.36	3.60E-01	1/17	9.65E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.42 - 0.42	4.20E-01	1/17	1.24E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.41 - 0.41	4.10E-01	1/17	1.21E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.099 - 0.099	9.90E-02	1/17	1.71E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
24	RD	096028	--	3E+00	3E+00	Metal	MANGANESE	NC	392 - 2280	2.28E+03	3/3	--	--	--	--	--	2.70E+00	44.9 %	0 %	2.9 %	52.2 %
24	RD	096032	--	3E+00	2E+00	Metal	VANADIUM	NC	40.4 - 123	1.23E+02	5/5	--	--	--	--	--	1.90E+00	82.9 %	0 %	0 %	17.1 %
24	RD	097029	--	6E+00	5E+00	Metal	MANGANESE	NC	303 - 3670	3.67E+03	5/5	--	--	--	--	--	4.35E+00	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	5.7 - 5.7	5.70E+00	1/5	--	--	--	--	--	1.13E+00	97.3 %	0 %	0 %	2.7 %
26	MU	089044	7E-06	3E+01	2E+01	Metal	COPPER	NC	63.5 - 1900	1.90E+03	3/3	--	--	--	--	--	1.19E+01	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	270 - 1650	1.65E+03	3/3	--	--	--	--	--	1.96E+00	44.9 %	0 %	2.9 %	52.2 %
							MERCURY	NC	26 - 26	2.60E+01	1/1	--	--	--	--	--	1.63E+01	6.8 %	0 %	0 %	93.2 %
							ZINC	NC	40 - 1320	1.32E+03	3/3	--	--	--	--	--	3.54E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)PYRENE	C	0.15 - 0.15	1.50E-01	1/4	4.02E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
26	MU	090042	2E-07	4E+00	4E+00	Metal	MANGANESE	NC	480 - 3100	3.10E+03	2/2	--	--	--	--	--	3.68E+00	44.9 %	0 %	2.9 %	52.2 %
26	MU	091041	3E-04	8E+00	5E+00	Metal	CADMIUM	NC	1.9 - 6	5.62E+00	6/6	9.53E-09	--	--	--	--	1.63E+00	8.8 %	0 %	0 %	91.2 %
							MANGANESE	NC	530 - 2900	1.72E+03	10/10	--	--	--	--	--	2.04E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	2-METHYLNAPHTHALENE	NC	0.009 - 280	2.80E+02	2/3	--	--	--	--	--	1.93E+00	46.4 %	0 %	53.6 %	0 %
							BENZO(A)ANTHRACENE	C	0.008 - 32	9.14E+00	5/10	2.47E-05	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.008 - 14	4.05E+00	5/10	1.08E-04	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	6.4 - 6.4	6.40E+00	1/10	1.89E-05	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.14 - 1.6	1.60E+00	3/10	4.73E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							CHRYSENE	C	0.01 - 44	1.26E+01	5/10	3.80E-06	62 %	25.5 %	0 %	12.5 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	3.4 - 3.4	3.40E+00	1/10	5.87E-05	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
							INDENO(1,2,3-CD)PYRENE	C	0.18 - 1.7	1.70E+00	2/10	4.89E-06	65.3 %	26.8 %	0 %	7.9 %	--	--	--	--	--
						VOC	NAPHTHALENE	C,NC	0.009 - 97	9.70E+01	2/10	5.82E-05	31.3 %	0 %	68.7 %	0 %	1.73E+00	3.6 %	0 %	96.4 %	0 %
26	MU	091042	2E-06	2E+00	2E+00	Metal	MANGANESE	NC	420 - 1850	1.85E+03	3/3	--	--	--	--	--	2.19E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.0595 - 0.0595	5.95E-02	1/3	1.59E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
26	MU	091043	4E-05	<1	<1	PAH	BENZO(A)ANTHRACENE	C	0.2 - 1.3	1.30E+00	2/9	3.51E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.19 - 1.1	1.10E+00	2/9	2.95E-05	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							DIBENZ(A,H)ANTHRACENE	C	0.13 - 0.13	1.30E-01	1/9	2.25E-06	66.2 %	27.2 %	0 %	6.6 %	--	--	--	--	--
26	MU	092039	7E-09	1E+01	1E+01	Metal	MANGANESE	NC	178 - 9500	8.54E+03	11/11	--	--	--	--	--	1.01E+01	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	3.7 - 5.5	5.50E+00	3/6	--	--	--	--	--	1.09E+00	97.3 %	0 %	0 %	2.7 %
26	MU	092040	3E-06	2E+01	1E+01	Metal	COPPER	NC	3.4 - 710	7.10E+02	10/10	--	--	--	--	--	4.46E+00	5.5 %	0 %	0 %	94.5 %
							MANGANESE	NC	450 - 12000	1.20E+04	10/10	--	--	--	--	--	1.42E+01	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.026 - 0.053	5.30E-02	2/10	1.42E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
26	MU	092041	4E-06	3E+00	2E+00	Metal	MANGANESE	NC	1300 - 2100	2.10E+03	2/2	--	--	--	--	--	2.49E+00	44.9 %	0 %	2.9 %	52.2 %
						PAH	BENZO(A)PYRENE	C	0.099 - 0.1	1.00E-01	2/2	2.68E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
26	MU	092042	1E-05	<1	<1	PAH	BENZO(A)PYRENE	C	0.076 - 0.36	3.60E-01	3/9	9.65E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
26	MU	092043	2E-05	3E+00	2E+00	Metal	COPPER	NC	57 - 280	2.49E+02	4/4	--	--	--	--	--	1.56E+00	5.5 %	0 %	0 %	94.5 %
							ZINC	NC	39 - 430	4.30E+02	4/4	--	--	--	--	--	1.15E+00	1.6 %	0 %	0 %	98.4 %
						PAH	BENZO(A)ANTHRACENE	C	0.031 - 1.6	1.15E+00	6/13	3.12E-06	69.5 %	28.5 %	0 %	2 %	--	--	--	--	--
							BENZO(A)PYRENE	C	0.11 - 0.47	2.42E-01	5/13	6.49E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
							BENZO(B)FLUORANTHENE	C	0.098 - 1.5	1.17E+00	4/13	3.45E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
							BENZO(K)FLUORANTHENE	C	0.17 - 0.94	3.54E-01	4/13	1.05E-06	63.6 %	26.1 %	0 %	10.3 %	--	--	--	--	--
26	MU	093043	--	2E+00	2E+00	Metal	MANGANESE	NC	600 - 1780	1.54E+03	5/5	--	--	--	--	--	1.82E+00	44.9 %	0 %	2.9 %	52.2 %
26	MU	094041	5E-08	1E+01	3E+00	Metal	IRON	NC	71000 - 71000	7.10E+04	1/1	--	--	--	--	--	3.23E+00	93.6 %	0 %	0 %	6.4 %
							MANGANESE	NC	2600 - 2600	2.60E+03	1/1	--	--	--	--	--	3.08E+00	44.9 %	0 %	2.9 %	52.2 %
							THALLIUM	NC	5.4 - 5.4	5.40E+00	1/1	--	--	--	--	--	1.07E+00	97.3 %	0 %	0 %	2.7 %
							VANADIUM	NC	179 - 179	1.79E+02	1/1	--	--	--	--	--	2.76E+00	82.9 %	0 %	0 %	17.1 %
26	MU	095038	--	7E+00	5E+00	Metal	MANGANESE	NC	1700 - 3700	3.70E+03	3/3	--	--	--	--	--	4.39E+00	44.9 %	0 %	2.9 %	52.2 %
							VANADIUM	NC	121 - 121	1.21E+02	1/1	--	--	--	--	--	1.87E+00	82.9 %	0 %	0 %	17.1 %
26	MU	095039	--	4E+00	4E+00	Metal	MANGANESE	NC	990 - 3200	3.06E+03	4/4	--	--	--	--	--	3.64E+00	44.9 %	0 %	2.9 %	52.2 %
26	MU	095042	2E-06	3E+00	2E+00	Metal	VANADIUM	NC	104 - 144	1.44E+02	2/2	--	--	--	--	--	2.22E+00	82.9 %	0 %	0 %	17.1 %
						PAH	BENZO(A)PYRENE	C	0.02 - 0.065	6.50E-02	2/4	1.74E-06	70.1 %	28.8 %	0 %	1.1 %	--	--	--	--	--
26	MU	098042	1E-08	6E+00	4E+00	Metal	MANGANESE	NC	593 - 3430	3.43E+03	3/3	--	--	--	--	--	4.07E+00	44.9 %	0 %	2.9 %	52.2 %
20B	E/C	AX10	4E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.09 - 0.67	5.13E-01	5/16	2.92E-06	36.8 %	63.2 %	0 %		--	--	--	--	
20B	E/C	AY09	2E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.21 - 0.21	2.10E-01	1/8	1.20E-06	36.8 %	63.2 %	0 %		--	--	--	--	
20B	E/C	AY10	1E-04	3E+00	3E+00	Metal	ARSENIC	C	0.93 - 245	2.42E+01	34/36	5.57E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.028 - 0.25	2.16E-01	4/13	1.23E-06	36.8 %	63.2 %	0 %		--	--	--	--	
						Pest/PCB	AROCLOR-1260	C,NC	0.026 - 270	3.93E+01	25/45	3.91E-05	35.1 %	64.9 %	0 %		2.74E+00	35.1 %	64.9 %	0 %	
						VOC	1,4-DICHLOROBENZENE	C	0.00821 - 34.2	5.63E+00	9/29	1.24E-06	1.9 %	0 %	98.1 %		<1	--	--	--	
20B	E/C	AY11	1E-05	<1	<1	VOC	1,4-DICHLOROBENZENE	C	0.85 - 15.5	1.55E+01	3/30	3.41E-06	1.9 %	0 %	98.1 %		<1	--	--	--	
							TRICHLOROETHENE	C	0.003 - 36	3.60E+01	46/60	5.48E-06	1.5 %	0 %	98.5 %		<1	--	--	--	
20B	E/C	AZ08	3E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.03 - 0.57	2.45E-01	4/18	1.39E-06	36.8 %	63.2 %	0 %		--	--	--	--	
20B	E/C	AZ10	4E-05	<1	<1	Metal	ARSENIC	C	17.5 - 17.5	1.75E+01	1/2	4.04E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
20B	E/C	BA09	5E-05	<1	<1	Metal	ARSENIC	C	7.1 - 14	1.40E+01	3/8	3.23E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
							LEAD	NC	8.6 - 1700	1.70E+03	6/8	--	--	--	--		--	--	--	--	
						PAH	BENZO(A)ANTHRACENE	C	0.017 - 6.02	2.20E+00	5/8	1.25E-06	36.8 %	63.2 %	0 %		--	--	--	--	
							BENZO(A)PYRENE	C	0.022 - 5.52	2.02E+00	4/8	1.15E-05	36.8 %	63.2 %	0 %		--	--	--	--	
							BENZO(B)FLUORANTHENE	C	0.018 - 8.02	2.93E+00	4/8	1.67E-06	36.8 %	63.2 %	0 %		--	--	--	--	
							BENZO(K)FLUORANTHENE	C	0.047 - 2.62	2.62E+00	2/8	1.49E-06	36.8 %	63.2 %	0 %		--	--	--	--	
							INDENO(1,2,3-CD)PYRENE	C	2.27 - 2.27	2.27E+00	1/8	1.29E-06	36.8 %	63.2 %	0 %		--	--	--	--	
22	E/C	AZ07	5E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.04 - 0.63	6.30E-01	3/12	3.59E-06	36.8 %	63.2 %	0 %		--	--	--	--	
22	E/C	BA07	1E-04	<1	<1	Metal	ARSENIC	C	2.5 - 40	4.00E+01	12/16	9.22E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
							LEAD	NC	1.11 - 675	6.75E+02	13/16	--	--	--	--		--	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.016 - 0.56975	4.47E-01	10/16	2.54E-06	36.8 %	63.2 %	0 %		--	--	--	--	
						VOC	TETRACHLOROETHENE	C	0.002 - 1.6	1.60E+00	5/5	1.07E-06	14.1 %	0 %	85.9 %		<1	--	--	--	

TABLE 3-12: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS) BY PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
22	E/C	BA08	1E-04	<1	<1	Metal	ARSENIC	C	0.31 - 200	3.62E+01	95/139	8.36E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
							LEAD	NC	0.45 - 2000	1.37E+03	122/143	--	--	--	--		--	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.013 - 21	1.35E+00	88/136	7.70E-06	36.8 %	63.2 %	0 %		--	--	--	--	
						VOC	VINYL CHLORIDE	C	0.003 - 0.25	2.50E-01	2/30	4.58E-06	0.7 %	0 %	99.3 %		<1	--	--	--	
22	E/C	BB03	6E-07	1E+01	1E+01	OrgLead	ORGANIC LEAD	NC	0.93 - 0.93	9.30E-01	1/1	--	--	--	--		1.06E+01	43.1 %	56.9 %	0 %	
22	E/C	BB06	3E-05	<1	<1	Metal	ARSENIC	C	1.5 - 30.4	1.14E+01	16/25	2.62E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.031 - 0.79	2.87E-01	13/18	1.63E-06	36.8 %	63.2 %	0 %		--	--	--	--	
25	E/C	BB08	1E-05	<1	<1	Metal	ARSENIC	C	0.437 - 30.1	2.62E+00	30/87	6.04E-06	71.6 %	28.4 %	0 %		<1	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.016 - 2	2.04E-01	38/86	1.16E-06	36.8 %	63.2 %	0 %		--	--	--	--	
						VOC	BENZENE	C	0.0014 - 1.9	3.94E-01	6/24	1.01E-06	0.7 %	0 %	99.3 %		<1	--	--	--	
25	E/C	BC07	2E-06	<1	<1	PAH	BENZO(A)PYRENE	C	0.0265 - 0.2	2.00E-01	3/14	1.14E-06	36.8 %	63.2 %	0 %		--	--	--	--	
25	E/C	BC09	2E-06	<1	<1	Metal	LEAD	NC	7.5 - 939	9.39E+02	7/7	--	--	--	--		--	--	--	--	
						PAH	BENZO(A)PYRENE	C	0.029 - 0.36	2.43E-01	4/7	1.38E-06	36.8 %	63.2 %	0 %		--	--	--	--	
25	E/C	BD08	4E-05	<1	<1	Metal	ARSENIC	C	6.6 - 17.9	1.79E+01	3/3	4.13E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
CMI-1	MI	AV15	4E-05	<1	<1	Metal	ARSENIC	C	5.5 - 15.8	1.58E+01	3/3	3.64E-05	71.6 %	28.4 %	0 %		<1	--	--	--	
CMI-1	MI	BB18	4E-04	<1	<1	Metal	ARSENIC	C	1.8 - 89	8.90E+01	4/11	2.05E-04	71.6 %	28.4 %	0 %		<1	--	--	--	
						PAH	BENZO(A)ANTHRACENE	C	0.068 - 30	3.00E+01	3/8	1.71E-05	36.8 %	63.2 %	0 %		--	--	--	--	
							BENZO(A)PYRENE	C	0.47 - 27	2.70E+01	2/8	1.54E-04	36.8 %	63.2 %	0 %		--	--	--	--	
							BENZO(B)FLUORANTHENE	C	0.077 - 27	2.70E+01	3/8	1.54E-05	36.8 %	63.2 %	0 %		--	--	--	--	
							BENZO(K)FLUORANTHENE	C	0.34 - 6.5	6.50E+00	2/8	3.70E-06	36.8 %	63.2 %	0 %		--	--	--	--	
							CHRYSENE	C	0.064 - 37	3.70E+01	3/8	2.11E-06	36.8 %	63.2 %	0 %		--	--	--	--	
							DIBENZ(A,H)ANTHRACENE	C	3.9 - 3.9	3.90E+00	1/8	1.35E-05	36.8 %	63.2 %	0 %		--	--	--	--	
							INDENO(1,2,3-CD)PYRENE	C	0.35 - 14	1.40E+01	2/8	7.97E-06	36.8 %	63.2 %	0 %		--	--	--	--	
COS-2	OS	BD04	NA	NA	NA	Metal	LEAD	NC	1.2 - 410	4.10E+02	13/13	--	--	--	--		--	--	--	--	

Notes: All concentrations shown in mg/kg.

--	Not applicable or chemical is not a COC for this endpoint
	Not evaluated because exposure pathway is incomplete
bgs	Below ground surface
BHC	Benzene hexachloride
C	Cancer effect
COC	Chemical of concern
DF	Detection frequency
E/C	Educational/cultural (industrial exposure scenario)
EPC	Exposure point concentration
HI	Hazard index
mg/kg	Milligram per kilogram
MI	Maritime/Industrial (industrial exposure scenario)
MU	Mixed use (residential exposure scenario)
NA	Not applicable; lead is the only detected chemical for this grid and quantitative risks for lead are unavailable
NC	Noncancer effect
OrgLead	Organic lead
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
Pest	Pesticide
RD	Research and development (residential exposure scenario)
RME	Reasonable maximum exposure
VOC	Volatile organic compound

TABLE 3-13: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO

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

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-Specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
10	MU	AR10	3E-06	<1	<1	PAH	Benzo(a)pyrene	C	0.008 - 1.9	1.22E+00	25/74	1.89E-06	35.8 %	64.2 %	0 %		--	--	--	--	
10	MU	AS10	4E-06	<1	<1	Metal	Arsenic	C	1.2 - 11.3	5.78E+00	33/52	3.56E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
18	RD	AV13	6E-06	<1	<1	Metal	Arsenic	C	2.3 - 16.4	8.21E+00	16/18	5.06E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
23	RD	AX14	6E-06	2E+00	<1	Metal	Arsenic	C	0.255 - 16.1	7.89E+00	21/38	4.86E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
23	RD	AX15	1E-05	2E+00	<1	Metal	Arsenic	C	2.2 - 21.1	1.86E+01	4/4	1.14E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
23	RD	AY14	1E-05	4E+01	4E+01	OrgLead	Organic Lead	NC	0.4325 - 2.5	4.84E-01	9/48	--	--	--	--		3.72E+01	42 %	58 %	0 %	
						Metal	Arsenic	C	0.86 - 70.5	1.88E+01	54/78	1.16E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
23	RD	AY15	5E-06	7E+01	7E+01	OrgLead	Organic Lead	NC	0.31 - 0.94	9.40E-01	3/30	--	--	--	--		7.23E+01	42 %	58 %	0 %	
						Metal	Arsenic	C	0.91 - 18.3	6.44E+00	18/35	3.97E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
23	RD	AZ14	8E-06	1E+02	1E+02	OrgLead	Organic Lead	NC	0.5075 - 62	1.86E+00	9/124	--	--	--	--		1.43E+02	42 %	58 %	0 %	
						Metal	Arsenic	C	0.6 - 86	1.15E+01	147/172	7.12E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
23	RD	AZ15	2E-06	3E+01	3E+01	OrgLead	Organic Lead	NC	0.36 - 0.36	3.60E-01	1/43	--	--	--	--		2.77E+01	42 %	58 %	0 %	
						Pest/PCB	Aroclor-1260	NC	0.019 - 67	2.21E+00	32/87	5.98E-07	--	--	--		1.05E+00	34.1 %	65.9 %	0 %	
24	RD	AY13	1E-05	2E+00	<1	Metal	Arsenic	C	0.95 - 110	2.13E+01	47/61	1.31E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
24	RD	AZ12	4E-06	2E+00	<1	Metal	Arsenic	C	0.31 - 59.6	6.27E+00	58/71	3.87E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
24	RD	AZ13	1E-05	3E+00	<1	Metal	Arsenic	C	0.178 - 116	1.58E+01	84/97	9.73E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
24	RD	BA11	1E-05	2E+00	<1	Metal	Arsenic	C	1.1 - 16.9	1.69E+01	8/13	1.04E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
24	RD	BA12	6E-06	3E+02	3E+02	OrgLead	Organic Lead	NC	3.9 - 3.9	3.90E+00	1/6	--	--	--	--		3.00E+02	42 %	58 %	0 %	
						Metal	Arsenic	C	0.84 - 13	8.43E+00	7/9	5.20E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
							Manganese	NC	184 - 8100	7.44E+03	9/9	--	--	--	--		1.08E+00	92.7 %	0 %	7.3 %	
26	MU	BA14	4E-06	<1	<1	Metal	Arsenic	C	0.87 - 11.4	6.63E+00	13/18	4.09E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
20B	E/C	AY10	3E-05	2E+01	2E+01	Metal	Arsenic	C	0.93 - 245	2.42E+01	34/36	1.49E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
						Pest/PCB	Aroclor-1260	C,NC	0.026 - 270	3.93E+01	25/45	1.06E-05	34.1 %	65.9 %	0 %		1.86E+01	34.1 %	65.9 %	0 %	
20B	E/C	AZ10	1E-05	3E+00	2E+00	Metal	Arsenic	C	17.5 - 17.5	1.75E+01	1/2	1.08E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
							Manganese	NC	600 - 10200	1.02E+04	2/2	--	--	--	--		1.48E+00	92.7 %	0 %	7.3 %	
20B	E/C	BA09	1E-05	<1	<1	Metal	Arsenic	C	7.1 - 14	1.40E+01	3/8	8.63E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
							Lead	NC	8.6 - 1700	1.70E+03	6/8	--	--	--	--		--	--	--	--	
						PAH	Benzo(a)pyrene	C	0.022 - 5.52	2.02E+00	4/8	3.13E-06	35.8 %	64.2 %	0 %		--	--	--	--	
22	E/C	BA07	3E-05	2E+00	<1	Metal	Arsenic	C	2.5 - 40	4.00E+01	12/16	2.47E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
							Lead	NC	1.11 - 675	6.75E+02	13/16	--	--	--	--		--	--	--	--	
22	E/C	BA08	3E-05	4E+00	3E+00	Metal	Arsenic	C	0.31 - 200	3.62E+01	95/139	2.24E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
							Lead	NC	0.45 - 2000	1.37E+03	122/143	--	--	--	--		--	--	--	--	
							Thallium	NC	1.42 - 60.9	6.09E+01	4/7	--	--	--	--		2.98E+00	100 %	0 %	0 %	
						PAH	Benzo(a)pyrene	C	0.013 - 21	1.35E+00	88/136	2.09E-06	35.8 %	64.2 %	0 %		--	--	--	--	
22	E/C	BB03	2E-07	7E+01	7E+01	OrgLead	Organic Lead	NC	0.93 - 0.93	9.30E-01	1/1	--	--	--	--		7.15E+01	42 %	58 %	0 %	
22	E/C	BB06	8E-06	<1	<1	Metal	Arsenic	C	1.5 - 30.4	1.14E+01	16/25	7.02E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
25	E/C	BB08	2E-06	<1	<1	Metal	Arsenic	C	0.437 - 30.1	2.62E+00	30/87	1.62E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
25	E/C	BC09	6E-07	<1	<1	Metal	Lead	NC	7.5 - 939	9.39E+02	7/7	--	--	--	--		--	--	--	--	
25	E/C	BD08	1E-05	2E+00	2E+00	Metal	Arsenic	C	6.6 - 17.9	1.79E+01	3/3	1.10E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
							Manganese	NC	2970 - 11300	1.13E+04	3/3	--	--	--	--		1.64E+00	92.7 %	0 %	7.3 %	
CMI-1	MI	AV15	1E-05	<1	<1	Metal	Arsenic	C	5.5 - 15.8	1.58E+01	3/3	9.74E-06	70.7 %	29.3 %	0 %		<1	--	--	--	

TABLE 3-13: INCREMENTAL RISK - RISK CHARACTERIZATION ANALYSIS FOR SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER SCENARIO (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Grid Number	Total RME Cancer Risk	Total RME HI	RME Segregated HI	COC		Basis for COC	Range of Detected Concentrations	RME EPC	DF	Chemical-Specific Cancer Risk	Contribution by Exposure Pathway to Total RME Cancer Risk				Chemical-Specific HI	Contribution by Exposure Pathway to Total RME HI			
													Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion		Incidental Ingestion	Dermal Contact	Inhalation (Releases to Ambient Air)	Home-grown Produce Ingestion
CMI-1	MI	BB18	1E-04	3E+00	<1	Metal	Arsenic	C	1.8 - 89	8.90E+01	4/11	5.49E-05	70.7 %	29.3 %	0 %		<1	70.6 %	29.3 %	0.1 %	
						PAH	Benzo(a)anthracene	C	0.068 - 30	3.00E+01	3/8	4.64E-06	35.8 %	64.2 %	0 %		--	--	--	--	
							Benzo(a)pyrene	C	0.47 - 27	2.70E+01	2/8	4.18E-05	35.8 %	64.2 %	0 %		--	--	--	--	
							Benzo(b)fluoranthene	C	0.077 - 27	2.70E+01	3/8	4.18E-06	35.8 %	64.2 %	0 %		--	--	--	--	
							Benzo(k)fluoranthene	C	0.34 - 6.5	6.50E+00	2/8	1.01E-06	35.8 %	64.2 %	0 %		--	--	--	--	
							Dibenz(a,h)anthracene	C	3.9 - 3.9	3.90E+00	1/8	3.67E-06	35.8 %	64.2 %	0 %		--	--	--	--	
							Indeno(1,2,3-cd)pyrene	C	0.35 - 14	1.40E+01	2/8	2.17E-06	35.8 %	64.2 %	0 %		--	--	--	--	
COS-1	OS	AX09	9E-06	<1	<1	Metal	Arsenic	C	1.6 - 14.2	1.42E+01	5/6	8.76E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-2	OS	BB05	5E-06	<1	<1	Metal	Arsenic	C	0.44175 - 14	7.34E+00	7/17	4.52E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-2	OS	BC04	1E-05	<1	<1	Metal	Arsenic	C	2.1 - 17	1.70E+01	6/15	1.05E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-2	OS	BC05	9E-06	<1	<1	Metal	Arsenic	C	0.92 - 13	1.30E+01	7/14	8.02E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-2	OS	BC06	8E-06	<1	<1	Metal	Arsenic	C	1.5 - 43.1	1.21E+01	12/22	7.46E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-2	OS	BD03	3E-06	<1	<1	Metal	Arsenic	C	0.48 - 19	4.18E+00	29/35	2.58E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-2	OS	BD04	5E-06	<1	<1	Metal	Arsenic	C	0.6225 - 16.7	7.21E+00	16/17	4.45E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-3	OS	BA13	1E-05	6E+02	6E+02	OrgLead	Organic Lead	NC	7.3 - 7.3	7.30E+00	1/4	--	--	--	--		5.61E+02	42 %	58 %	0 %	
						Metal	Arsenic	C	0.28 - 39	1.63E+01	79/93	1.01E-05	70.7 %	29.3 %	0 %		<1	--	--	--	
							Manganese	NC	196 - 55300	8.72E+03	105/105	--	--	--	--		1.27E+00	92.7 %	0 %	7.3 %	
COS-3	OS	BB12	8E-06	<1	<1	Metal	Arsenic	C	1.775 - 11.2	1.12E+01	6/12	6.91E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
COS-3	OS	BE05	7E-06	3E+00	2E+00	Metal	Arsenic	C	2.7 - 15.5	1.06E+01	6/7	6.53E-06	70.7 %	29.3 %	0 %		<1	--	--	--	
							Manganese	NC	712 - 12100	1.21E+04	7/7	--	--	--	--		1.76E+00	92.7 %	0 %	7.3 %	
COS-3	OS	BE06	1E-05	<1	<1	Metal	Arsenic	C	3.4 - 20.3	2.03E+01	2/2	1.25E-05	70.7 %	29.3 %	0 %		<1	--	--	--	

Notes:

All concentrations shown in mg/kg.

--	Not applicable or chemical is not a COC for this endpoint
	Not evaluated because exposure pathway is incomplete
bgs	Below ground surface
C	Cancer effect
COC	Chemical of concern
DF	Detection frequency
E/C	Educational/cultural (industrial exposure scenario)
EPC	Exposure point concentration
HI	Hazard index
mg/kg	Milligram per kilogram
MI	Maritime/Industrial (industrial exposure scenario)
MU	Mixed use (residential exposure scenario)
NC	Noncancer effect
OrgLead	Organic lead
OS	Open space (recreational exposure scenario)
PAH	Polycyclic aromatic hydrocarbon
Pest	Pesticide
PCB	Polychlorinated biphenyl
RD	Research and development (residential exposure scenario)
RME	Reasonable maximum exposure

TABLE 3-14: RISK CHARACTERIZATION ANALYSIS FOR A-AQUIFER GROUNDWATER BASED ON PLANNED REUSE

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

Redevelopment Block	Planned Reuse	Exposure Area	Total RME Cancer Risk	Total RME HI	RME Segregated HI	Exposure Pathway	Source Aquifer for Exposure Pathway	Total RME Cancer Risk for Exposure Pathway	Total RME HI for Exposure Pathway		COC	Basis for COC	DF	RME Concentration (µg/L)	Chemical-Specific Cancer Risk	Contribution to Total RME Cancer Risk for Exposure Pathway	Chemical-Specific HI	Percent Contribution to Total RME HI for Exposure Pathway
24	RD	RU-C1 Plume	9.96E-03	9.83E+00	5.98E+00	Vapor Intrusion	A-Aquifer	9.96E-03	9.83E+00	VOC	1,1-DICHLOROETHANE	C	7 / 199	2.1E+01	3.3E-06	0.03%	1.0E-02	0.1%
											1,2-DICHLOROETHENE (TOTAL)	NC	30 / 68	4.9E+02	--	--	2.3E+00	23.9%
											1,4-DICHLOROBENZENE	C	22 / 199	1.3E+01	6.2E-06	0.1%	1.6E-03	0.02%
											BENZENE	C	64 / 199	8.6E+00	2.3E-05	0.2%	6.5E-02	0.7%
											CHLOROFORM	C	25 / 199	9.5E+00	1.4E-05	0.1%	2.9E-02	0.3%
											CIS-1,2-DICHLOROETHENE	NC	91 / 131	2.5E+02	--	--	1.2E+00	11.9%
											NAPHTHALENE	C	10 / 100	2.9E+01	8.0E-06	0.1%	1.9E-01	1.9%
											TETRACHLOROETHENE	C,NC	91 / 198	1.1E+02	2.0E-04	2.0%	2.3E+00	23.5%
											TRICHLOROETHENE	C	115 / 199	8.2E+01	2.8E-05	0.3%	5.8E-02	0.6%
											VINYL CHLORIDE	C,NC	87 / 199	2.8E+02	9.7E-03	97.1%	3.0E+00	31.0%
22, 25	E/C	RU-C1 Plume	5.93E-03	9.83E+00	5.98E+00	Vapor Intrusion	A-Aquifer	5.93E-03	9.83E+00	VOC	1,1-DICHLOROETHANE	C	7 / 199	2.1E+01	2.0E-06	0.03%	1.0E-02	0.1%
											1,2-DICHLOROETHENE (TOTAL)	NC	30 / 68	4.9E+02	--	--	2.3E+00	23.9%
											1,4-DICHLOROBENZENE	C	22 / 199	1.3E+01	3.7E-06	0.1%	1.6E-03	0.02%
											BENZENE	C	64 / 199	8.6E+00	1.4E-05	0.2%	6.5E-02	0.7%
											CHLOROFORM	C	25 / 199	9.5E+00	8.1E-06	0.1%	2.9E-02	0.3%
											CIS-1,2-DICHLOROETHENE	NC	91 / 131	2.5E+02	--	--	1.2E+00	11.9%
											NAPHTHALENE	C	10 / 100	2.9E+01	4.8E-06	0.1%	1.9E-01	1.9%
											TETRACHLOROETHENE	C,NC	91 / 198	1.1E+02	1.2E-04	2.0%	2.3E+00	23.5%
											TRICHLOROETHENE	C	115 / 199	8.2E+01	1.7E-05	0.3%	5.8E-02	0.6%
											VINYL CHLORIDE	C,NC	87 / 199	2.8E+02	5.8E-03	97.1%	3.0E+00	31.0%
18, 23, 24, 26	RD, MU	RU-C2 Plume	1.19E-02	6.57E+01	4.57E+01	Vapor Intrusion	A-Aquifer	1.19E-02	6.57E+01	VOC	1,1,2,2-TETRACHLOROETHANE	C	1 / 132	6.0E+00	2.0E-06	0.02%	4.0E-04	0.001%
											1,2,4-TRIMETHYLBENZENE	NC	13 / 22	1.6E+02	--	--	6.4E+00	9.8%
											1,2-DICHLOROETHENE (TOTAL)	NC	18 / 36	4.4E+03	--	--	2.1E+01	31.9%
											1,2-DICHLOROPROPANE	C	1 / 132	6.0E+00	5.5E-06	0.05%	1.8E-01	0.3%
											1,3,5-TRIMETHYLBENZENE	NC	4 / 22	2.8E+01	--	--	1.5E+00	2.3%
											1,4-DICHLOROBENZENE	C	51 / 131	1.9E+02	8.7E-05	0.7%	2.3E-02	0.03%
											BENZENE	C	26 / 132	1.3E+01	3.3E-05	0.3%	9.5E-02	0.1%
											BROMODICHLOROMETHANE	C	4 / 132	5.0E+00	5.0E-06	0.04%	4.7E-03	0.01%
											CARBON TETRACHLORIDE	C,NC	30 / 132	2.1E+01	4.6E-04	3.9%	1.1E+01	16.2%
											CHLOROBENZENE	NC	45 / 132	5.5E+03	--	--	1.4E+01	21.3%
											CHLOROETHANE	C	8 / 131	1.0E+01	1.6E-06	0.01%	4.6E-04	0.001%
											CHLOROFORM	C	54 / 132	1.1E+01	1.5E-05	0.1%	3.3E-02	0.05%
											CIS-1,2-DICHLOROETHENE	NC	66 / 96	7.8E+02	--	--	3.7E+00	5.7%
											CIS-1,3-DICHLOROPROPENE	C	1 / 132	4.0E+00	1.9E-05	0.2%	1.5E-01	0.2%
											DIBROMOCHLOROMETHANE	C	2 / 132	3.0E+00	1.2E-06	0.01%	1.5E-03	0.002%
											ISOPROPYLBENZENE	NC	8 / 35	9.0E+00	--	--	1.2E+00	1.8%
											METHYLENE CHLORIDE	C	6 / 132	5.3E+01	1.9E-06	0.02%	1.6E-03	0.002%
											NAPHTHALENE	C	15 / 58	7.2E+01	2.0E-05	0.2%	4.8E-01	0.7%
											TETRACHLOROETHENE	C	73 / 132	7.9E+00	1.5E-05	0.1%	1.7E-01	0.3%
											TRANS-1,3-DICHLOROPROPENE	C	1 / 132	3.0E+00	1.4E-05	0.1%	1.1E-01	0.2%
											TRICHLOROETHENE	C	98 / 132	9.9E+00	3.4E-06	0.03%	7.0E-03	0.01%
											TRICHLOROFLUOROMETHANE	NC	38 / 71	2.1E+02	--	--	1.2E+00	1.8%
											VINYL CHLORIDE	C,NC	45 / 132	3.2E+02	1.1E-02	94.2%	3.5E+00	5.4%

TABLE 3-14: RISK CHARACTERIZATION ANALYSIS FOR A-AQUIFER GROUNDWATER BASED ON PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Exposure Area	Total RME Cancer Risk	Total RME HI	RME Segregated HI	Exposure Pathway	Source Aquifer for Exposure Pathway	Total RME Cancer Risk for Exposure Pathway	Total RME HI for Exposure Pathway		COC	Basis for COC	DF	RME Concentration (µg/L)	Chemical-Specific Cancer Risk	Contribution to Total RME Cancer Risk for Exposure Pathway	Chemical-Specific HI	Percent Contribution to Total RME HI for Exposure Pathway
CMI-1	MI	RU-C2 Plume	7.07E-03	6.57E+01	4.57E+01	Vapor Intrusion	A-Aquifer	7.07E-03	6.57E+01	VOC	1,1,2,2-TETRACHLOROETHANE	C	1 / 132	6.0E+00	1.2E-06	0.02%	4.0E-04	0.001%
											1,2,4-TRIMETHYLBENZENE	NC	13 / 22	1.6E+02	--	--	6.4E+00	9.8%
											1,2-DICHLOROETHENE (TOTAL)	NC	18 / 36	4.4E+03	--	--	2.1E+01	31.9%
											1,2-DICHLOROPROPANE	C	1 / 132	6.0E+00	3.3E-06	0.05%	1.8E-01	0.3%
											1,3,5-TRIMETHYLBENZENE	NC	4 / 22	2.8E+01	--	--	1.5E+00	2.3%
											1,4-DICHLOROBENZENE	C	51 / 131	1.9E+02	5.2E-05	0.7%	2.3E-02	0.03%
											BENZENE	C	26 / 132	1.3E+01	2.0E-05	0.3%	9.5E-02	0.1%
											BROMODICHLOROMETHANE	C	4 / 132	5.0E+00	3.0E-06	0.04%	4.7E-03	0.01%
											CARBON TETRACHLORIDE	C,NC	30 / 132	2.1E+01	2.7E-04	3.9%	1.1E+01	16.2%
											CHLOROBENZENE	NC	45 / 132	5.5E+03	--	--	1.4E+01	21.3%
											CHLOROFORM	C	54 / 132	1.1E+01	9.1E-06	0.1%	3.3E-02	0.05%
											CIS-1,2-DICHLOROETHENE	NC	66 / 96	7.8E+02	--	--	3.7E+00	5.7%
											CIS-1,3-DICHLOROPROPENE	C	1 / 132	4.0E+00	1.1E-05	0.2%	1.5E-01	0.2%
											ISOPROPYLBENZENE	NC	8 / 35	9.0E+00	--	--	1.2E+00	1.8%
											METHYLENE CHLORIDE	C	6 / 132	5.3E+01	1.2E-06	0.02%	1.6E-03	0.002%
											NAPHTHALENE	C	15 / 58	7.2E+01	1.2E-05	0.2%	4.8E-01	0.7%
											TETRACHLOROETHENE	C	73 / 132	7.9E+00	8.8E-06	0.1%	1.7E-01	0.3%
											TRANS-1,3-DICHLOROPROPENE	C	1 / 132	3.0E+00	8.4E-06	0.1%	1.1E-01	0.2%
											TRICHLOROETHENE	C	98 / 132	9.9E+00	2.0E-06	0.03%	7.0E-03	0.01%
											TRICHLOROFLUOROMETHANE	NC	38 / 71	2.1E+02	--	--	1.2E+00	1.8%
											VINYL CHLORIDE	C,NC	45 / 132	3.2E+02	6.7E-03	94.2%	3.5E+00	5.4%
20A, 24	RD	RU-C4 Plume	2.02E-02	1.32E+02	1.30E+02	Vapor Intrusion	A-Aquifer	2.02E-02	1.32E+02	VOC	1,1,2,2-TETRACHLOROETHANE	C	1 / 188	1.2E+02	4.0E-05	0.2%	8.1E-03	0.01%
											1,1,2-TRICHLOROETHANE	C	12 / 188	8.2E+01	2.0E-05	0.1%	2.2E-01	0.2%
											1,2,3-TRICHLOROPROPANE	C	2 / 78	1.6E+01	5.3E-05	0.3%	4.6E-02	0.03%
											1,2-DICHLOROETHANE	C	20 / 195	5.9E+01	2.5E-05	0.1%	4.8E-01	0.4%
											1,2-DICHLOROPROPANE	C	5 / 188	3.9E+00	3.6E-06	0.02%	1.2E-01	0.1%
											1,4-DICHLOROBENZENE	C	13 / 187	4.5E+01	2.1E-05	0.1%	5.6E-03	0.004%
											BENZENE	C	15 / 188	3.1E+00	8.3E-06	0.04%	2.3E-02	0.02%
											CARBON TETRACHLORIDE	C,NC	47 / 195	2.2E+02	4.8E-03	23.8%	1.1E+02	84.4%
											CHLOROFORM	C	93 / 195	2.7E+02	3.9E-04	1.9%	8.4E-01	0.6%
											CIS-1,3-DICHLOROPROPENE	C	1 / 188	4.0E-01	1.9E-06	0.01%	1.4E-02	0.01%
											METHYLENE CHLORIDE	C	7 / 188	2.7E+02	1.0E-05	0.05%	8.1E-03	0.01%
											NAPHTHALENE	C	6 / 101	1.8E+01	5.0E-06	0.02%	1.2E-01	0.1%
											TETRACHLOROETHENE	C,NC	51 / 195	7.2E+01	1.3E-04	0.7%	1.5E+00	1.2%
											TRICHLOROETHENE	C,NC	121 / 195	1.9E+04	6.7E-03	33.0%	1.4E+01	10.3%
											VINYL CHLORIDE	C,NC	13 / 195	2.3E+02	8.0E-03	39.7%	2.5E+00	1.9%

TABLE 3-14: RISK CHARACTERIZATION ANALYSIS FOR A-AQUIFER GROUNDWATER BASED ON PLANNED REUSE (CONTINUED)

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

Redevelopment Block	Planned Reuse	Exposure Area	Total RME Cancer Risk	Total RME HI	RME Segregated HI	Exposure Pathway	Source Aquifer for Exposure Pathway	Total RME Cancer Risk for Exposure Pathway	Total RME HI for Exposure Pathway		COC	Basis for COC	DF	RME Concentration (µg/L)	Chemical-Specific Cancer Risk	Contribution to Total RME Cancer Risk for Exposure Pathway	Chemical-Specific HI	Percent Contribution to Total RME HI for Exposure Pathway
20B	E/C	RU-C4 Plume	1.20E-02	1.32E+02	1.30E+02	Vapor Intrusion	A-Aquifer	1.20E-02	1.32E+02	VOC	1,1,2,2-TETRACHLOROETHANE	C	1 / 188	1.2E+02	2.4E-05	0.2%	8.1E-03	0.01%
											1,1,2-TRICHLOROETHANE	C	12 / 188	8.2E+01	1.2E-05	0.1%	2.2E-01	0.2%
											1,2,3-TRICHLOROPROPANE	C	2 / 78	1.6E+01	3.1E-05	0.3%	4.6E-02	0.03%
											1,2-DICHLOROETHANE	C	20 / 195	5.9E+01	1.5E-05	0.1%	4.8E-01	0.4%
											1,2-DICHLOROPROPANE	C	5 / 188	3.9E+00	2.1E-06	0.02%	1.2E-01	0.1%
											1,4-DICHLOROBENZENE	C	13 / 187	4.5E+01	1.3E-05	0.1%	5.6E-03	0.004%
											BENZENE	C	15 / 188	3.1E+00	4.9E-06	0.04%	2.3E-02	0.02%
											CARBON TETRACHLORIDE	C,NC	47 / 195	2.2E+02	2.9E-03	23.8%	1.1E+02	84.4%
											CHLOROFORM	C	93 / 195	2.7E+02	2.3E-04	1.9%	8.4E-01	0.6%
											CIS-1,3-DICHLOROPROPENE	C	1 / 188	4.0E-01	1.1E-06	0.01%	1.4E-02	0.01%
											METHYLENE CHLORIDE	C	7 / 188	2.7E+02	5.9E-06	0.05%	8.1E-03	0.01%
											NAPHTHALENE	C	6 / 101	1.8E+01	3.0E-06	0.02%	1.2E-01	0.1%
											TETRACHLOROETHENE	C,NC	51 / 195	7.2E+01	7.9E-05	0.7%	1.5E+00	1.2%
											TRICHLOROETHENE	C,NC	121 / 195	1.9E+04	4.0E-03	33.0%	1.4E+01	10.3%
											VINYL CHLORIDE	C,NC	13 / 195	2.3E+02	4.8E-03	39.7%	2.5E+00	1.9%
10, 11	MU	RU-C5 Plume	9.94E-02	7.07E+02	3.37E+02	Vapor Intrusion	A-Aquifer	9.94E-02	7.07E+02	VOC	1,2,4-TRIMETHYLBENZENE	NC	7 / 36	9.1E+01	--	--	3.6E+00	0.5%
											1,2-DICHLOROBENZENE	NC	79 / 286	1.1E+04	--	--	4.4E+00	0.6%
											1,2-DICHLOROETHANE	C,NC	59 / 284	2.6E+04	1.1E-02	11.4%	2.2E+02	30.5%
											1,2-DICHLOROETHENE (TOTAL)	NC	25 / 79	9.1E+03	--	--	4.4E+01	6.2%
											1,2-DICHLOROPROPANE	C,NC	16 / 284	2.2E+02	2.0E-04	0.2%	6.5E+00	0.9%
											1,3,5-TRIMETHYLBENZENE	NC	4 / 36	2.2E+01	--	--	1.2E+00	0.2%
											1,4-DICHLOROBENZENE	C	61 / 286	3.9E+03	1.8E-03	1.8%	4.8E-01	0.1%
											BENZENE	C	78 / 288	1.1E+02	3.0E-04	0.3%	8.3E-01	0.1%
											BROMODICHLOROMETHANE	C	3 / 284	1.3E+02	1.3E-04	0.1%	1.2E-01	0.02%
											CHLOROBENZENE	NC	37 / 284	1.6E+03	--	--	4.0E+00	0.6%
											CHLOROETHANE	C	10 / 284	5.3E+01	8.1E-06	0.01%	2.4E-03	0.0003%
											CHLOROFORM	C	15 / 284	1.8E+01	2.6E-05	0.03%	5.6E-02	0.01%
											CIS-1,2-DICHLOROETHENE	NC	104 / 226	1.6E+04	--	--	7.4E+01	10.5%
											METHYLENE CHLORIDE	C	10 / 284	2.0E+02	7.4E-06	0.01%	6.0E-03	0.001%
											NAPHTHALENE	C	52 / 198	9.5E+01	2.7E-05	0.03%	6.3E-01	0.1%
											TETRACHLOROETHENE	C,NC	65 / 284	1.4E+04	2.6E-02	26.6%	3.1E+02	43.3%
											TRANS-1,2-DICHLOROETHENE	NC	52 / 226	8.1E+02	--	--	4.5E+00	0.6%
											TRICHLOROETHENE	C,NC	108 / 284	3.8E+03	1.3E-03	1.3%	2.7E+00	0.4%
											TRICHLOROFLUOROMETHANE	NC	17 / 192	3.0E+03	--	--	1.7E+01	2.4%
											VINYL CHLORIDE	C,NC	97 / 284	1.6E+03	5.8E-02	58.2%	1.8E+01	2.6%
10	MU	065030	9.58E-05	2.14E+00	2.14E+00	Vapor Intrusion	A-Aquifer	9.58E-05	2.14E+00	VOC	CARBON TETRACHLORIDE	C,NC	4 / 7	4.2E+00	9.2E-05	96.3%	2.1E+00	99.6%
											CHLOROFORM	C	3 / 7	2.5E+00	3.6E-06	3.7%	7.7E-03	0.4%
10	MU	068029	6.35E-04	1.43E+01	1.43E+01	Vapor Intrusion	A-Aquifer	6.35E-04	1.43E+01	VOC	CARBON TETRACHLORIDE	C,NC	5 / 7	2.8E+01	6.1E-04	96.8%	1.4E+01	99.7%
											CHLOROFORM	C	4 / 7	1.1E+01	1.6E-05	2.5%	3.4E-02	0.2%
											TRICHLOROETHENE	C	5 / 7	1.4E+01	4.9E-06	0.8%	9.9E-03	0.1%

Notes: All concentrations shown in micrograms per liter (µg/L).

--	Not applicable or chemical is not a COC for this endpoint	MU	Mixed use (residential exposure scenario)
C	Cancer effect	NC	Noncancer effect
COC	Chemical of concern	RD	Research and development (residential exposure scenario)
DF	Detection frequency	RME	Reasonable maximum exposure
E/C	Educational/cultural (industrial exposure scenario)	RU	Remedial Unit
HI	Hazard index	VOC	Volatile organic compound
MI	Maritime industrial (industrial exposure scenario)		

TABLE 3-15: RISK CHARACTERIZATION ANALYSIS FOR A-AQUIFER GROUNDWATER, CONSTRUCTION WORKER SCENARIO

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

Redevelopment Block	Planned Reuse	Exposure Area	Total RME Cancer Risk	Total RME HI	RME Segregated HI	Exposure Pathway	Source Aquifer for Exposure Pathway	Total RME Cancer Risk for Exposure Pathway	Total RME HI for Exposure Pathway	COC		Basis for COC	DF	RME Concentration (µg/L)	Chemical-Specific Cancer Risk	Contribution to Total RME Cancer Risk for Exposure Pathway	Chemical-Specific HI	Percent Contribution to Total RME HI for Exposure Pathway
22, 25, 24, COS-2, COS-3	E/C, OS, RD	RU-C1 Plume	1.15E-04	5.16E+00	4.61E+00	Trench Vapor Inhalation	A-Aquifer	5.16E-05	4.70E+00	VOC	1,2-Dichloroethene (Total)	NC	30 / 68	4.9E+02	--	--	1.8E+00	37.4%
											Naphthalene	C	10 / 100	2.9E+01	1.4E-06	2.7%	9.5E-01	20.1%
											Vinyl Chloride	C	87 / 199	2.8E+02	4.8E-05	92.7%	4.3E-01	9.2%
						Trench Dermal Contact	A-Aquifer	6.38E-05	4.58E-01	PAH	Benzo(a)anthracene	C	1 / 73	2.0E+00	3.0E-06	4.7%	--	--
											Benzo(a)pyrene	C	1 / 72	2.0E+00	4.5E-05	69.8%	--	--
											Benzo(b)fluoranthene	C	1 / 72	2.0E+00	4.5E-06	7.0%	--	--
											Benzo(k)fluoranthene	C	1 / 72	1.0E+00	2.2E-06	3.5%	--	--
										VOC	Tetrachloroethene	C	91 / 198	1.1E+02	5.1E-06	7.9%	6.6E-02	14.3%
											Vinyl Chloride	C	87 / 199	2.8E+02	3.1E-06	4.8%	9.5E-02	20.9%
18, 23, 24, 25, CMI-1, COS-3	MU, RD, MI, OS	RU-C2 Plume	7.17E-05	4.06E+01	3.55E+01	Trench Vapor Inhalation	A-Aquifer	6.57E-05	3.80E+01	VOC	1,2,4-Trimethylbenzene	NC	13 / 22	1.6E+02	--	--	3.1E+00	8.2%
											1,2-Dichloroethene (Total)	NC	18 / 36	4.4E+03	--	--	1.6E+01	41.3%
											1,4-Dichlorobenzene	C	51 / 131	1.9E+02	3.0E-06	4.6%	2.3E-02	0.1%
											Carbon Tetrachloride	C	30 / 132	2.1E+01	1.3E-06	2.0%	8.6E-01	2.3%
											Chlorobenzene	NC	45 / 132	5.5E+03	--	--	1.1E+01	28.1%
											cis-1,2-Dichloroethene	NC	66 / 96	7.8E+02	--	--	2.8E+00	7.3%
											Naphthalene	C,NC	15 / 58	7.2E+01	3.5E-06	5.3%	2.4E+00	6.3%
											Vinyl Chloride	C	45 / 132	3.2E+02	5.5E-05	84.3%	5.0E-01	1.3%
						Trench Dermal Contact	A-Aquifer	6.04E-06	2.65E+00	VOC	Chlorobenzene	NC	45 / 132	5.5E+03	--	--	1.4E+00	53.7%
											Naphthalene	C	15 / 58	7.2E+01	1.1E-06	17.9%	3.2E-02	1.2%
											Vinyl Chloride	C	45 / 132	3.2E+02	3.6E-06	58.8%	1.1E-01	4.2%
20A, 20B, 24	RD, E/C	RU-C4 Plume	2.53E-04	2.42E+01	1.11E+01	Trench Vapor Inhalation	A-Aquifer	1.44E-04	2.27E+01	VOC	1,1,2-Trichloroethane	C,NC	12 / 188	8.2E+01	4.0E-06	2.8%	1.2E+00	5.5%
											1,2,3-Trichloropropane	C	2 / 78	1.6E+01	1.2E-05	8.0%	2.9E-01	1.3%
											1,2-Dichloroethane	C,NC	20 / 195	5.9E+01	6.6E-06	4.6%	3.6E+00	16.0%
											Carbon Tetrachloride	C,NC	47 / 195	2.2E+02	5.0E-06	3.4%	3.3E+00	14.5%
											Chloroform	C,NC	93 / 195	2.7E+02	3.7E-05	25.8%	2.3E+00	10.1%
											cis-1,2-Dichloroethene	NC	74 / 143	7.8E+01	--	--	9.3E+00	40.9%
											Naphthalene	C	6 / 101	1.8E+01	1.4E-06	1.0%	9.4E-01	4.1%
											Vinyl Chloride	C	13 / 195	2.3E+02	7.6E-05	52.9%	6.9E-01	3.0%
						Trench Dermal Contact	A-Aquifer	1.08E-04	1.52E+00	PAH	Benzo(a)anthracene	C	1 / 61	4.0E+00	6.0E-06	5.5%	--	--
											Benzo(a)pyrene	C	1 / 61	3.0E+00	6.7E-05	61.6%	--	--
											Benzo(b)fluoranthene	C	1 / 61	4.0E+00	8.9E-06	8.2%	--	--
											Benzo(k)fluoranthene	C	1 / 61	1.0E+00	2.2E-06	2.1%	--	--
										VOC	1,2,3-Trichloropropane	C	2 / 78	1.6E+01	1.6E-05	14.9%	9.4E-02	6.2%
											Vinyl Chloride	C	13 / 195	2.3E+02	4.9E-06	4.5%	1.5E-01	10.0%
10, 11	MU	RU-C5 Plume	3.22E-03	8.35E+02	6.39E+02	Trench Vapor Inhalation	A-Aquifer	1.67E-03	7.94E+02	PAH	Chrysene	C	4 / 175	2.0E+02	3.0E-05	1.8%	--	--
										VOC	1,2,4-Trichlorobenzene	NC	22 / 280	6.3E+01	--	--	1.5E+00	0.2%
											1,2,4-Trimethylbenzene	NC	7 / 36	9.1E+01	--	--	1.7E+00	0.2%
											1,2-Dichlorobenzene	NC	79 / 286	1.1E+04	--	--	5.6E+00	0.7%
											1,2-Dichloroethane	C,NC	59 / 284	2.6E+04	1.2E-03	69.6%	6.4E+02	80.3%
											1,2-Dichloroethene (Total)	NC	25 / 79	9.1E+03	--	--	3.3E+01	4.1%
											1,2-Dichloropropane	C,NC	16 / 284	2.2E+02	7.0E-06	0.4%	6.5E+00	0.8%
											1,4-Dichlorobenzene	C	61 / 286	3.9E+03	6.3E-05	3.8%	4.8E-01	0.1%
											Benzene	C	78 / 288	1.1E+02	6.3E-06	0.4%	5.1E-01	0.1%
											Bromodichloromethane	C	3 / 284	1.3E+02	6.5E-06	0.4%	1.8E-01	0.02%
											Chlorobenzene	NC	37 / 284	1.6E+03	--	--	3.1E+00	0.4%
											cis-1,2-Dichloroethene	NC	104 / 226	1.6E+04	--	--	5.5E+01	7.0%
											Naphthalene	C,NC	52 / 198	9.5E+01	4.6E-06	0.3%	3.1E+00	0.4%
											Tetrachloroethene	C,NC	65 / 284	1.4E+04	1.2E-04	7.1%	3.9E+01	4.9%
											Trichloroethene	C	108 / 284	3.8E+03	1.2E-05	0.7%	6.8E-01	0.1%
											Vinyl Chloride	C,NC	97 / 284	1.6E+03	2.9E-04	17.2%	2.6E+00	0.3%

TABLE 3-15: RISK CHARACTERIZATION ANALYSIS FOR A-AQUIFER GROUNDWATER, CONSTRUCTION WORKER SCENARIO (CONTINUED)

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

Redevelopment Block	Planned Reuse	Exposure Area	Total RME Cancer Risk	Total RME HI	RME Segregated HI	Exposure Pathway	Source Aquifer for Exposure Pathway	Total RME Cancer Risk for Exposure Pathway	Total RME HI for Exposure Pathway	COC		Basis for COC	DF	RME Concentration (µg/L)	Chemical-Specific Cancer Risk	Contribution to Total RME Cancer Risk for Exposure Pathway	Chemical-Specific HI	Percent Contribution to Total RME HI for Exposure Pathway
10, 11	MU	RU-C5 Plume	3.22E-03	8.35E+02	6.39E+02	Trench Dermal Contact	A-Aquifer	1.55E-03	4.07E+01	PAH	Benzo(a)anthracene	C	6 / 174	2.3E+00	3.5E-06	0.2%	--	--
											Benzo(a)pyrene	C	1 / 173	2.1E-01	4.7E-06	0.3%	--	--
											Chrysene	C	4 / 175	2.0E+02	3.0E-05	1.9%	--	--
										SVOC	2,4-Dimethylphenol	NC	18 / 150	1.4E+04	--	--	1.4E+00	3.4%
											2,4-Dinitrotoluene	C,NC	1 / 161	4.9E+03	2.7E-05	1.8%	1.4E+00	3.5%
											3,4-Methylphenol	NC	2 / 12	3.2E+03	--	--	4.6E+00	11.2%
											4-Methylphenol	NC	12 / 138	4.2E+03	--	--	1.2E+00	3.0%
											Pentachlorophenol	C,NC	3 / 151	6.1E+03	7.6E-04	48.7%	1.5E+01	36.1%
										VOC	1,2-Dichloroethane	C,NC	59 / 284	2.6E+04	2.7E-05	1.7%	1.0E+00	2.5%
											1,2-Dichloroethene (Total)	NC	25 / 79	9.1E+03	--	--	1.3E+00	3.2%
											1,4-Dichlorobenzene	C,NC	61 / 286	3.9E+03	1.0E-05	0.7%	1.0E+00	2.5%
											cis-1,2-Dichloroethene	NC	104 / 226	1.6E+04	--	--	2.2E+00	5.4%
											Naphthalene	C	52 / 198	9.5E+01	1.4E-06	0.1%	4.2E-02	0.1%
											Tetrachloroethene	C,NC	65 / 284	1.4E+04	6.7E-04	43.2%	8.7E+00	21.4%
											Trichloroethene	C	108 / 284	3.8E+03	1.6E-06	0.1%	--	--
											Vinyl Chloride	C	97 / 284	1.6E+03	1.8E-05	1.2%	5.7E-01	1.4%
10	MU	AS11	2.45E-06	1.30E+00	1.30E+00	Trench Vapor Inhalation	A-Aquifer	2.17E-06	1.18E+00	VOC	Carbon Tetrachloride	C,NC	5 / 11	2.8E+01	1.7E-06	79.2%	1.1E+00	97.6%
						Trench Dermal Contact	A-Aquifer	2.78E-07	1.25E-01	VOC	Carbon Tetrachloride	C,NC	5 / 11	2.8E+01	1.8E-07	64.1%	1.2E-01	94.9%

Notes:

All concentrations shown in micrograms per liter (µg/L).

--	Not applicable or chemical is not a COC for this endpoint
COC	Chemical of concern
C	Cancer effect
COC	Chemical of concern
DF	Detection frequency
E/C	Educational/cultural (industrial exposure scenario)
HI	Hazard index
MI	Maritime industrial (industrial exposure scenario)
MU	Mixed use (residential exposure scenario)
NC	Noncancer effect
OS	Open space (recreational exposure scenario)
PAH	Polycyclic aromatic hydrocarbon
RD	Research and development (residential exposure scenario)
RME	Reasonable maximum exposure
RU	Remedial Unit
SVOC	Semivolatile organic compound
VOC	Volatile organic compound

TABLE 3-16: RISK CHARACTERIZATION ANALYSIS FOR B-AQUIFER WITH POTENTIAL HYDRAULIC COMMUNICATION BASED ON PLANNED REUSE
Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Redevelopment Block	Planned Reuse	Exposure Area	Total RME Cancer Risk	Total RME HI	RME Segregated HI	Exposure Pathway	Source Aquifer for Exposure Pathway	Total RME Cancer Risk for Exposure Pathway	Total RME HI for Exposure Pathway	COC		Basis for COI	DF	RME Concentration (µg/L)	Chemical-Specific Cancer Risk	Contribution to Total RME Cancer Risk for Exposure Pathway	Chemical-Specific HI	Contribution to Total RME HI for Exposure Pathway
10, 11	MU	RU-C5 Plume	5E-01	4E+03	3E+03	Domestic Use	B-Aquifer with Potential Hydraulic Communication	4.86E-01	3.62E+03		ANTIMONY	NC	15 / 101	2.3E+01	--	--	1.5E+00	0.04%
											ARSENIC	C, NC	73 / 144	5.7E+00	8.2E-04	0.2%	5.2E-01	0.01%
											CHROMIUM VI	NC	8 / 127	1.2E+02	--	--	1.1E+00	0.03%
											IRON	NC	77 / 129	2.3E+04	--	--	2.1E+00	0.06%
											MANGANESE	NC	106 / 110	3.1E+03	--	--	3.5E+00	0.10%
											THALLIUM	NC	13 / 101	1.8E+01	--	--	7.7E+00	0.21%
										PAH	2-METHYLNAPHTHALENE	NC	33 / 170	8.9E+01	--	--	3.7E+00	0.10%
											BENZO(A)ANTHRACENE	C	6 / 174	2.3E+00	4.2E-05	0.01%	--	--
											BENZO(A)PYRENE	C	1 / 173	2.1E-01	3.8E-05	0.01%	--	--
											CHRYSENE	C	4 / 175	2.0E+02	3.6E-04	0.1%	--	--
											NAPHTHALENE	C, NC	52 / 198	9.5E+01	1.0E-03	0.2%	1.5E+01	0.4%
										Pest/PCB	ALDRIN	C, NC	1 / 39	8.5E-03	2.1E-06	0.0004%	7.8E-03	0.000%
											ALPHA-BHC	C, NC	2 / 39	2.0E-02	1.9E-06	0.0004%	1.1E-03	0.00003%
											DIELDRIN	C, NC	2 / 39	6.0E-02	1.4E-05	0.003%	3.3E-02	0.001%
											HEPTACHLOR EPOXIDE	C, NC	3 / 37	3.0E-02	4.1E-06	0.001%	6.3E-02	0.002%
											HEPTACHLOR EPOXIDE A	C, NC	1 / 2	5.5E-02	7.4E-06	0.002%	1.2E-01	0.003%
										SVOC	2,4-DIMETHYLPHENOL	NC	18 / 150	1.4E+04	--	--	1.9E+01	0.5%
											2,4-DINITROTOLUENE	C, NC	1 / 161	4.9E+03	5.0E-02	10.3%	6.7E+01	1.9%
											2-METHYLPHENOL	NC	11 / 149	3.8E+03	--	--	2.1E+00	0.1%
											3,4-METHYLPHENOL	NC	2 / 12	3.2E+03	--	--	1.8E+01	0.5%
											4-METHYLPHENOL	NC	12 / 138	4.2E+03	--	--	2.3E+01	0.6%
											BIS(2-ETHYLHEXYL)PHTHALATE	C, NC	2 / 160	3.2E+01	6.7E-06	0.001%	4.4E-02	0.001%
											CARBAZOLE	C	15 / 88	3.7E+00	1.1E-06	0.0002%	--	--
											DIBENZOFURAN	NC	38 / 161	1.6E+01	--	--	1.3E+00	0.0%
											PENTACHLOROPHENOL	C, NC	3 / 151	6.1E+03	1.1E-02	2.2%	5.6E+00	0.2%
										VOC	1,1-DICHLOROETHANE	C, NC	10 / 284	4.5E+00	2.3E-06	0.0005%	5.6E-03	0.0002%
											1,2,4-TRICHLOROBENZENE	C, NC	22 / 280	6.3E+01	3.4E-06	0.001%	8.8E+00	0.2%
											1,2,4-TRIMETHYLBENZENE	NC	7 / 36	9.1E+01	--	--	7.4E+00	0.2%
											1,2-DICHLOROBENZENE	NC	79 / 286	1.1E+04	--	--	3.0E+01	0.8%
											1,2-DICHLOROETHANE	C, NC	59 / 284	2.6E+04	2.1E-01	44.1%	2.6E+03	72.3%
											1,2-DICHLOROETHENE (TOTAL)	NC	25 / 79	9.1E+03	--	--	1.5E+02	4.1%
											1,2-DICHLOROPROPANE	C, NC	16 / 284	2.2E+02	1.3E-03	0.3%	3.2E+01	0.9%
											1,3,5-TRIMETHYLBENZENE	NC	4 / 36	2.2E+01	--	--	1.8E+00	0.05%
											1,3-DICHLOROBENZENE	NC	20 / 286	2.1E+02	--	--	1.2E+00	0.03%
											1,4-DICHLOROBENZENE	C, NC	61 / 286	3.9E+03	1.3E-02	2.7%	5.8E+00	0.2%
											BENZENE	C, NC	78 / 288	1.1E+02	1.0E-03	0.2%	2.5E+00	0.1%
											BROMODICHLOROMETHANE	C, NC	3 / 284	1.3E+02	1.5E-03	0.3%	1.1E+00	0.03%
											CHLOROBENZENE	NC	37 / 284	1.6E+03	--	--	1.5E+01	0.4%
											CHLOROETHANE	C, NC	10 / 284	5.3E+01	1.1E-05	0.002%	6.2E-03	0.0002%
											CHLOROFORM	C, NC	15 / 284	1.8E+01	1.2E-04	0.02%	2.3E-01	0.006%
											CIS-1,2-DICHLOROETHENE	NC	104 / 226	1.6E+04	--	--	2.6E+02	7.1%
											HEXACHLOROETHANE	C, NC	1 / 160	7.0E+00	4.1E-06	0.001%	1.9E-01	0.01%
											METHYLENE CHLORIDE	C, NC	10 / 284	2.0E+02	9.5E-05	0.02%	1.2E-01	0.0%
											TETRACHLOROETHENE	C, NC	65 / 284	1.4E+04	1.4E-01	28.1%	2.3E+02	6.5%
											TRANS-1,2-DICHLOROETHENE	NC	52 / 226	8.1E+02	--	--	6.7E+00	0.2%
											TRICHLOROETHENE	C, NC	108 / 284	3.8E+03	2.7E-03	0.6%	3.1E+00	0.1%
											TRICHLOROFLUOROMETHANE	NC	17 / 192	3.0E+03	--	--	2.4E+00	0.1%
											VINYL CHLORIDE	C, NC	97 / 284	1.6E+03	5.2E-02	10.7%	2.3E+01	0.6%

Notes:
All concentrations shown in micrograms per liter (µg/L).
Risk results shown for the RU-C5 plume is based on potential hydraulic communication between the A- and B-aquifers.

--	Not applicable or chemical is not a chemical of concern for this endpoint	HHRA	Human health risk assessment
C	Cancer effect	HI	Hazard index
COC	Chemical of concern	MU	Mixed use (residential exposure scenario)
DF	Detection frequency	NC	Noncancer effect

PAH	Polynuclear aromatic hydrocarbon
Pest/PCB	Pesticide/polychlorinated biphenyl
RME	Reasonable maximum exposure
SVOC	Semivolatile organic compound
VOC	Volatile organic compound

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
22	Radiological risks	Section 2.5.1	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Tables 3-3 and 3-4.

TABLE 3-3

RESRAD-BUILD RESULTS[a]

Parcel C Impacted Sites	Radiological Risk[b]	Dose[cd]
Building 203	1.44×10^{-6}	5.43
Building 205 and Discharge Channel	1.44×10^{-6}	5.43
Building 211	1.30×10^{-6}	9.29
Building 214	1.44×10^{-6}	5.43
Building 224	1.48×10^{-6}	7.02
Building 241	8.70×10^{-7}	12.8
Building 253	1.29×10^{-6}	9.32
Building 271	1.34×10^{-6}	0.64
Building 272	3.09×10^{-6}	3.66

Notes:

[a] Total risk and dose is equivalent to incremental risk and dose
[b] Total excess lifetime carcinogen risk
[c] millirems per year
[d] Dose is calculated using DCGLs. Actual dose will be determined after remediation.

TABLE 3-4

RESRAD RESULTS

Total Dose and Risk		
Impacted Areas	**Radiological Risk[a]**	**Dose[bc]**
Storm Water Sewer System	6.75×10^{-5}	3.09
Sanitary Sewer System	6.75×10^{-5}	3.09
Incremental Dose and Risk		
Impacted Areas	**Radiological Risk[a]**	**Dose[bc]**
Storm Water Sewer System	4.54×10^{-5}	2.08
Sanitary Sewer System	4.54×10^{-5}	2.08

Notes:

[a] Total excess lifetime carcinogen risk.
[b] millirems per year.
[c] Dose is calculated using DCGLs. Actual dose will be determined after remediation.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
23	Combined chemical and radiological risks	Section 2.5.1	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Tables 3-5 and 3-6.

TABLE 3-5

COMBINED TOTAL RISK FROM CHEMICAL AND RADIOLOGICAL RISKS

Parcel C Impacted Sites	Radiological Risk[b]	Chemical Risk[a,b,c]	Redevelopment Block	Parcel C Grid(s)	Risk Combination Results
Building 203	1.44×10^{-6}	5.00×10^{-4}	23	089040	5.01×10^{-4}
Building 205 and Discharge Channel	1.44×10^{-6}	4.00×10^{-6}	22	BB03	5.40×10^{-6}
Building 211	1.30×10^{-6}	5.00×10^{-5}	25 and COS-3	BE06	5.13×10^{-5}
Building 214	1.44×10^{-6}	5.00×10^{-5}	20B	BA09	5.14×10^{-5}
Building 224	1.48×10^{-6}	4.00×10^{-5}	25	BD08	4.14×10^{-5}
Building 241	8.70×10^{-7}	4.00×10^{-4}	18	079041	4.08×10^{-4}
Building 253	1.29×10^{-6}	4.00×10^{-4}	25	BD08	4.01×10^{-4}
Building 271	1.34×10^{-6}	4.00×10^{-4}	24	093035, 094035	4.01×10^{-4}
Building 272	3.09×10^{-6}	2.00×10^{-3}	24	088036	2.00×10^{-3}
Sanitary Sewer System	6.75×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.72×10^{-3}
Storm Water Sewer System	6.75×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.72×10^{-3}

Notes:

[a] Chemical risk was taken from Revised Feasibility Study Report for Parcel C, Tables 3-2 and 3-3.

[b] Excess lifetime carcinogenic risk.

[c] The worst case chemical risk was chosen from the girds that the radiologically-impacted buildings or sites overlay.

TABLE 3-6

COMBINED INCREMENTAL RISK FROM CHEMICAL AND RADIOLOGICAL RISKS

Parcel C Impacted Sites	Radiological Risk[b]	Chemical Risk[a,b,c]	Redevelopment Block	Parcel C Grid(s)	Risk Combination Results
Building 203	1.44×10^{-6}	5.00×10^{-4}	23	089040	5.01×10^{-4}
Building 205 and Discharge Channel	1.44×10^{-6}	6.00×10^{-7}	22	BA03, BB03	2.00×10^{-6}
Building 211	1.30×10^{-6}	5.00×10^{-5}	25 and COS-3	BE06	5.13×10^{-5}
Building 214	1.44×10^{-6}	5.00×10^{-5}	20B	BA09	5.14×10^{-5}
Building 224	1.48×10^{-6}	3.00×10^{-5}	25	BD08	3.14×10^{-5}
Building 241	8.70×10^{-7}	4.00×10^{-4}	18	079041	4.00×10^{-4}
Building 253	1.29×10^{-6}	4.00×10^{-5}	25	BD08	4.12×10^{-5}
Building 271	1.34×10^{-6}	4.00×10^{-4}	24	093035, 094035	4.01×10^{-4}
Building 272	3.09×10^{-6}	2.00×10^{-3}	24	088036	2.00×10^{-3}
Sanitary Sewer System	4.54×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.04×10^{-3}
Storm Water Sewer System	4.54×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.04×10^{-3}

Notes:

[a] Chemical risk was taken from Revised Feasibility Study Report for Parcel C, Tables 3-8 and 3-9.

[b] Excess lifetime carcinogenic risk.

[c.] The worst case chemical risk was chosen from the girds that the radiologically-impacted buildings overlay.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
24	Assumptions and uncertainties	Section 2.5.1	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix C, Section C9.0, pages C-43 to C-46.

Tables C2-10 and C2-16 of Attachment C2 present the incremental risk and hazard results by exposure pathway for construction worker exposure to subsurface soil for each industrial grid. (Exposures to soil for a construction worker are evaluated using the industrial-sized grid; see Section C4.3.1.) Table C2-22 summarizes the incremental cancer risks and HIs for subsurface soil by grid. Table C2-24 presents the results of the evaluation of lead in subsurface soil. Figure C2-6 of Attachment C2 summarizes the results of the incremental risk evaluation for construction worker exposure to subsurface soil.

C8.5.3 Groundwater

Risk and hazard results for construction worker exposure to the A-aquifer from dermal contact and inhalation of volatile chemicals that are released to air in a construction trench are presented in Table C3-19 for the RU-C1 plume, Table C3-24 for the RU-C2 plume, Table C3-30 for the RU-C4 plume, Table C3-35 for the RU-C5 plume, and Table C3-39 for nonplume exposure areas. Figure C-12 and Figure C3-8 of Attachment C3 show the results of the evaluation of A-aquifer evaluation for the construction worker receptor. An analysis of the risk results for and summary of the A-aquifer COCs for the construction worker scenario is provided in Table C-29.

C9.0 UNCERTAINTY ANALYSIS

Varying degrees of uncertainty at each stage of the HHRA arise from assumptions made in the risk assessment and the limitations of the data used to calculate risks. Uncertainty and variability are also inherent in the exposure assessment, toxicity values, and risk characterization. Table C-30 lists both general and site-specific uncertainties associated with this HHRA.

The effect of uncertainties is overestimation or underestimation of the actual cancer risk or HI. In general, the risk assessment process is based on use of conservative (health-protective) assumptions that, when combined, are intended to overestimate the actual risk. However, a small possibility exists that risks were underestimated.

The remainder of this discussion focuses on the following uncertainties specific to this HHRA:

- The influence of metals in soil at or below ambient levels on this HHRA
- Use of a SF for TCE developed by Cal/EPA, rather than the EPA provisional SF for TCE
- Assumption that the exposure area for vapor intrusion risks from groundwater is consistent with the plume boundaries delineated for COPCs in groundwater
- Dermal contact with groundwater for the residential exposure scenario
- Use of generic, non-site-specific RBSLs to calculate risks from groundwater vapor intrusion

C9.1 METALS IN SOIL BELOW AMBIENT LEVELS

Both total and incremental risks were assessed for exposure to soil to account for the contribution of naturally occurring concentrations of metals at HPS. The evaluation of total risk for soil included all chemicals, regardless of concentration, except for the essential nutrients calcium, magnesium, potassium, and sodium. The essential nutrients and metals with maximum measured concentrations below HPALs were excluded as COPCs for the evaluation of incremental risk.

The differences in risk and hazard results between the evaluation of total and incremental risk are attributed to the risks and hazards associated with ambient levels of metals at HPS. At ambient concentrations (that is, HPALs), some metals at HPS are associated with cancer risks in excess of 10^{-6} and noncancer hazards in excess of 1.0. Table C-31 presents the cancer risks and noncancer hazards associated with exposure to metals at concentrations equal to HPALs; risks and hazards are presented in this table for each of the exposure scenarios associated with planned reuse (residential, industrial, and recreational). As shown in Table C-31, the contribution of ambient levels of metals to cancer risk and HI estimates is significant. For example, the cancer risk associated with residential exposure to arsenic at a concentration equal to the HPAL for arsenic (11.1 mg/kg) is 0.00029. The HI associated with residential exposure to manganese at a concentration equal to the HPAL for manganese (1,431 mg/kg) is 1.7. Collectively, all metals at ambient levels contribute to a cancer risk of 0.0003 for a resident and of 0.00003 for industrial workers and recreators. For noncancer hazards, metals at ambient levels collectively contribute to an HI of 11 for residents, 0.2 for industrial workers, and 0.7 for recreators.

This evaluation shows that total risk, which includes metals present at concentrations at or below HPALs, likely overestimates risks and hazards associated with Navy releases of chemicals because concentrations of metals are at or below HPALs in many exposure areas at Parcel C. The incremental risk evaluation excludes risks and hazards from metals where the maximum concentrations do not exceed HPALs. Still, the results of the incremental evaluation should be considered with the information contained in Table C-31 because the contribution of ambient levels to risks and hazards at HPS is significant for some metals.

C9.2 SLOPE FACTOR FOR TRICHLOROETHENE

As discussed in Section C6.0, the provisional cancer SFs derived by EPA (2001) for TCE, although more conservative than the SFs derived by Cal/EPA (2005a), were not used in the HHRA. The draft risk assessment that is the basis for the provisional EPA SFs for TCE is being reviewed currently by the National Academy of Sciences and, as such, does not represent EPA policy. The SFs developed by Cal/EPA were used to evaluate cancer risks from exposure to TCE. Uncertainties specific to the provisional cancer SFs for TCE were analyzed in this HHRA because the difference between the provisional SFs for TCE and the Cal/EPA SFs for TCE is significant and can affect the risk results. Attachment C7 contains a detailed discussion of the uncertainties associated with the SFs for TCE.

C9.3 BOUNDARIES FOR VAPOR INTRUSION RISKS

As discussed in Section C4.3.2, plume boundaries for evaluation of groundwater vapor intrusion were established based on delineation of volatile COPCs in the A-aquifer to nondetectable (below reporting limit) levels. Then, vapor intrusion risks were applied to each residential and industrial grid encompassed by the boundaries of the plumes. This approach assumes that the exposure area for groundwater vapor intrusion risks is consistent with the plume boundaries; however; EPA states that it is reasonable to assume that subsurface vapors may migrate laterally up to 100 feet (EPA 2002a). Figure C-13 shows the potential lateral extent, or 100-foot "inhalation risk buffer zone," that the calculated groundwater vapor intrusion risks may extend, with respect to the redevelopment blocks and planned reuses for Parcel C. On the figure, the plume boundaries delineated in Section C4.3.2 were expanded laterally in each direction by 100 feet to account for the distance vapors may travel laterally from a source in groundwater. This buffer zone for inhalation risk was also applied to nonplume wells with volatile COPCs (see Figure C-13).

Preferential pathways, which consist of utility conduits, subsurface drains, and buried pipelines that intersect vapor sources or vapor migration pathways, may allow subsurface vapors to migrate more than 100 feet laterally (EPA 2002a). These preferential pathways are considered significant if they are associated with high gas permeability and are of sufficient volume and proximity to a building such that the pathways may influence vapor intrusion into the building (EPA 2002a). Figure C-14 shows the subsurface utilities at Parcel C; these utilities may influence the extent that subsurface vapors may migrate beyond the 100-foot inhalation risk buffer zone shown on Figure C-13.

C9.4 DERMAL CONTACT WITH GROUNDWATER FOR RESIDENTIAL SCENARIO

As discussed in Section C7.2, tap water PRGs were used in this HHRA to evaluate domestic use of groundwater for the residential exposure scenario. The tap water PRGs are used to evaluate residential exposure to groundwater from ingestion and from inhalation of VOCs released from groundwater to indoor air during household use. The tap water PRGs are limited to an assessment of exposure to groundwater from the oral and inhalation exposure pathways and do not account for exposure from the dermal exposure pathway.

The potential for intake of nonvolatile COPCs from the dermal exposure pathway relative to intake of COPCs from the oral exposure pathway was evaluated using information provided in EPA (2004c) on the relative percentage of dermal exposure compared with oral exposures for non-volatile COPCs. Although a number of volatile COPCs were identified, partitioning risks between oral and dermal exposures for volatile COPCs is not necessary because the tap water PRGs account for the inhalation route of exposure. As a result, this evaluation addresses the uncertainties associated with exclusion of the dermal exposure pathway on the risk results for residential domestic use of groundwater for nonvolatile COCs.

Plume-based exposure areas (RU-C1, RU-C2, RU-C4, and RU-C5) and multiple nonplume exposure areas were evaluated for potential risks from domestic use of groundwater (see Attachment C3). Table C-32 lists the nonvolatile COPCs evaluated for domestic use exposure

for each of these exposure areas and the relative percentage of potential dermal exposure compared with oral exposure for each COPC. Exposure from the oral route is represented in this table by ingestion of 2 liters of water per day (EPA 2004c). Information was not available for 10 of the nonvolatile COPCs evaluated for domestic use.

Table C-32 shows that risks from domestic use of groundwater at Parcel C, which were calculated using a risk-based screening assessment and EPA Region 9 tap water PRGs, may be slightly to moderately underestimated for some metals, slightly to significantly underestimated for SVOCs and some pesticides, and significantly underestimated for PAHs. Of all the exposure areas evaluated for risks from residential domestic use of groundwater, all but one area exceeded the cancer risk threshold of 10^{-6} or the noncancer hazard threshold of 1. For these areas, the inclusion of the dermal pathway would not change the overall risk and hazard results; that is, risk and hazards would continue to exceed threshold levels in these areas. Domestic use of groundwater in the B-aquifer at exposure grid 089021 is associated with a noncancer HI less than 1 (see Table C3-40). None of the COPCs in grid 089021 are volatile; therefore, dermal exposure from domestic use of groundwater is not considered significant for this exposure area. A cancer risk was not calculated for grid 089021 because none of the COPCs for this exposure area are associated with cancer effects.

C9.5 SCREENING LEVELS FOR GROUNDWATER VAPOR INTRUSION

Based on agreements between the EPA, DTSC, and Navy, the generic RBSLs provided in Table 2c of EPA (2002a) were used in this HHRA to calculate risks for the groundwater vapor intrusion exposure pathway. This approach was used instead of site-specific modeling with the Johnson-Ettinger (1991) vapor model because the EPA (2002a) model assumptions (such a depth to groundwater and soil physical properties) used to calculate the generic screening criteria are similar to the properties of soil and groundwater at HPS. Site conditions at HPS (shallow depth to groundwater and coarse soils; see Section 2.0 of the Final FS Report for Parcel C) do not differ from the conditions assumed for the generic screening values to warrant detailed modeling using the Johnson-Ettinger model.

The Navy evaluated risks from vapor intrusion for selected groundwater plumes at HPS using generic EPA (2002a) risk-based screening values for vapor intrusion and site-specific modeling. These two approaches were used to evaluate whether the generic values would represent conditions at HPS and would not result in a significant overestimate of potential risks. The results of this evaluation showed that risks calculated ratiometrically using generic EPA risk-based vapor intrusion screening values are comparable to site-specific risks calculated using the Johnson-Ettinger model adjusted for HPS-specific values for depth to groundwater and physical properties of the soil. Risks calculated using the generic EPA screening values were higher than the modeled results by approximately a factor of two. The difference results from an assumed basement exposure scenario in the generic EPA screening values, whereas the modeled results were based on a slab-on-grade exposure scenario because of the shallow depth to groundwater at HPS (roughly 9 to 10 feet bgs). This difference is not considered significant for risk results, which are represented by order-of-magnitude estimates.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
25	Surface water quality	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G, Table G-1.

TABLE G-1: SURFACE WATER QUALITY CRITERIA FOR THE SAN FRANCISCO BAY
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

		San Francisco Bay Basin Plan[a] (µg/L)		California Toxics Rule Criteria for Enclosed Bays and Estuaries[e] (µg/L)								National Recommended Water Quality Criteria[k] (µg/L)					National Ambient Water Quality Criteria (AWQC) for Protection of Saltwater Aquatic Life[i] (µg/L)								Other Criteria (footnotes indicate source) (µg/L)		
				Chronic[g]		Acute[g]			Instantaneous Maximum			Saltwater Aquatic Life					Lowest Observed Effect Level (LOEL)										
												Chronic[g]		Acute[g]			Chronic[h]		Acute[i]			Other[j]					
Chemical	Pseudonym	Concentration	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	10% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Other	Footnotes	Selected Water Quality Criteria (µg/L)
1,1,1-Trichloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	31,200	6,240	--	--	--	--	--	6,240
1,1,2,2-Tetrachloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9,020	1,804	--	--	--	--	--	1804
1,1-Dichloroethene	1,1-Dichloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44800	(27)	--	--	--	--	44,800
1,2,4,5-Tetrachlorobenzene		--	--	--	--	--	--	--	--	--	--						--	--	250	50	(22)	50	(22.23)	--	--	50
1,2,4-Trichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
1,2-Dichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)	--	--	--	--	129
1,2-Dichloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	113,000	22,600	--	--	--	--	--	22,600
1,2-Dichloroethene (total)	1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
1,2-Dichloropropane	Propylene dichloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,040	(28)	10,300	--	(28)			--	--	3,040
1,3-Dichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)			--	--	129
1,3-Dichloropropene (total)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	790	158	(29)	--	--	--	--	158
1,4-Dichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)	--	--	--	--	129
2,4-Dinitrophenol		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	230	46	(88)	150	(38,88)	--	--	46
2,4-Dinitrotoluene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	(53)	370	(53, 82)	--	--	118
2,6-Dinitrotoluene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	(53)	370	(53, 82)	--	--	118
2-Chloronaphthalene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.5	1.5	(48)	--	--	--	--	1.5
2-Nitrophenol	Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
4,4'-DDD	2,4-DDD; DDD	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.6	0.72	--	--	--	--	--	.72
4,4'-DDE	2,4-DDE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	2.8	--	--	--	--	--	2.8
4,4'-DDT		--	--	0.001	(114)	0.13	--	--	--	--	--	0.001	G,aa,ii	0.13	--	G,ii	--	--	--	--	--	--	--	--	--	.001
4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cresol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
4-Amino-2,6-dinitrotoluene	Dinitrotoluenes; 4-Methyl-3,5-dinitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	--	370	(82)	--	--	118
4-Nitrophenol		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
Acenaphthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	710	--	970	--	--	500	(38)	--	--	710
Acenaphthylene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Aldrin		--	--	--	--	--	--	--	1.3	--	II	--	--	1.3	0.26	G	--	--	--	--	--	--	--	--	--	.26
Alpha-chlordane	Chlordane	--	--	0.004	(114)	--	--	--	0.09	--	--	0.004	G,aa,o	0.09	--	G,o	--	--	--	--	--	--	--	--	--	.004
Anthracene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Aroclor 1016	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1221	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1232	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1242	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1248	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1254	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1260	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Arsenic		36	b	36	mm, oo	69	--	mm, oo	--	--	--	36	A,D,bb	69	--	A,D,bb	--	--	2,319	--	(95)	13	(6)	--	--	36
Atrazine		--	--	--	--	--	--	--	--	--	--	11	r,(68)	310	--	r,(68)	--	--	--	--	--	--	--	--	--	11
Benzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,100	--	--	700	--	--	--	700
Benzo(a)anthracene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(a)pyrene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(b)fluoranthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(g,h,i)perylene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(k)fluoranthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Bromochloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Bromodichloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Bromoform		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Bromomethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Butylbenzylphthalate	n-Butyl benzyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Cadmium		9.3	b	9.3	(1, 142)	42	--	(1, 142)	--	--	--	8.8	D,bb,gg	40	--	D,bb,gg	--	--	--	--	--	--	--	--	--	8.8
Carbon tetrachloride		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	50,000	--	--	11,500	(20, 82)	--	--	6,400
Chlordane				0.004	(114)	--	--	--	0.09	0.009	--	0.004	G,aa	0.09	0.009	G	--	--	--	--	--	--	--	--	--	.004
Chlorobenzene	Monochlorobenzene	--	--	--	--	--	--	--				--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
Chloroform		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Chloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Chromium (total)		50 (VI)	b,o	50 (VI)	o	1100 (VI)	--	--	--	--	--	50 (VI)	D,bb,o	1100 (VI)	--	D,bb,o	--	--	--	--	--	--	--	400	s	400

TABLE G-1: SURFACE WATER QUALITY CRITERIA FOR THE SAN FRANCISCO BAY (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Chemical	Pseudonym	San Francisco Bay Basin Plan[a] (µg/L)		California Toxics Rule Criteria for Enclosed Bays and Estuaries[e] (µg/L)								National Recommended Water Quality Criteria[k] (µg/L)					National Ambient Water Quality Criteria (AWQC) for Protection of Saltwater Aquatic Life[i] (µg/L)								Other Criteria (footnotes indicate source) (µg/L)		Selected Water Quality Criteria (µg/L)
				Chronic[g]		Acute[g]			Instantaneous Maximum			Saltwater Aquatic Life					Lowest Observed Effect Level (LOEL)										
												Chronic[g]		Acute[g]			Chronic[h]		Acute[i]			Other[j]					
		Concentration	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	10% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Other	Footnotes	
Chrysene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Cis-1,2-dichloroethene	Cis-1,2-dichloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
Copper		4.9	c	3.1	nn, oo	4.8	--	oo	--	--	--	3.1	D,cc,ff	4.8	--	D,cc,ff	--	--	--	--	--	--	--	--	--	3.1
Cyanide		5	c	1	pp	1	--	pp	--	--	--	1	Q,bb	1	--	Q,bb	--	--	--	--	--	--	--			1
Dibenz(a,h)anthracene	1,2:5,6-Dibenzanthracene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Dibromochloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Dieldrin		--	--	0.0019	(114), ll	--	--	--	0.71	--	ll	0.0019	G,aa	0.71	.142	G	--	--	--	--	--	--	--	--	--	.142
Diethylphthalate		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Dimethylphthalate		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	--	(45)	3.4	(38, 45)	--	--	3.4
Di-n-butylphthalate	Dibutyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Di-n-octylphthalate	Bis-n-octyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Endosulfan I	Endosulfan (alpha)	--	--	0.0087	ll	--	--	--	0.034	--	(115), ll	0.0087	G,Y,o	0.034	--	G,Y,o	--	--	--	--	--	--	--	--	--	0.0087
Endosulfan II	Endosulfan (beta)	--	--	0.0087	ll	--	--	--	0.034	--	(115), ll	0.0087	G,Y,o	0.034	--	G,Y,o	--	--	--	--	--	--	--	--	--	0.0087
Endrin		--	--	0.0023	(114), ll	--	--	--	0.037	--	ll	0.0023	G,aa	0.037	--	G	--	--	--	--	--	--	--	--	--	0.0023
Ethylbenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	430	86	--	--	--	--	--	86
Fluoranthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	40	--	--	--	--	--	--	16
Fluorene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Gamma-BHC (lindane)	Gamma-Benzene hexachloride	--	--	--	--	--	--	--	0.16	--	ll	--	--	0.16	0.032	G	--	--	--	--	--	--	--	--	--	.032
Gamma-chlordane	Chlordane	--	--	0.004	(114)	--	--	--	0.09	--	--	0.004	G,aa,o	0.09	--	G,o	--	--	--	--	--	--	--	--	--	.004
Heptachlor		--	--	0.0036	(114)	ll	--	--	0.053	--	ll	0.0036	G,aa	0.053	--	G	--	--	--	--	--	--	--	--	--	.0036
Heptachlor epoxide		--	--	0.0036	(114)	ll		--	0.053	--	ll	0.0036	G,V,aa	0.053	--	G,V	--	--	--	--	--	--	--	--	--	.0036
Hexachlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
Hexachlorobutadiene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32	6.4	--	--	--	--	--	6.4
Hexachlorocyclopentadiene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.0	1.4	--	--	--	--	--	1.4
Hexachloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	940	188	--	--	--	--	--	188
Indeno(1,2,3-cd)pyrene	Ideno(1,2,3-cd)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Isophorone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12,900	2,580	--	--	--	--	--	2,580
Lead		5.6	b	8.1	(1, 142), m	210	--	(1, 142), m	--	--	--	8.1	D,bb	210	--	D,bb	--	--	--	--	--	--	--	--	--	5.6
Mercury	Mercury, inorganic	0.025	b	--	--	--	--	--	--	--	--	0.94	D,ee,hh	1.8	--	D,ee,hh	--	--	--	--	--	--	--	--	--	0.025
Methoxychlor		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.003	(51),f	0.003
Methyl-tert-butyl-ether	butylether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	p	8,000
Methylene chloride	Dichloromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Mirex		--	--	--	--	--	--	--	--	--	--	0.001	F	--	--	--	--	--	--	--	--	--	--	--	--	0.001
Naphthalene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,350	470	--	--	--	--	--	470
Nickel		8.3	b	8.2	(2, 142), oo	74	--	(1, 142), oo	--	--	--	8.2	D,bb	74	--	D,bb	--	--	--	--	--	--	--	--	--	8.2
Nitrobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,680	1,336	--	--	--	--	--	1,336
N-Nitroso-di-n-propylamine	propylamine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,300,000	660,000	(56)	--	--	--	--	660,000
N-nitrosodiphenylamine		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,300,000	660,000	(56)	--	--	--	--	660,000
Pentachlorophenol		--	--	7.9	--	13	--	--	--	--	--	7.9	bb	13	--	bb	--	--	--	--	--	--	--	--	--	7.9
Phenanthrene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Phenol		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,800	1,160	--	--	--	--	--	1,160
Pyrene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Selenium		--	--	71	(1, 142)	290	--	(1, 142)	--	--	--	71	D,bb,dd	290	--	D,bb,dd	--	--	--	--	--	--	--	--	--	71
Silver		2.3	d	--	--	1.9	0.38	(1, 142)	--	--	--	--	--	1.9	0.38	D,G	--	--	--	--	--	--	--	--	--	0.38
Sulfide	Sulfide-Hydrogen Sulfide	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.2	(51),f	0.2
Tetrachloroethene	Tetrachloroethylene (PCE)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	450	--	10,200	--	--	--	--	--	--	450
Thallium		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,130	426	--	--	--	--	--	426
Toluene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,000	--	6,300	--	--	--	--	--	--	5,000
Toxaphene		--	--	0.0002	--	0.21	--	--	--	--	--	0.0002	aa	0.21	--	--	--	--	--	--	--	--	--	--	--	0.0002
TPH-Diesel	Diesel range organics; Diesel Fuel; Diesel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400	q	1,400
TPH-Gasoline	Gasoline range organics; Gasoline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400	q	1,400
TPH-Motor Oil	Motor oil; motor oil range organics	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400	q	1,400
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
Trichloroethene	Trichloroethylene (TCE)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,000	400	--	--	--	--	--	400
Zinc		58	c	81	mm, oo	90	--	oo	--	--	--	81	D,bb	90	--	D,bb	--	--	--	--	--	--	--	--	--	81

TABLE G-1: SURFACE WATER QUALITY CRITERIA FOR THE SAN FRANCISCO BAY (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, CA

Notes: **Values shaded are those selected as screening criteria.**
Footnotes and references are detailed below.

--	No criterion available
ug/L	Microgram per liter
BHC	Benzene Hexachloride (Lindane)
DDD	Dichlorodiphenyldichloroethane
DDE	1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene
DDT	1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane
TPH	Total petroleum hydrocarbons

Footnotes:

a	California Environmental Protection Agency, Regional Water Quality Control Board, San Francisco Bay Area Region (Water Board). 1995. "San Francisco Bay Basin Plan Water Quality Control Plan." June 21. Table 3-3 Water Quality Objectives for Toxic Pollutants for Surface Water with Salinities Greater Than 5 Parts Per Billion.
b	From Water Board "Basin Plan" 4-Day Average (Chronic)
c	From Water Board "Basin Plan" 24-Hour and 1-Hour Average (Acute)
d	From Water Board "Basin Plan" Instantaneous Maximum
e	From "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (CTR) (EPA 2000) and "Water Quality Control Plan, San Francisco Bay Basin Region" (Water Board 1995). The most appropriate criteria were used.
f	Criterion made more suitably protective by means of standard convention of lowering acute values by 80 percent and instantaneous values by 90 percent to make them more appropriate for use under chronic exposure scenarios.
g	An acute criterion (EPA identified as Criteria Maximum Concentration [CMC]) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The chronic concentration (EPA identified as Criterion Continuous Concentration [CCC]) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The CMC and CCC are just two if the six parts of an aquatic life criterion; the other four parts are the acute averaging period, chronic averaging period, acute frequency of allowed exceedance, and chronic frequency of allowed exceedance. Because 304(a) aquatic life criteria are national guidance, they are intended to be protective of the vast majority of the aquatic communities in the United States (EPA 2002a).
h	EPA National "AWQC Lowest Observed Effect Level (Chronic)" (Water Board 2000)
i	EPA National "AWQC Lowest Observed Effect Level (Acute)" (Water Board 2000)
j	EPA National "AWQC Lowest Observed Effect Level (Other)" (Water Board 2000)
k	From "National Recommended Water Quality Criteria: 2002" (EPA 2002a) and "Revision of National Recommended Water Quality Criteria." (EPA 2002b), unless otherwise noted.
l	From "Final Technical Memorandum Estimation of Ambient Concentrations of Metals in Groundwater" (Tetra Tech 2001).
m	In instances where criteria from "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (EPA 2000) refer to the "Water Quality Control Plan, San Francisco Bay Basin Region" (Water Board 1995), Water Board 1995 criteria were used. The Water Board 1995 criteria are distinguished by an "m" in the footnote column.
o	Detailed application of this toxicity criterion may require the review and/or summation of analyte isomer, congener, or speciation results, as applicable. Please see applicable regulatory agency source document for additional detail.
p	Water Board 1998
q	Tetra Tech EM Inc. 1999
r	Water Board 2000
s	Value derived in Appendix G; based on EPA "Ambient Water Quality Criteria for Chromium" EPA 440/5-80-035 with adjustment for chronic from acute criterion.

The following lettered footnotes are derived from EPA "National Recommended Water Quality Criteria: 2002" (EPA 2002a), Table 1 - Priority Toxic Pollutants:

A	This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EAP 440/5-84-033, January 1985), Species Mean Acute Values (SMAVs) are given for both arsenic (III) and arsenic (V) for five species, and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.
D	Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and mulitplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are currently unavailable. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria," October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington DC 20460; and 40CFR 131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble - Conversion Factors for Dissolved Metals.
F	The deviation of this value is presented in the Red Book (EPA 440/9-76-023, July 1976).
G	The criterion is based on 304(a) aquatic life criterion issued in 1980 and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), Dichlorodiphenyltrichloroethane (DDT) (EPA 440/5-80-38), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The minimum data requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.
N	This criterion applies to total polychlorinated biphenyls (e.g. the sum of all congener or all isomer or homolog or Aroclor analyses).
Q	This recommended water quality criterion is expressed as mg free cyanide (as CN)/L.
V	This value was derived from data for heptachlor, and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.
Y	This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
aa	This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents : Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 4405-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60 FR 15393-15399, March 23, 1995), the EPA no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the EPA anticipates that future revisions of this CCC will not be based on FRV procedure.
bb	This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227046, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA 882-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene (EPA 440/5-86-006), Zinc (EPA 440/5-87-003).
cc	When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic, and use of Water-Effect Rations might be appropriate.
dd	The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fish in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 mg/L in saltwater because the saltwater CCC does not take into account uptake via the food chain.
ee	This recommended water quality criterion was derived on page 43 of the mercury document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025µg/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60 FR 15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.
ff	This recommended water quality criterion was derived in Ambient Water Quality Criteria Saltwater Copper Addendum (draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule (60 FR 22228-222237, May 4, 1995).
gg	EPA is actively working on this criterion, and so this recommended water quality criterion may change substantially in the near future.
hh	This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury, and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.
ii	This criterion applies to DDT and its metabolites (that is, the total concentration of DDT and its metabolites should not exceed this value).

Notes: (Continued)

The following lettered footnotes are derived from EPA "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (EPA 2000):

ll This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/ Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptochlor (440/5-80-025), Hexachlorocyclohexane (EPA 440/5/80/054), Silver (EPA 440/5-80-071) (originally footnote g in CTR).

mm Criteria for these metals are expressed as a function of the water-effect ratio (WER) (originally footnote I in the CTR).

nn No criterion for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even though the results of such calculations were not shown in the document.

oo These freshwater and saltwater criteria for metals are expressed in terms of dissolved fraction of the metal in the water column. Criterion values were calculated by using EPA's Clean Water Act 304(a) guidance values (described in the total recoverable fraction) and then applying the conversion factors in 131.36(b)() and (2).

pp These criteria were promulgated for specific waters in California in the National Toxics Rule (NTR). The specific waters to which the NTR criteria apply include Waters of the State defined as bays or estuaries, including the San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This section does not apply instead of the NTR for these criteria.

rr PCBs are a class of chemicals that include Aroclors 1242,1254,1221,1232,1248,1260, and 1016. The aquatic life criteria apply to the sum of this set of seven Aroclors.

The following numbered footnotes are derived from "A Compilation of Water Quality Goals" (Water Board 2000). These footnotes directly correlate with the source document:

1 Expressed as dissolved
2 Expressed as total recoverable
6 Pentavalent arsenic [As(V)] effects on plants
20 For halomethanes
22 For chlorinated benzenes
23 Toxicity to a fish species exposed for 7.5 days
24 For dichlorobenzenes
27 For dichloroethylenes
28 For dichloropropanes
29 For dichloropropenes
38 Toxicity to algae occurs
45 For phthalate esters
48 For chlorinated naphthalenes
51 From U.S. Environmental Protection Agency, *Quality Criteria for Water* (1976) "The Red Book."
52 For polycyclic aromatic hydrocarbons
53 For dinitrotoluenes
56 For nitrosamines
68 Draft/tentative/provisional; applies only to second value if more than one value is listed.
82 A decrease in the number of algal cells occurs.
83 Adverse effects on a fish species exposed for 168 days.
88 For nitrophenols
95 For the pentavalent form
114 Developed as 24-hour average using 1980 EPA guidelines, but applied as 4-day average in the National Toxics Rule and/or Proposed California Toxics Rule.
115 Criterion most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
116 Applies separately to Aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016; based on carcinogenicity at 1-in-a-million risk level.
142 Criteria do not apply to waters subject to water quality objectives in Tables III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's 1986 Basin Plan.
143 These criteria were promulgated for specific California waters in the National Toxics Rule.
144 The ambient level was set at or below the minimum reported detection limit.
145 The ambient concentraton represents the 95th percentile of the distribution. Additionally, the 95th percentile of the distribution was calculated using distribution dependent formulae. For normal and lognormal distributions, the 95th percentile calculation used the parameters of the best-fitted regression line drawn through the detected values on the probability plot. For nonparametric distribution, the analytical formula was used (Gilbert 1987).

References:

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U.S. Environmental Protection Agency (EPA). 2000. "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California." 40 CFR Part 131, RIN 2040-AC44. May 18.
EPA. 2002a. "National Recommended Water Quality Criteria: 2002." EPA-822-R-02-047. November.
EPA. 2002b. "Revision of National Recommended Water Quality Criteria." FRL-OW-7431-3. December 27.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
26	Chromium VI and zinc	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 3.2, pages 3-11 to 3-14.

	Domestic Use	Metals: Antimony, Arsenic, Chromium VI, Iron, Manganese, Thallium Organic Compounds: 1,1 Dichloroethane, 1,2,4-Trichlorobenzene, 1,2,4-Trimethylbenzene, 1,2-DCB, 1,2-DCA, 1,2 DCE, 1,2-Dichloropropane, 1,3,5-Trimethylbenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2,4-Dinitrotoluene, 2-Methylnaphthalene, 2-Methylphenol, 3,4-Methylphenol, aldrin, Alpha-BHC, Antimony, Arsenic, Benzene, Benzo(a)anthracene, Benzo(a)pyrene, bis(2-ethylhexyl)phthalate, Bromodichloromethane, Carbazole, Chlorobenzene, Chloroethane, Chloroform, Chrysene, cis-1,2-Dichloroethene, Dibenzofuran, Dieldrin, Heptachlor epoxide, Heptachlor Epoxide A, Hexachloroethane, Methylene Chloride, Naphthalene, Pentachlorophenol Tetrachloroethene, Trans 1,2-Dichloroethene, TCE, Trichlorofluoromethane, and Vinyl Chloride

Table 3-16 presents the groundwater risk characterization analysis for residential exposure to the B-aquifer from domestic use.

3.2 ECOLOGICAL EVALUATION

As noted in Section 2.2.5, exposure pathways to terrestrial species are incomplete because Parcel C contains mostly paved areas, which preclude the presence of viable habitats (PRC 1994b). Future reuse of planned open space areas (19 percent of the Parcel C land area) are also likely to be paved (SFRA 1997). The ecological evaluation performed in this FS Report addresses the potential for chemicals in groundwater to affect the Bay.

Chemicals present in the A-aquifer, B-aquifer, and F-WBZ in groundwater at Parcel C were evaluated to assess potential environmental effects to the Bay. This evaluation is described in detail in Appendix G. The first step of this evaluation consisted of a screening-level evaluation of chemical concentrations detected in groundwater samples with surface water criteria. The next step of the evaluation consisted of a well-by-well analysis of the analytical results identified in the screening-level comparison to assess potential effects to the Bay.

Concentrations of all chemicals detected in the A- and B-aquifers and the F-WBZ were screened against the selected criteria; those chemicals for which maximum concentrations exceeded screening criteria were identified as chemicals of potential ecological concern (COPEC). The results of this comparison are presented in Appendix G, Section G3.0. Chemicals for which surface water criteria and Hunters Point groundwater ambient levels were not available were eliminated from the analysis.

Chemicals for which maximum concentrations exceeded surface water criteria historically were identified as COPECs. Nine metals, 11 VOCs, 7 SVOCs, 7 pesticides, 2 PCBs, TPH, and cyanide were identified as COPECs in the A-aquifer samples because they exceeded surface water criteria (see Table G-2). One metal (zinc) and two VOCs were identified as COPECs in the B-aquifer (see Table G-3). Two metals (chromium VI and mercury), four VOCs, one pesticide, and TPH were identified at COPECs in the F-WBZ because they exceeded surface water criteria (see Table G-4).

Concentrations of the COPECs in individual samples from each well were evaluated to identify potential effects to the Bay, based on the following criteria:

1. Do measured concentrations consistently exceed surface water criteria during subsequent sampling events?

2. When was the most recent sample collected that exceeded the surface water criterion?

3. Can concerns about the COPEC be eliminated based on professional engineering judgment of the extent and degree of the interpreted effect to the groundwater? The extent and degree of effect was assessed by reviewing the locations of recently detected concentrations, the likelihood that recently detected concentrations pose a threat to the Bay, and concentration trends on a well-by-well basis.

Finally, ARARs were reviewed to determine where chemical-specific ARARs are potentially applicable (see Appendix D). The Navy has identified the substantive provisions of the California Toxics Rule (Title 40 Code of Federal Regulations [40 CFR] Section [§] 131.38) as potentially applicable federal chemical-specific ARARs and Table 3-3 of the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) as potentially applicable state chemical-specific ARARs for surface water, at the interface of the groundwater and the Bay.

Based on this well-by-well analysis, many chemicals not considered to be a threat to the surface water quality in the Bay were eliminated from the analysis and COECs were determined.

VOCs, SVOCs, and TPH were not identified as COECs because there are no chemical-specific ARARs for VOCs, SVOCs, and TPH. TPH will be addressed under the TPH program. Pesticides and cyanide were not identified as COECs based on infrequent detections. Water quality criteria for pesticides were generally below the detection limits of the analytical method; professional judgment was used to evaluate these chemicals. Detected pesticides were nearly always qualified because the detections were below the method detection limits. PCBs were also detected relatively infrequently at wells distant from the shoreline.

Metals not selected as COECs were not detected above screening criteria since at least 2002.

Chromium VI and zinc were identified as COECs for the A-aquifer at Parcel C (see Table 2-17). No chemicals were identified as COECs in the B-aquifer or in the F-WBZ at Parcel C. Figures G-1 and G-2 in Appendix G show the parcel-wide locations and historical data for wells where COECs exceeded surface water criteria.

Trigger level concentrations were developed for these COECs because the COECs have the potential to affect surface waters as they migrate and discharge to the Bay. The trigger level concentrations for groundwater are very conservatively designed to reduce the potential for surface water criteria to be exceeded when groundwater at Parcel C discharged to the Bay. The trigger levels are intended to serve as comparison values for concentrations of chemicals in

groundwater to identify when an additional evaluation may be necessary. As discussed in Section 4.1.2, the additional evaluations that may occur following an exceedance include increasing the monitoring frequency or number of wells, installing and monitoring wells downgradient of the exceedance, developing more detailed estimates of attenuation, or performing remediation.

Not all surface water criteria are chemical-specific ARARs for surface water; chemical-specific ARARs are based on existing regulations as discussed in Section 4.2.1.3. However, the surface water criteria screening provides a method to evaluate the significance of the concentrations of chemicals detected in groundwater.

Trigger levels were derived for these COECs based on their locations within plume source areas and on attenuation factors. Attenuation factors were developed by modeling, which is described in Appendix H. The modeling used the conservative assumption that chemicals attenuate only by mechanical dispersion along the groundwater flow path. Other attenuation components, such as adsorption on soils, precipitation, uptake and degradation by soil bacteria, and the mixing zone at discharge were not included in the model. As such, the attenuation factors and trigger levels developed from the model are conservative, and their use creates monitoring criteria that can be used to identify source areas of contamination and plume migration that may pose potential risks to the Bay. The trigger level concentrations were then compared with the actual chemical concentrations at the source areas and various locations in the plumes. In areas where actual concentrations exceed the trigger levels, there is potential risk that the chemicals may be discharged to the Bay above the surface water criteria. When the resulting trigger levels were compared with the maximum concentrations in the plume source areas, the following locations were identified with COEC concentrations exceeding their respective trigger levels:

- IR28MW125A (chromium VI)
- Building 253 (chromium VI and zinc)
- Building 211 (zinc)
- IR06MW50F (chromium VI)
- Trigger levels for the locations and COECs above are provided in the following table.

COEC	Remedial Unit and Well Locations			
	RU-C1			RU-C5
	Building 211	IRM28MW125A	Building 253	IR06MW50F
Chromium VI	--	50 µg/L	150 µg/L	100 µg/L
Zinc	243 µg/L	--	243 µg/L	--

Note:

-- Not applicable, this chemical is not present at this location.

As stated previously, the trigger levels are conservative, and exceedance of a trigger level does not mean there is risk, but that there could be ecological risk if the plume migrates toward the Bay. Because of this, the impacted area needs to be monitored more closely to evaluate if the plume is migrating and if it will discharge to the Bay at concentrations that will create exceedances of surface water criteria.

Sample data through 2004 for chromium VI and zinc are provided in Appendix B, and figures are provided in Appendix G. More recent groundwater data were also reviewed to assess whether trigger levels are currently exceeded.

At IR28MW125A near Dry Dock 2, chromium VI concentrations exceeded the trigger level of 50 µg/L during at least one sampling event in the years 2000, 2001, 2002, and 2004. Typical exceedances at this well were around 100 µg/L, a factor of 2 over the trigger level. Results from a 2006 sampling event at this well were similar with the historical results. At Building 253, concentrations of chromium VI rarely exceeded the trigger level of 150 µg/L. At well IR06MW50F in RU-C5, historic concentrations of chromium VI were below the trigger level. Samples are not currently collected from the wells with historic exceedances.

Zinc was detected historically above surface water criteria in three wells at RU-C1. Only one of these wells (IR28MW151A) is currently sampled. Zinc was not detected above the trigger level during a recent sampling event (September 2006) at this well.

The Navy will continue to collect groundwater samples for analysis of chromium VI and zinc at RU-C1 and RU-C5.

3.3 CONCLUSIONS

The risk evaluations developed in this section provide the basis for moving forward with the FS. Potential risks to human health associated with potential future land use scenarios were assessed. Soil and groundwater were identified as the environmental media of concern. Chemicals that pose the primary health concerns were selected as COCs. Potential risks to the surface water from the migration of chemicals in groundwater were assessed. These evaluations provide a foundation for moving forward to assess appropriate response actions.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
27	Environmental impacts to the bay	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G.

APPENDIX G
PRELIMINARY SCREENING OF GROUNDWATER EFFECTS TO SAN FRANCISCO BAY AT PARCEL C

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ACRONYMS AND ABBREVIATIONS

µg/L	Microgram per liter
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
BHC	Benzene hexachloride
CAP	Corrective Action Plan
CCC	Criterion continuous concentration
CMC	Criterion maximum concentration
COEC	Chemical of ecological concern
COPEC	Chemical of potential ecological concern
CTR	California Toxics Rule
DCB	Dichlorobenzene
DNAPL	Dense nonaqueous-phase liquid
EPA	U.S. Environmental Protection Agency
FAV	Final acute values
FCV	Final chronic values
FPV	Final plant values
FRV	Final residue values
F-WBZ	Bedrock water-bearing zone
HGAL	Hunters Point groundwater ambient level
HPS	Hunters Point Shipyard
LNAPL	Light nonaqueous-phase liquid
Navy	U.S. Department of the Navy
NAWQC	National Ambient Water Quality Criteria
NRWQC	National Recommended Water Quality Criteria
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
RU	Remedial Unit
SVOC	Semivolatile organic compound
TCE	Trichloroethene
TPH	Total petroleum hydrocarbons
TTPH	Sum of the fractions of total petroleum hydrocarbons
VOC	Volatile organic compound
Water Board	San Francisco Bay Regional Water Quality Control Board

G1.0 INTRODUCTION

This appendix summarizes the screening evaluation of chemicals detected in groundwater at Parcel C. This evaluation was developed because chemicals in groundwater at Hunters Point Shipyard (HPS) have the potential to affect surface waters if they migrate and discharge to San Francisco Bay at sufficiently high concentrations. Surface water quality criteria, such as the National Ambient Water Quality Criteria (NAWQC) and the California Toxics Rule (CTR), have been developed to protect the environment, including marine organisms, from effects caused by chemicals in surface water. The beneficial uses of groundwater do not include maintenance of freshwater or marine organisms because these organisms do not live in groundwater. No water quality criteria for the protection of organisms exist for groundwater; therefore, alternative water quality criteria for groundwater must be developed to evaluate the potential for chemicals in groundwater at HPS to result in effects to San Francisco Bay.

There are no surface water bodies on Parcel C; however, the U.S. Department of the Navy (Navy) evaluated federal and state surface water quality criteria as potential applicable or relevant and appropriate requirements (ARAR) for Parcel C because groundwater discharges to San Francisco Bay. For the A- and B-aquifers and the bedrock water-bearing zone (F-WBZ), the Navy has determined that the state standards promulgated in Table 3-3 of the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) and the federal standards promulgated in the CTR are potential ARARs for Parcel C to be met at the interface of groundwater and the bay. Conversely, the Navy has determined that the guidelines in the National Recommended Water Quality Criteria (NRWQC) (U.S. Environmental Protection Agency [EPA] 2006) and NAWQC are not ARARs for the interface of the A- and B-aquifer groundwater and San Francisco Bay because there are other standards (such as Table 3-3 and CTR) better suited to Parcel C. (Refer to Section D2.1.3 in Appendix D for detailed discussion of ARARs for surface water.) All of these standards apply to surface water; none of them apply to groundwater. Therefore, these potential surface water ARARs would be applied to the surface water at the interface of A- and B-aquifer groundwater and would not be used to set cleanup standards for in situ A- or B-aquifer groundwater at Parcel C.

The evaluations in this appendix consider both ARAR-based surface water quality criteria (Table 3-3 and CTR) and non-ARAR-based criteria (NRWQC and NAWQC) for screening data at Parcel C to provide a comprehensive analysis based on agreements with the regulatory agencies. However, chemicals of ecological concern (COEC) are determined based on ARARs (Table 3-3 and CTR), as well as on the screening evaluation. These COECs will be considered in the remedial design during preparation of the groundwater monitoring plan.

The nearest surface water body to Parcel C, where CTR are applicable, is San Francisco Bay. Chemicals in groundwater at Parcel C could affect surface water quality as the contaminated groundwater migrates and discharges to the bay. To prevent discharging chemicals to the bay at concentrations sufficient to affect the surface water quality, the Navy developed trigger levels at various inland locations to ensure surface water quality criteria are not exceeded if groundwater at Parcel C discharges to the bay. The trigger levels are intended to serve as comparison values for groundwater to identify when additional evaluation may be necessary. The development of

the trigger levels is discussed in Appendix H; however, before the inland concentrations could be developed, the appropriate surface water quality criteria to use for the bay near Parcel C had to be selected. Once that was accomplished, the surface water quality criteria were screened against the chemical concentrations in groundwater to identify which chemicals are chemicals of potential ecological concern (COPEC) for surface water quality. Site-specific data were then evaluated to identify COECs in groundwater.

Section G2.0 of this appendix identifies the appropriate surface water quality criteria that are protective of marine organisms in San Francisco Bay under long-term (chronic) exposure scenarios. Section G3.0 summarizes the results of the screening of groundwater concentrations at Parcel C with the appropriate surface water quality criteria, highlighting chemicals for which maximum concentrations in groundwater exceeded the surface water quality criteria for San Francisco Bay. These chemicals were then further evaluated, considering frequency of detection and location to select COECs. A series of tables presents this evaluation. Section G4.0 summarizes the review of uncertainty related to the use of promulgated surface water criteria for San Francisco Bay. Section G5.0 presents the results of the evaluation, listing the COECs. Documents reviewed to prepare this appendix are provided in Section G6.0.

G2.0 SELECTION OF SURFACE WATER QUALITY SCREENING CRITERIA

Surface water quality criteria are not applicable to groundwater; however, potential impacts to San Francisco Bay could occur if concentrations of chemicals in groundwater that exceed surface water quality criteria were to discharge to surface waters. This highly conservative screening method minimizes the potential that discharge of groundwater from Parcel C would affect marine organisms in the bay.

As directed by Section 304(a) of the Clean Water Act, EPA develops and publishes NRWQC as guidance to states and tribes for the promulgation of their respective surface water quality standards (EPA 2006). The law requires that these criteria be based on the latest scientific knowledge. State and regional regulatory agencies responsible for monitoring and maintaining beneficial use of the waters of the state often adopt national criteria, with modifications that reflect regional conditions, including naturally occurring (ambient) concentrations of metals or other variables.

Surface water quality criteria selected for consideration at HPS were compiled through a review of published regulatory standards, goals, and guidance, including those established by the San Francisco Bay Regional Water Quality Control Board (Water Board) in "Water Quality Control Plan, San Francisco Bay Basin Region" (Water Board 1995) and "A Compilation of Water Quality Goals" (Marshack 2007); the EPA in the CTR (EPA 2000) and NRWQC (EPA 2006); and other sources, as appropriate (Water Board 1998). Although only the Basin Plan and the CTR are applicable, this wider screening evaluation was completed at the request of the Base Realignment and Closure Cleanup Team. Table G-1 presents this compilation of surface water quality criteria and the relevant sources for each criterion.

The compilation and selection of surface water criteria to be used for a preliminary screening of the groundwater data is described in Section G2.1. Because the only available criterion for chromium was based on chromium VI, the Navy derived a surface water criterion for chromium III for this project; the methods and rationale for the derivation of the chromium III value are presented in Section G2.2. Groundwater samples at Parcel C also were compared with the Hunters Point groundwater ambient levels (HGAL) to distinguish site-related chemicals from those present at ambient concentrations, as discussed in Section G2.3.

G2.1 COMPILATION AND SELECTION OF SURFACE WATER QUALITY CRITERIA

Two levels of protectiveness, differentiated by estimates of exposure duration, are addressed by surface water quality criteria. Acute exposure is generally defined as less than 96 hours, while chronic exposure is a period of time longer than acute exposure, and includes durations up to the organism's entire lifetime. In general, the acute exposure criteria are much higher than the chronic exposure criteria because of the much shorter exposure duration under the acute scenario. The surface water quality criteria are not simply numerical targets; the criteria specify a magnitude, duration, and frequency to be met in order to provide protection of marine organisms. For example, chronic criteria are applied as a limit on the 4-day average concentration in the environment. Both the acute and chronic criteria are values that are not to be exceeded more than once in 3 years.

The connection between groundwater at Parcel C to San Francisco Bay is assumed to be complete. However, selection of appropriate surface water quality criteria (acute or chronic) for the protection of marine organisms at a given site requires that the exposure scenario be defined. Normally, short-term exposure to a groundwater discharge prior to dilution in the receiving waters would be considered an acute exposure. This acute exposure could only occur very close to the discharge point. The longer-term exposures that occur within the receiving water, after dilution and mixing have occurred, are considered chronic exposures. Chronic exposure is considered the most appropriate scenario to represent the exposure of organisms to a continuous discharge of chemicals in undiluted groundwater at the interface. For selecting COPECs, (1) the chronic (long-term) surface water criteria were used as screening criteria and (2) no dilution of the groundwater within the bay was assumed. Although these two conditions cannot realistically co-occur, because as chronic exposure occurs (more than 96 hours) mixing of groundwater and the bay must occur, both assumptions are used initially to select COPECs. Although the Navy and the regulatory agencies debated the merits and drawbacks of adopting a conservative approach, the regulatory agencies' opinion was that a very high level of conservatism was required and the Navy agreed to pursue this evaluation using several highly conservative assumptions.

Available surface water quality criteria are shown in Table G-1. For some chemicals, no chronic laboratory tests have been conducted, so the acute test results were adjusted to estimate a chronic value (by lowering the value by 80 percent [EPA 1986]). Acute exposure is represented by the criterion maximum concentration (CMC), which is an estimate of the highest concentration of a chemical in surface water to which an aquatic community can be exposed briefly (generally from 48 to 96 hours) without resulting in an unacceptable effect (EPA 2006).

Chronic exposure is represented by the criterion continuous concentration (CCC), which is an estimate of the highest concentration of a chemical in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect (EPA 2006).

As a practical matter, marine organisms in San Francisco Bay will be exposed to undiluted groundwater only briefly at the precise point of its entry to the bay. Even at the point of entry into the bay, some dilution of groundwater will already have occurred within the tidal mixing zone that extends landward from the sediment-to-water interface. The acute exposure scenario best represents the actual exposure of organisms to chemicals in the groundwater plume living at the sediment-water interface because of the short time before groundwater mixes with the surrounding surface water. Once the expected mixing of discharged groundwater with receiving waters occurs, a chronic exposure scenario is more representative of conditions experienced by marine organisms.

The Water Board (2006) has requested that the Navy focus on the point at which groundwater enters San Francisco Bay rather than on the post-mixing conditions that prevail more generally; elimination of mixing within the bay adds a significant conservative element to the evaluation. Therefore, the acute exposure scenario, represented by the CMCs, is the most relevant and appropriate set of surface water criteria for this evaluation. However, the chronic surface water quality criteria (CCC) were used for this evaluation to maintain consistency with agreements between the Navy and the Water Board to provide a highly conservative approach. Use of chronic instead of acute criteria adds a further degree of conservatism to the assessment. Uncertainties associated with use of the chronic criteria in an acute exposure scenario are discussed in Section G4.0.

A set of surface water quality criteria was selected for use in the screening-level evaluation from available regional, state, and federal surface water criteria, as shown in Table G-1. Individual toxicity criteria were selected using a methodology that sorts and selects criteria according to applicability and quality of data. First, criteria were sorted by applicability and quality of data into one of four tiers. Chronic exposure toxicity criteria were identified as most applicable for the exposure scenario at Parcel C and more protective (lower concentration values) than short duration acute or instantaneous exposure toxicity criteria (higher concentration values). As a result, applicable chronic exposure toxicity criteria were placed in the first tier of applicability. Where more than one applicable toxicity value was available in the same tier, the most protective (lowest) value was selected for screening purposes.

If no first tier criterion was available for a specific chemical, an acute value was selected as a second tier criterion. Each acute criterion was made more protective by lowering the value by 80 percent to make acute criteria more appropriate for use in chronic exposure scenarios (EPA 1986). Where no first or second tier criteria were available, instantaneous criteria were used as third tier criteria. Each instantaneous criterion was made more protective by lowering the value by 90 percent to make instantaneous criteria more appropriate for use in chronic exposure scenarios (EPA 1986).

For total petroleum hydrocarbons (TPH), surface water criteria were established in the "Revised Draft Petroleum Hydrocarbons Corrective Action Plan [CAP] for Parcels C, D, and E" (Tetra Tech EM Inc. and Washington Group 2002). These criteria are based upon total TPH (TTPH), defined as the sum of gasoline-, diesel-, and motor oil-range hydrocarbons, with an increase in the criteria concentrations as distance from the shoreline increases. The screening criteria for TTPH are explained more fully below.

As documented in the Revised Draft CAP Report (Tetra Tech EM Inc. and Washington Group 2002), and a subsequent letter to the Water Board (Navy 2004) with which the Water Board concurred (Water Board 2004), two groundwater criteria are available for HPS to protect San Francisco Bay from petroleum contamination. One criterion provides specific limits for dissolved-phase total TTPH in groundwater as a function of distance from the shoreline, as summarized in the table below.

TTPH and Distance from Shoreline Parameters	
Distance From Shoreline (feet)	**TTPH Groundwater Criteria (µg/L)**
0 to 50	1,400
50 to 100	2,100
100 to 150	4,800
150 to 200	9,500
200 to 250	16,000
>250	20,000

Note:

µg/L Microgram per liter

The second criterion developed by the Navy is the removal of any recoverable free product encountered, regardless of its location. Recoverable free product is defined as any measurable thickness of free product (Tetra Tech EM Inc. and Washington Group 2002).

Surface water criteria that were selected as screening criteria for all other chemicals in groundwater are shown in the last column of Table G-1.

G2.2 DERIVATION OF CHROMIUM III WATER QUALITY CRITERIA

No marine chronic value for chromium III has been derived by the regulatory agencies responsible for maintaining water quality because chromium III is not considered a major environmental threat. As discussed later in this section, EPA (1980) found that data were not sufficient to justify setting a marine criterion for chromium III. Attention has been focused on chromium VI, for which toxic effects have been well demonstrated. Likewise, during the groundwater assessments at HPS, chromium III is not considered of great concern; however, chromium III concentrations may increase as a byproduct of natural or induced degradation of the chromium VI plumes. Chromium III concentrations in groundwater will be screened against

a derived chromium III surface water criterion. The chromium VI criteria are generally the only standards for chromium in marine surface water (EPA 2006). Instead of surface water criteria for chromium III in marine waters, states often use the chromium VI value as a default, with an acknowledgement that chromium III is considerably less toxic.

Although a wide variety of procedures has been used to derive surface water criteria, most of these procedures have been developed using some variation of the theoretical toxicological approach, which is an effects-based approach that relies on published toxicity data from the scientific literature.

The EPA's formal protocol for deriving surface water criteria for the protection of marine organisms and their uses requires information on the physical and chemical properties of the substance under consideration, on its toxicity to aquatic plants and animals, on its bioaccumulation in marine organisms, and on its potential effects on consumers of aquatic biota (Stephan and others 1985). The formalized protocol includes specific procedures for calculating final acute values (FAV), final chronic values (FCV), final plant values (FPV), and final residue values (FRV) from the available data, provided that the minimum data requirements have been met. For example, derivation of a FAV for marine and estuarine waters requires acute toxicity data on at least eight families of marine organisms, including at least two families of chordates, five families of invertebrates, and one other family (such as a plant). The short-term CMC of the substance is then calculated by applying a safety factor (0.5) to the FAV. The lowest of the FCV, FPV, and FRV is used directly to establish the long-term mean CCC. The criteria are then subjected to critical review to evaluate the completeness of the data and the appropriateness of the results.

When EPA developed surface water criteria in the 1980s, it was known that chromium VI was the form in which chromium was most readily absorbed by living organisms, and that chromium III had low solubility and toxicity in saltwater. Chromium III is stable under conditions in San Francisco Bay and is unlikely to alter to chromium VI. Conversion of chromium III to chromium VI is controlled by the concentrations of photochemically produced iron as Fe II and hydrogen peroxide. Iron and organic substances reduce chromium VI to chromium III in biologically mediated processes. Additionally, chromium III tends to either precipitate or complex with ligands and absorb to solids, removing it from the water column (Gianguzza, Pelizzetti, and Sammartano 2000). A review of the literature on toxicity of chromium III to marine organisms in EPA (1980) listed no chronic studies and only two acute studies (oyster and crab zoea). The data were considered insufficient at that time to support the development of an acute or chronic marine criterion for chromium III. A review of toxicity of chromium III to marine organisms yielded no new studies conducted since the original surface water criteria were developed. The available toxicity data are reviewed below.

The mean acute toxicity value for the oyster was 10,300 µg/L of total recoverable chromium III (Calabrese 1973, as cited in EPA 1980); for crab zoea, the mean acute value was 56,000 µg/L. Based on these data, EPA (1980, page B-7) concluded that "…probably because of precipitation, a large amount of trivalent chromium must be added to saltwater to kill aquatic organisms." For example, polychaete worms exposed to 50,400 µg/L were killed, likely because of a drop in

pH (4.5) from chromium precipitation. When pH was held stable, the worms survived and reproduced at the 50,400 µg/L exposure concentration (Mearns and others 1976, as cited in EPA 1980).

In a review of chromium III hazards to marine organisms, Eisler (1986) listed a range of acute toxicity values from 3,300 µg/L (fish 96 hours) to 56,000 µg/L (crab 96 hours). The only chronic value available (12,500 µg/L) was based on a 21-day test of the polychaete worm *Neanthes arenaceodentata*. In acute tests, this polychaete was the most sensitive species tested.

The lack of chronic marine data for chromium III requires that some assumptions be made to derive a surface water criterion for this metal. Acute criteria are typically reduced by 80 percent to make acute water criteria more appropriate for use in chronic exposure scenarios (EPA 1986). The table below presents acute toxicity data for marine species exposed to chromium III with adjustments for chronic exposure. The lowest chronic value for chromium III in marine water (400 µg/L) was selected as the surface water criterion for Parcel C. Use of chronic instead of acute criteria and use of the lowest estimated chronic value add a further degree of conservatism to the assessment, as agreed to with the regulatory agencies.

Chromium III Toxicity to Marine Organisms

Exposure		Effect	Reference
Acute (µg/L)	**Estimated Chronic* (µg/L)**		
2,000 to 105,000	400 to 21,000	Mean acute toxicity, multiple Species	EPA 1980
3,300 to 56,000	660 to 11,200	Acute (96 hours) toxicity, multiple species	Eisler 1986
10,300	2,060	Acute toxicity to American oyster	Calabrese 1973, as cited in EPA 1980
None	12,500 (actual chronic exposure)	Toxicity to *Neanthes arenaceodentata*	Eisler 1986
100,800	Not applicable	No effect on survival or reproduction in polychaete	Mearns and others, as cited in EPA 1980

Note:

* Acute–to-chronic adjustment defined as a reduction of the acute level by 80 percent (EPA 1986)

G2.3 CONSIDERATION OF AMBIENT GROUNDWATER CONCENTRATIONS

Navy policy requires that regional background or ambient concentrations of chemicals be explicitly considered during the selection of COPECs (Navy 2004). To avoid selecting chemicals for which the allowable concentration in groundwater is less than the background concentration, the selected surface water criteria (see Table G-1) were compared with the HGAL and the higher of the two was selected as the surface water screening criterion that was used to select COPECs. HGALs were developed for the A-aquifer; however, they also are applicable for the B-aquifer at Parcel C because HGALs were developed for fill conditions, which are similar

in both A- and B-aquifers at Parcel C. Furthermore, at Parcel C there is interconnection between the A- and B-aquifers, as shown on Figure 2-14 of the Final Parcel C Feasibility Study Report, at those locations where the B-aquifer occurs and there is no aquitard present to hydraulically separate them. Similarly, the HGALs are applicable for the F-WBZ because of the frequent interconnection of the A-aquifer and the F-WBZ.

G3.0 GROUNDWATER SCREENING RESULTS

Maximum concentrations of chemicals detected in the A-aquifer, B-aquifer, and F-WBZ groundwater at Parcel C were screened against the surface water quality criteria identified in Section G2.0 and Table G-1 to identify potential releases that might exceed water quality goals in surface waters. When no surface water quality criteria were available, the chemicals were eliminated from the analysis. The lack of an established criterion for surface water quality is interpreted to indicate the regulatory agencies do not consider these chemicals to be significant threats to environmental receptors and justifies elimination of these chemicals from the analysis. The chemicals in the following table were eliminated based on the lack of an established criterion for surface water quality.

Chemical Eliminated Because No Established Criterion for Surface Water Quality was Available

1,1,2-Trichloro-1,2,2-trifluoroethane	Chloroethane
1,1-Dichloroethane	Cobalt
2,4,6-Trichlorophenol	Delta-BHC
2-Hexanone	Dichlorodifluoromethane
2-Methylnaphthalene	Endrin ketone
Acetone	Iron
Acetophenone	m,p-Xylene
Alpha-BHC	Magnesium
Aluminum	Manganese
Antimony	Molybdenum
Barium	Potassium
Beryllium	Sodium
Beta-BHC	Trichlorofluoromethane
Bis(2-ethylhexyl)phthalate	Vanadium
Calcium	Vinyl acetate
Caprolactam	Vinyl chloride
Carbon disulfide	Xylene (total)

Note:

BHC Benzene hexachloride

Chemicals detected at maximum concentrations that exceeded surface water quality criteria were identified as COPECs. Nine metals, 11 volatile organic compounds (VOC), 7 semivolatile organic compounds (SVOC), 8 pesticides, 2 polychlorinated biphenyls (PCB), TPH, and cyanide were selected as COPECs in the A-aquifer samples because they exceeded surface water quality criteria in samples with detected results (see Table G-2).

One metal (zinc) and two VOCs were selected as COPECs in the B-aquifer samples, and two metals (chromium VI and mercury), four VOCs, one pesticide, and TPH were selected as COPECs in the F-WBZ samples because they exceeded surface water quality criteria (see Tables G-3 and G-4).

Concentrations of each of the selected COPECs were further evaluated using the following criteria to determine the likelihood that they would affect San Francisco Bay:

1. Do measured concentrations consistently exceed surface water quality criteria during subsequent sampling events?

2. When was the most recent sample collected that exceeded the surface water quality criterion?

3. Can concerns about the COPEC be eliminated based on professional judgment of the extent and degree of the interpreted effect to the groundwater? The extent and degree of effect was assessed by reviewing the locations of recently detected concentrations, the likelihood that recently detected concentrations pose a threat to San Francisco Bay, and concentration trends on a well-by-well basis.

Finally, ARARs were reviewed to determine where chemical-specific ARARs are potentially applicable (see Appendix D). The Navy has identified the substantive provisions of the CTR (Title 40 of the Code of Federal Regulations Section 131.38) as potentially applicable federal chemical-specific ARARs and Table 3-3 of the Basin Plan as potentially applicable state chemical-specific ARARs for surface water, at the interface of the groundwater and San Francisco Bay.

These evaluation criteria were applied on a well-by-well basis for each well with detected concentrations of COPECs (see Tables G-5 and G-6). Figures G-1 through G-8 show the locations of the wells.

G3.1 CHEMICALS OF ECOLOGICAL CONCERN

Based on the chemical-specific ARARs and the well-by-well analysis, chromium VI and zinc were selected as COECs for the A-aquifer at Parcel C (see Table G-2). No chemicals were selected as COECs in the B-aquifer (see Table G-3) or the F-WBZ at Parcel C (see Table G-4). Table G-5 shows the well-by-well evaluation for chromium VI and zinc.

G3.1.1 Chromium VI

Chromium VI was selected as a COEC because of the detection frequency (17 of 266 samples) at concentrations exceeding the surface water criterion (50 µg/L) in selected wells in Remedial Unit (RU)-C1 and RU-C5 (see Figure G-1).

G3.1.2 Zinc

Zinc was selected as a COEC because it was detected (13 of 337 samples) at concentrations exceeding the surface water criterion (81 µg/L) (see Figure G-2). Although zinc was not frequently detected, a cluster of exceedances occurred in the Building 253 region of RU-C1, approximately 500 feet from San Francisco Bay. Groundwater samples collected from wells IR28MW921A and IR28MW930A had zinc concentrations of 180 µg/L and 350 µg/L during the last sampling event for these wells (July 2002). One other concern is the zinc concentration of 1,300 µg/L detected during the July 2002 sampling event in well IR28MW170A located in the center of Building 211 (RU-C1). However, zinc was not detected in five previous samples collected from this well. This well is located approximately 300 feet from the bay and is not currently sampled under the basewide groundwater monitoring program.

G3.2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN

Table G-6 shows the well-by-well evaluation of COPECs. Based on the evaluation results, 35 COPECs from the A-aquifer and all of the COPECs from the B-aquifer and F-WBZ were eliminated from further consideration. Table G-7 lists the chemicals eliminated as a result of this evaluation. Figures G-9 and G-10 show the wells where concentrations of COPECs exceeded water quality criteria. Figure G-9 shows locations where metal concentrations exceeded criteria, and Figure G-10 shows locations where organic chemical concentrations exceeded criteria.

Metals were eliminated from further consideration because they were not detected at concentrations exceeding screening criteria since at least 2002. SVOCs were eliminated from further consideration because no chemical-specific ARARs require remediation of these chemicals. Pesticides and cyanide were eliminated from further consideration based on infrequent detections. Water quality criteria for pesticides were generally below the detection limits of the analytical method; professional judgment was used to evaluate these chemicals. Detected pesticides were nearly always qualified because the detections were below the method detection limits. PCBs were also detected relatively infrequently, at wells distant from the shoreline.

Five VOCs (chlorobenzene, 1,4-dichlorobenzene [DCB], 1,2-DCB, tetrachloroethene [PCE], and trichloroethene [TCE]) are discussed in additional detail below. These VOCs were eliminated from further consideration because no chemical-specific ARARs require remediation of these chemicals. However, these VOCs will be addressed at Parcel C based on vapor intrusion risk. Free-phase TPH has been detected at Parcel C; TPH will be addressed under the TPH program.

G3.2.1 Chlorobenzene

Chlorobenzene was detected (38 of 1,067 samples) at concentrations above its surface water criterion (129 µg/L). The exceedances occurred in samples collected from five wells in RU-C2 and four wells in RU-C5 (see Figure G-3). Samples from these wells have consistently exhibited chlorobenzene at concentrations exceeding the surface water criterion. The wells with elevated concentrations of chlorobenzene in RU-C2 are located just north of Building 251 in the vicinity of two former underground storage tanks that contained solvents. The highest chlorobenzene concentration detected in this area was 9,900 µg/L in a sample collected from well IR28MW909A during in February 2001. Wells with elevated concentrations of chlorobenzene in RU-C5 are located in the vicinity of the sump and dip tank area adjacent to the north end of Building 134. The highest chlorobenzene concentration detected in this area was 2,300 µg/L in a sample collected from well IR25MW15A1 in January 2001.

G3.2.2 1,4-Dichlorobenzene

1,4-DCB was detected (69 of 1,064 samples) at concentrations exceeding the surface water criterion (129 µg/L). The distribution of the exceedances is similar to that of chlorobenzene (that is, Building 251 of RU-C2 and Building 134 of RU-C5) (see Figure G-4). Three wells in the RU-C2 area have consistently exhibited 1,4-DCB concentrations exceeding the surface water criterion. The highest 1,4-DCB concentration detected in this area was 940 µg/L in a sample collected in February 2001 from well IR28MW909A. This sample also had the highest chlorobenzene concentration reported in RU-C2. Eight wells in the Building 134 portion of RU-C5 have samples with 1,4-DCB concentrations that persistently exceeded the surface water criterion. In general, concentrations detected in RU-C5 were higher than those in RU-C2. The highest 1,4-DCB concentration from RU-C5 was 15,000 µg/L in the sample collected from well IR25MW19A in January 1998. This well was subsequently sampled three times in 2001, and the last concentration detected was 4,000 µg/L. Other wells in RU-C5 with 1,4-DCB concentrations persistently exceeding the surface water criterion are IR25MW15A1, IR25MW15A2, IR25MW901B, and IR25MW902B.

G3.2.3 1,2-Dichlorobenzene

1,2-DCB was detected (80 of 1,065 samples) at concentrations exceeding its surface water criterion (129 µg/L). The distribution of the exceedances is similar to that of chlorobenzene and 1,4-DCB (see Figure G-5). The wells with one or more exceedances included eight in RU-C5, five in RU-C2, and one in RU-C4. The highest concentrations were in the Building 134 of RU-C5, with eight wells exhibiting 1,2-DCB concentrations exceeding the surface water criterion. These are the same eight wells in RU-C5 that have 1,4-DCB exceedances. The highest concentration of 1,2-DCB in RU-C5 was 59,000 µg/L detected in a sample collected from well IR25MW19A in 2001. Five wells in RU-C2 exhibited 1,2-DCB concentrations exceeding the surface water criterion. The highest concentration of 3,300 µg/L was reported in a sample collected from well IR58MW31A in 1998. This well was also sampled three times in 2004 as part of the basewide groundwater monitoring program, and concentrations ranged from 140 to 270 µg/L. The single well in RU-C4 where 1,2-DCB exceedances occurred is

IR28MW407. This well was sampled three times in 2004, with concentrations ranging from 92 to 200 µg/L.

G3.2.4 Tetrachloroethene

PCE was detected (51 of 1,083 samples) at concentrations exceeding its surface water criterion (450 µg/L). All of the exceedances were in samples from eight wells located in the vicinity of the former dip tank and sump in Building 134 in RU-C5 (see Figure G-6). The highest PCE concentration detected was 72,000 µg/L in a sample collected from well IR25MW19A in January 2001. In 2002, dense nonaqueous-phase liquid (DNAPL) was observed in this well and also in wells IR25MW15A2 and IR25MW902B. A sample of the product collected from well IR25MW19A indicated the presence of multiple VOCs, dominated by 1,2-DCB, 1,4-DCB, PCE, and TCE.

G3.2.5 Trichloroethene

TCE was detected (108 of 1,082 samples) at concentrations exceeding its surface water criterion (400 µg/L). TCE exceeded the screening criteria in samples from 12 wells in RU-C4, 7 wells in RU-C5, and 1 well in RU-C1 (see Figure G-7). The highest TCE concentrations detected in RU-C4 were in samples from wells located in the northeastern portion of Building 272. The maximum TCE concentration reported in RU-C4 was 76,000 µg/L in a sample collected from well IR28MW211F in November 2002. This concentration is 6.9 percent of the aqueous solubility of TCE (1,100,000 µg/L), which may indicate the presence of DNAPL. In general, the high TCE concentrations detected in RU-C4 were during sampling events in 2001 and 2002. Subsequent to 2002, these concentrations have decreased markedly. For example, TCE concentrations in three rounds of sampling of well IR28MW211F in 2004 ranged from 7.7 to 150 µg/L. The occurrence of TCE concentrations exceeding the surface water criterion in RU-C5 is similar to that of PCE described above. The highest TCE concentration detected in samples from this area was 18,000 µg/L during the January 2001 sampling event at well IR25MW19A. For RU-C1, only well IR28MW151A exhibited TCE concentrations exceeding the surface water criterion. The sample collected from this well in January 2002 had a TCE concentration of 1,400 µg/L. However, TCE concentrations in samples collected in 2004 ranged from 24 to 55 µg/L, which is well below the surface water criterion.

G3.2.6 Total Petroleum Hydrocarbons

TPH was detected in groundwater and observed as a light nonaqueous-phase liquid (LNAPL) in RU-C5 (see Figure G-8). As documented in the Revised Draft CAP for Parcels C, D, and E (Tetra Tech EM Inc. and Washington Group 2002), and a subsequent letter from the Navy to the Water Board (Navy 2004) with which the Water Board concurred, two groundwater criteria are available for HPS to protect the Bay from petroleum contamination. One criterion provides specific limits for dissolved-phase TTPH in groundwater as a function of distance from the shoreline, as summarized in Section G2.0.

The second criterion developed by the Navy is the removal of any recoverable free product encountered, regardless of its location. Recoverable free product is defined as any measurable thickness of free product (Tetra Tech EM Inc. and Washington Group 2002); visible sheen is not considered free product.

Only one well near the shoreline at Parcel C exhibited a TTPH concentration above the criterion of 1,400 µg/L. Well IR28MW269A is located in RU-C1, approximately 30 feet from Dry Dock 2. A sample collected from this well in May 1996 exhibited a TTPH concentration of 2,070 µg/L. This well was subsequently sampled three times (April 1999, August 2000, and February 2001), and TTPH was not detected during any of these sampling events. A sample collected in 1995 from well IR28MW129A in RU-C1 had a TTPH concentration of 22,300 µg/L. Several feet of LNAPL was noted in this well in August 2000. This well is located over 500 feet from San Francisco Bay, thus the maximum concentration allowable under the screening criteria is 20,000 µg/L. TTPH concentrations in samples from several wells in the Building 134 portion of RU-C5 exceeded 20,000 µg/L. The distance to the Bay from this area is approximately 600 feet. Examples of elevated TPH concentrations include 970,000 and 290,000 µg/L detected in samples collected from wells IR25MW19A and IR25MW15A1, respectively. Most of the TPH in samples from well IR25MW19A is in the motor oil range, while most TPH in samples from well IR2515A1 is in the gasoline range. Both of these wells have been decommissioned; new wells were installed in nearby areas as part of bioremediation treatability study. LNAPL has historically been reported in several Parcel C wells. There are several possible sources for petroleum hydrocarbon contamination in groundwater at RU-C5, including a tank farm, fuel lines, dip tank, and machine shop operations.

The reported thickness of historic product in these wells is presented in the table below.

Reported Historical Free Product Thickness in Parcel C Wells

RU	Well	Reported Thickness (feet)	Date
RU-C1	IR28MW129A	Reported as visual and not measured	11/02/1995
		>1	6/14/2000
		13.05	8/1/2002
	IR28MW353A	0.02	4/2000
		0.02	8/9/2002
RU-C4	IR28MW275F	0.02	8/9/2002
RU-C5	IR25MW11A	Reported as visual and not measured	11/02/1995
		0.2	8/15/2000
		0.37	2002
	IR25MW19A	Reported as visual and not measured	3/31/01
	IR25MW22A	Reported as visual and not measured	8/16/2000

G3.2.7 B-Aquifer and F-WBZ Chemicals of Potential Ecological Concern

Evaluation of COPECs for the B-aquifer and F-WBZ followed the same methodology as that used for the A-aquifer. No chemicals were selected as COECs in the B-aquifer or in the F-WBZ.

G4.0 UNCERTAINTY

Uncertainty plays an important role in risk-based decision-making; therefore, uncertainty is incorporated explicitly into the characterization of potential risk posed by chromium VI and zinc at Parcel C. By design, this screening-level evaluation is centered on conservative default assumptions that result in overestimates of risk (EPA 1997). This section describes the magnitude and directional bias in known sources of uncertainty in this evaluation.

Uncertainty is generally defined as a component of risk or degree of hazard resulting from imperfect knowledge of the present or future state of the system under consideration (Suter 1993). Most uncertainty in environmental assessments can be categorized as follows:

- Mistakes in execution of assessment
- Imperfect knowledge of factors that could be known
- Inherent randomness of the natural environment

Compared with the strict numerical criteria that dominate human health evaluations, the use of ecological models and criteria tends to increase the level of uncertainty associated with a groundwater investigation. The sections below include brief reviews of some sources of uncertainty associated with the use of surface water criteria in relation to Parcel C groundwater.

G4.1 UNCERTAINTY IN DEVELOPMENT OF SURFACE WATER CRITERIA

For marine organisms, the NRWQC are derived using a methodology published in "Guidelines for Deriving Numeric National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses" (Stephan and others 1985). Under these guidelines, criteria are developed from data quantifying the sensitivity of species to toxic compounds in controlled studies. Almost all of the data used to derive the criteria are from studies on animals and plants under controlled laboratory conditions. No adjustment for laboratory to field variance is typically made.

It is possible to conduct long-term sublethal laboratory tests to derive chronic water quality criteria. In reality, though, chronic toxicity tests are much more expensive than acute tests and are not as frequently conducted. For many chemicals, chronic toxicity testing data are inadequate to meet the minimum requirement of eight families of marine organisms to develop surface water criteria. In such instances, EPA allows the estimation of a chronic criterion from the FAV using ratios derived from studies in which both acute and chronic tests have been conducted simultaneously for the same species. Acute-to-chronic ratios are calculated for each set of parallel tests, then averaged (using the geometric mean) to arrive at the final

acute-to-chronic ratio. The acute-to-chronic ratio is the ratio of the acute toxicity to chronic toxicity of a chemical or sample that can be used to predict acute toxicity from chronic data and vice-versa. Three studies with parallel testing are required to calculate a valid final ratio. The chronic criterion is then calculated from the FAV (not the acute criterion) by dividing it by the final acute-to-chronic ratio. Although the protocol is well-defined, the resulting chronic criterion may bear little relation to actual toxicity experienced by marine organisms in the field.

The saltwater criteria for metals are expressed in terms of dissolved metal in the water column, following EPA protocols. The chronic chromium VI criterion of 50 µg/L was back-calculated from the published dissolved value, which was derived by multiplying the total recoverable concentration by a conversion factor, such as the acute-to-chronic ratio.

G4.1.1 Speciation and Bioavailability of Chromium III in Receiving Water

Because local, state, and federal applicable or relevant and appropriate requirements do not provide criteria for chromium III in marine waters, most regulatory agencies, including those in California, default to using the chromium VI criteria for all species of chrome. However, chromium III is dramatically less toxic than chromium VI to polychaetes and crustaceans (but not to molluscs or teleosts) in saltwater (Eisler 1986). Given that chromium exists in two major valence states, depending upon the presence of oxygen in the sediment and the water column of the receiving water body, it is essential to distinguish between chromium III and chromium VI. Also, natural and induced degradation of chromium VI may result in increased chromium III concentrations. In saltwater, chromium III is relatively non-toxic and chromium VI is highly toxic. The current science indicates that reduction/oxidation conditions present within the water column and sediment govern the chemistry of chromium, as a recent investigation in Baltimore Harbor has demonstrated (Maryland Department of the Environment 2004). In Baltimore Harbor, low dissolved oxygen in the water column and high biological oxygen demand in the sediment pushed the conversion of chromium VI to chromium III (Maryland Department of the Environment 2004). Much of the chromium III adsorbed to the sediment, where it was involved in reactions that created stable oxides and hydroxides that were unavailable for partitioning into porewater (Maryland Department of Environment 2004).

Uncertainty related to speciation of chromium in receiving waters is by no means a trivial variable. Sensitivity of marine organisms to chromium VI and chromium III varies by several orders of magnitude. *Neanthes arenaceodentata*, a marine polychaete worm, is the most sensitive marine organism reported in the literature (Eisler 1986). Concentrations of chromium VI of less than 100 µg/L interfered with feeding, reproduction, and larval development (Eisler 1986). Yet this same marine species demonstrated no adverse reaction whatsoever to concentrations of chromium III more than 3 orders of magnitude greater than the effect level of chromium VI.

The two forms of chromium differ markedly in their availability to marine organisms. Because of its very low solubility in seawater, chromium III is not readily taken up by organisms. Barnacles (*Balanus* sp.) accumulated chromium VI in their tissues at concentrations up to 1,000 times greater

than ambient concentrations. In contrast, chromium III was quickly removed by the filtering activity of the barnacle and was not concentrated in soft tissues. Instead, the barnacle eliminated chromium III via the digestive system, according to studies reported in Eisler (1986).

Studies such as these illustrate the technical flaws in adopting surface water criteria for chromium III developed using test results for chromium VI. The two chemicals are similar in name, but not in toxicity.

G4.1.2 Speciation and Bioavailability of Chromium and Zinc in Receiving Water

The ultimate fates of chromium and zinc in San Francisco Bay are controlled by physical and chemical properties of the surface water, including pH, oxidation/reduction potential, hardness, alkalinity, organic and inorganic ligands, and other cations that compete for binding sites, water temperature, and other factors.

The actual bioavailability and toxicity of dissolved chromium and zinc released in groundwater to San Francisco Bay cannot be predicted using available data. For chromium and zinc, the surface water criteria concentrations are higher than ambient concentrations in groundwater at Parcel C. No site-specific tests of chromium or zinc toxicity were conducted.

G5.0 CONCLUSIONS

Based on the screening of chemical concentrations with surface water criteria and the well-by-well evaluation, chromium VI and zinc were selected as COECs. The Navy has established trigger levels to protect against effects on marine organisms in San Francisco Bay (see Appendix H).

G6.0 REFERENCES

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FIGURES

PARCEL B

PARCEL C

PARCEL D

RU-C5

RU-C2

RU-C1

RU-C4

San Francisco Bay

DRY DOCK 3

DRY DOCK 2

DRY DOCK 4

BERTH 57

BERTH 56

BERTH 55

BERTH 1

BERTH 2

BERTH 4

BERTH 5

BERTH 6

BERTH 7

BERTH 8

BERTH 9

BERTH 10

IR06MW30F

Sample ID	Date	Result	
0448G013	11/22/2004	100	µg/L
0424T026	6/10/2004	120	µg/L
02240003	6/10/2002	120	µg/L

IR06MW49F

Sample ID	Date	Result	
02340002	8/19/2002	10	µg/L ND
9433N583	8/19/1994	83.2	µg/L
9420X302	5/16/1994	81.1	µg/L
9407X208	2/16/1994	82.9	µg/L
9345X051	11/8/1993	87.8	µg/L
9202X366	1/6/1992	120	µg/L
9144X243	10/31/1991	100	µg/L

IR28MW125A

Sample ID	Date	Result	
0448G025	11/29/2004	100	µg/L
0436P011	9/3/2004	110	µg/L
0424M002	6/8/2004	37	µg/L
0225E006	6/18/2002	10	µg/L ND
0102TP006	2/21/2001	90	µg/L
0034P009	9/15/2000	260	µg/L

IR28MW151A

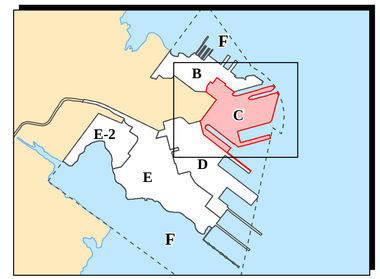
Sample ID	Date	Result	
0450P038	12/6/2004	20	µg/L ND
0438T013	9/15/2004	20	µg/L ND
0228E018	7/11/2002	20	µg/L
02030013	1/17/2002	10	µg/L ND
0135D003	8/27/2001	210	µg/L
RU2-IR28MW151A-321	2/8/2001	10	µg/L ND
RU2-IR28MW151A-167	1/18/2001	10	µg/L ND
RU2-IR28MW151A-174	1/18/2001	10	µg/L ND

IR28MW920A

Sample ID	Date	Result	
0228E013	7/10/2002	10	µg/L ND
02033009	1/16/2002	100	µg/L
0135S002	8/28/2001	10	µg/L ND
RU2-IR28MW920-323	2/8/2001	10	µg/L ND
RU2-IR28MW920-324	2/8/2001	10	µg/L ND
RU2-IR28MW920-150	1/23/2001	10	µg/L ND

IR28MW930A

Sample ID	Date	Result	
0228E013	7/10/2002	110	µg/L
02033D010	1/16/2002	150	µg/L
0135S003	8/28/2001	10	µg/L ND
RU2-IR28MW930-320	2/8/2001	10	µg/L ND
RU2-IR28MW930-169	1/18/2001	10	µg/L ND



Location Map

Monitoring Well Types

- U — Active A-Aquifer Monitoring Well
- D — Active A/B-Aquifer Monitoring Well
- ! — A-Aquifer Piezometer
- D — Decommissioned A-Aquifer Well
- D — Decommissioned A/B-Aquifer Well
-) — Active B-Aquifer Monitoring Well
- * — Active F-WBZ Monitoring Well

Color-Coding for Chromium VI Results

- " — Detected Result Exceeding Surface Water Quality Criterion
- " — Result Not Exceeding Surface Water Quality Criterion
- " — Undetected Result
- " — Well Not Analyzed
- Approximate Area of Concern for Chromium VI
- Potential Source Area
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- Remedial Unit (RU) Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Surface water quality criterion for Chromium VI is 50 µg/L.

µg/L	Microgram per liter
F-WBZ	Bedrock water-bearing zone
ND	Result not detected at the associated reporting limit
RU	Remedial unit

N

150 0 150 300 450

Scale in Feet

SulTech

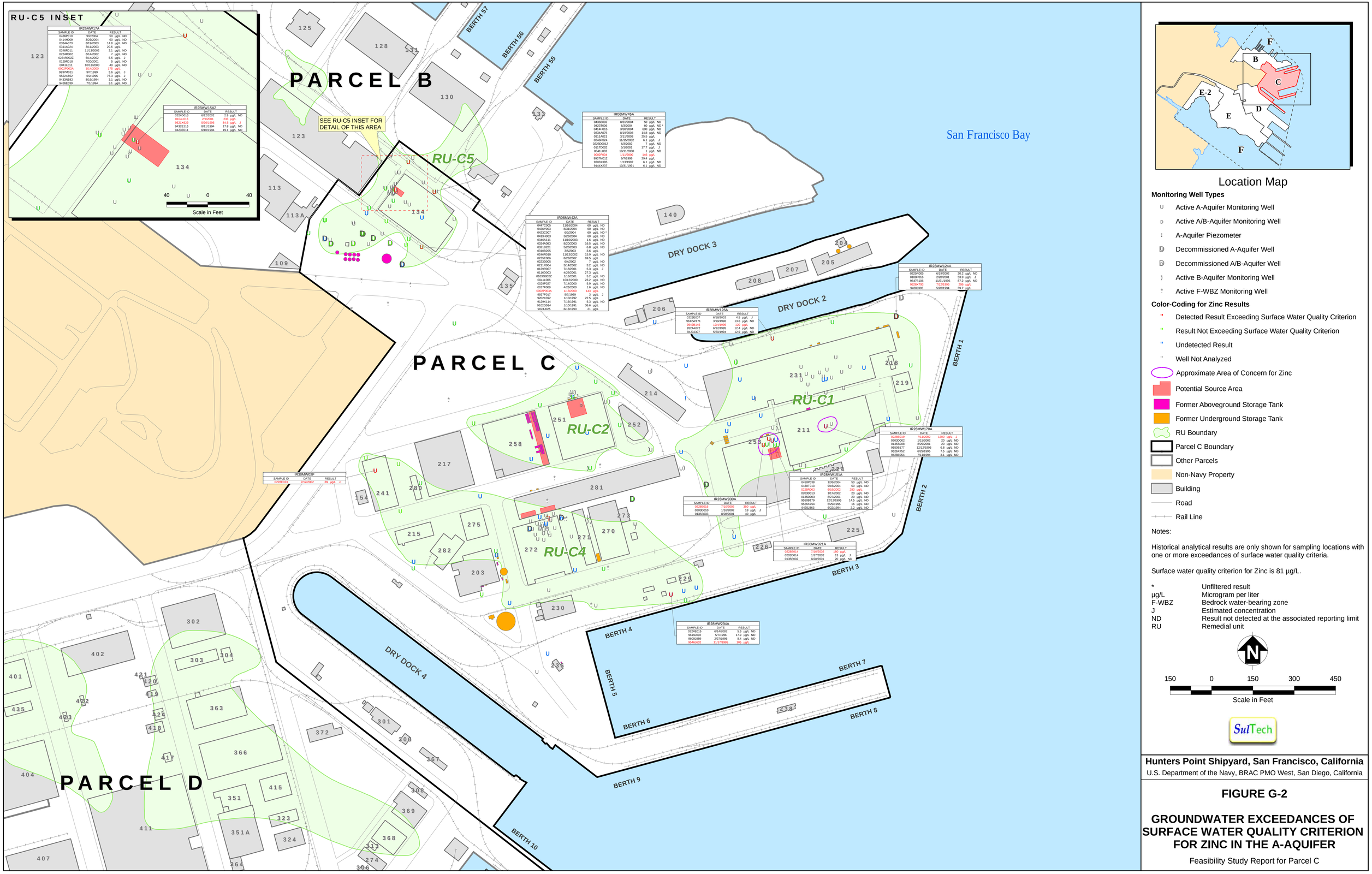
Hunters Point Shipyard, San Francisco, California

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

FIGURE G-1

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERION FOR CHROMIUM VI IN THE A-AQUIFER

Feasibility Study Report for Parcel C



Location Map

Monitoring Well Types

- U Active A-Aquifer Monitoring Well
- D Active A/B-Aquifer Monitoring Well
- ! A-Aquifer Piezometer
- D Decommissioned A-Aquifer Well
- D Decommissioned A/B-Aquifer Well
-) Active B-Aquifer Monitoring Well
- * Active F-WBZ Monitoring Well

Color-Coding for Zinc Results

- " Detected Result Exceeding Surface Water Quality Criterion
- " Result Not Exceeding Surface Water Quality Criterion
- " Undetected Result
- " Well Not Analyzed
- Approximate Area of Concern for Zinc
- Potential Source Area
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- RU Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Surface water quality criterion for Zinc is 81 µg/L.

*	Unfiltered result
µg/L	Microgram per liter
F-WBZ	Bedrock water-bearing zone
J	Estimated concentration
ND	Result not detected at the associated reporting limit
RU	Remedial unit

N

150 0 150 300 450
Scale in Feet

SulTech

Hunters Point Shipyard, San Francisco, California

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

FIGURE G-2

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERION FOR ZINC IN THE A-AQUIFER

Feasibility Study Report for Parcel C

RU-C5 INSET

IR25MW19A

SAMPLE ID	DATE	RESULT
0110T011	3/14/2001	120 µg/L J
RU6-IR25MW19A-254	2/5/2001	500 µg/L ND
RU6-IR25MW19A-182	1/22/2001	320 µg/L
9805A132	1/29/1998	330 µg/L J

IR25MW15A1

SAMPLE ID	DATE	RESULT
0233E005	8/13/2002	940 µg/L
0104L017	2/1/2001	2000 µg/L
RU6-IR25MW15A1-256	2/1/2001	1800 µg/L
RU6-IR25MW15A1-209	1/31/2001	1600 µg/L
RU6-IR25MW15A1-210	1/31/2001	1000 µg/L ND
RU6-IR25MW15A1-138	1/11/2001	2300 µg/L
0034L016	8/17/2000	1900 µg/L
9905A303	2/5/1998	1700 µg/L J
9540H750	10/5/1995	2200 µg/L
9540H752	10/5/1995	5000 µg/L ND

IR25MW905B

SAMPLE ID	DATE	RESULT
RU6-IR25MW905B-253	2/1/2001	110 µg/L
RU6-IR25MW905B-219	1/31/2001	140 µg/L
RU6-IR25MW905B-220	1/31/2001	140 µg/L
RU6-IR25MW905B-236	1/31/2001	120 µg/L
RU6-IR25MW905B-158	1/16/2001	100 µg/L

IR25MW11A

SAMPLE ID	DATE	RESULT
0035R001	8/24/2000	150 µg/L
9523X670	6/7/1995	78 µg/L
9352X119	12/28/1993	1000 µg/L ND

40 0 40
Scale in Feet

RU-C2 INSET

IR28MW911A

SAMPLE ID	DATE	RESULT
RU5-IR58MW911-332	2/12/2001	1800 µg/L
RU5-IR58MW911-303	2/8/2001	790 µg/L
RU5-IR58MW911-304	2/8/2001	850 µg/L
RU5-IR28MW911-198	1/25/2001	1300 µg/L

IR28MW909A

SAMPLE ID	DATE	RESULT
RU5-IR58MW909-329	2/12/2001	2700 µg/L
RU5-IR58MW909-298	2/8/2001	2000 µg/L
RU5-IR58MW909-299	2/8/2001	9900 µg/L
RU5-IR58MW909-300	2/8/2001	2000 µg/L
RU5-IR58MW909-193	1/24/2001	3200 µg/L

IR58MW33B

SAMPLE ID	DATE	RESULT
0449G037	12/2/2004	0.74 µg/L
04378022	9/7/2004	13 µg/L
0425X009	6/18/2004	19 µg/L J
0230E008	7/25/2002	130 µg/L
0107T011	2/22/2001	3 µg/L
RU5-IR58MW33B-340	2/15/2001	12 µg/L
RU5-IR58MW33B-313	2/8/2001	1 µg/L ND
RU5-IR58MW33B-314	2/8/2001	1 µg/L ND
RU5-IR58MW33B-315	2/8/2001	1 µg/L ND
RU5-IR58MW33B-200	1/25/2001	50 µg/L ND

IR58MW31A

SAMPLE ID	DATE	RESULT
0448J016	11/22/2004	1400 µg/L
04370036	9/10/2004	3700 µg/L
0424G017	6/7/2004	1000 µg/L
0233D010	8/15/2002	1200 µg/L
0107T012	2/22/2001	280 µg/L
RU5-IR58MW31A-339	2/15/2001	690 µg/L
RU5-IR58MW31A-194	1/24/2001	530 µg/L
0033J007	8/11/2000	920 µg/L
9804A106	1/23/1998	230 µg/L J
9548B135	11/28/1995	250 µg/L

IR58MW35A

SAMPLE ID	DATE	RESULT
0228H006	7/11/2002	320 µg/L
0228H005	7/11/2002	300 µg/L
0228H003	7/11/2002	300 µg/L
0228H002	7/10/2002	320 µg/L

30 0 30
Scale in Feet

PARCEL B
PARCEL C
PARCEL D
RU-C5
RU-C2
RU-C1
RU-C4
SEE RU-C5 INSET FOR DETAIL OF THIS AREA
SEE RU-C2 INSET FOR DETAIL OF THIS AREA
BERTH 57
BERTH 56
BERTH 55
DRY DOCK 3
DRY DOCK 2
DRY DOCK 4
BERTH 1
BERTH 2
BERTH 3
BERTH 4
BERTH 5
BERTH 6
BERTH 7
BERTH 8
BERTH 9
BERTH 10
San Francisco Bay
Tank

Location Map

Monitoring Well Types

- U — Active A-Aquifer Monitoring Well
- D — Active A/B-Aquifer Monitoring Well
- ! — A-Aquifer Piezometer
- D — Decommissioned A-Aquifer Well
- D — Decommissioned A/B-Aquifer Well
-) — Active B-Aquifer Monitoring Well
- * — Active F-WBZ Monitoring Well

Color-Coding for Chlorobenzene Results

- " — Detected Result Exceeding Surface Water Quality Criterion
- " — Result Not Exceeding Surface Water Quality Criterion
- " — Undetected Result
- " — Well Not Analyzed
- Approximate Area of Concern for Chlorobenzene
- Potential Source Area
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- RU Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Surface water quality criterion for Chlorobenzene is 129 µg/L.

µg/L	Microgram per liter
F-WBZ	Bedrock water-bearing zone
J	Estimated concentration
ND	Result not detected at the associated reporting limit
RU	Remedial unit

150 0 150 300 450
Scale in Feet

SulTech

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

FIGURE G-3

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERION FOR CHLOROBENZENE IN THE A-AQUIFER

Feasibility Study Report for Parcel C

2008-07-16 V:\Hunters_Point\Projects\Parcel_C\FS_2005\Nature and Extent\Groundwater\GW_Results\VOC's\Chlorobenzene_szD.mxd TtEMI-SF Kevin Ernst

PARCEL B

PARCEL C

PARCEL D

RU-C5

RU-C2

RU-C1

RU-C4

SEE RU-C5 INSET FOR DETAIL OF THIS AREA

SEE RU-C2 INSET FOR DETAIL OF THIS AREA

BERTH 57

BERTH 56

BERTH 55

BERTH 1

BERTH 2

BERTH 3

BERTH 4

BERTH 5

BERTH 6

BERTH 7

BERTH 8

BERTH 9

BERTH 10

DRY DOCK 2

DRY DOCK 3

DRY DOCK 4

RU-C5 INSET

IR25MW18A

SAMPLE ID	DATE	RESULT
0224E011	6/13/2002	260 µg/L
0110T008	3/13/2001	840 µg/L
RU6-IR25MW18A-255	2/1/2001	500 µg/L ND
RU6-IR25MW18A-171	1/18/2001	350 µg/L
9805A131	1/26/1998	3300 µg/L

IR25MW15A1

SAMPLE ID	DATE	RESULT
0233E005	8/13/2002	5700 µg/L
0104L017	2/1/2001	5300 µg/L
RU6-IR25MW15A1-256	2/1/2001	3800 µg/L
RU6-IR25MW15A1-209	1/31/2001	2400 µg/L
RU6-IR25MW15A1-210	1/31/2001	470 µg/L
RU6-IR25MW15A1-138	1/11/2001	7100 µg/L
0034L016	8/17/2000	8400 µg/L
9806A203	2/5/1998	9600 µg/L
9424E014	6/13/1994	7800 µg/L

IR25MW903B

SAMPLE ID	DATE	RESULT
RU6-IR25MW903B-251	2/1/2001	490 µg/L
RU6-IR25MW903B-237	1/31/2001	190 µg/L
RU6-IR25MW903B-238	1/31/2001	250 µg/L
RU6-IR25MW903B-145	1/11/2001	580 µg/L

IR25MW15A2

SAMPLE ID	DATE	RESULT
0224D013	6/12/2002	790 µg/L
0104L016	2/1/2001	730 µg/L
RU6-IR25MW15A2-257	2/1/2001	410 µg/L
RU6-IR25MW15A2-211	1/31/2001	200 µg/L
RU6-IR25MW15A2-212	1/31/2001	480 µg/L
RU6-IR25MW15A2-213	1/31/2001	460 µg/L
RU6-IR25MW15A2-144	1/11/2001	920 µg/L
0034L013	8/16/2000	880 µg/L
9805A204	2/5/1998	280 µg/L

IR25MW19A

SAMPLE ID	DATE	RESULT
0110T011	3/14/2001	4000 µg/L
RU6-IR25MW19A-254	2/5/2001	1900 µg/L
RU6-IR23MW19A-182	1/22/2001	13000 µg/L
9805A133	1/29/1998	15000 µg/L

IR25MW902B

SAMPLE ID	DATE	RESULT
RU6-IR25MW902B-250	2/1/2001	2400 µg/L
RU6-IR25MW902B-215	1/31/2001	3800 µg/L
RU6-IR25MW902B-216	1/31/2001	2300 µg/L
RU6-IR25MW902B-217	1/31/2001	4200 µg/L
RU6-IR25MW902B-218	1/31/2001	6300 µg/L
RU6-IR25MW902B-156	1/16/2001	3300 µg/L

IR25MW900B

IR25MW900B

SAMPLE ID	DATE	RESULT
RU6-IR25MW900B-248	2/1/2001	840 µg/L
RU6-IR25MW900B-139	1/11/2001	1300 µg/L

IR25MW901B

IR25MW901B

SAMPLE ID	DATE	RESULT
0231H006	8/2/2002	1100 µg/L
0231H005	8/1/2002	1400 µg/L
0231H003	8/1/2002	1400 µg/L
0231H002	7/31/2002	1700 µg/L
RU6-IR25MW901B-249	2/1/2001	740 µg/L
RU6-IR25MW901B-140	1/11/2001	520 µg/L

40 0 40

Scale in Feet

RU-C2 INSET

IR28MW911A

SAMPLE ID	DATE	RESULT
RU5-IR58MW911-332	2/12/2001	250 µg/L
RU5-IR58MW911-303	2/8/2001	70 µg/L
RU5-IR58MW911-304	2/8/2001	75 µg/L
RU5-IR28MW911-198	1/25/2001	190 µg/L

IR28MW909A

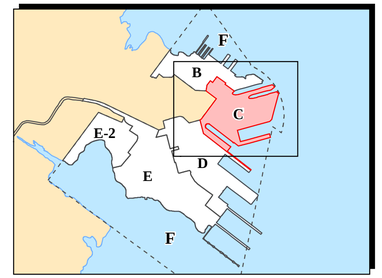
SAMPLE ID	DATE	RESULT
RU5-IR58MW909-329	2/12/2001	370 µg/L
RU5-IR58MW909-298	2/8/2001	150 µg/L
RU5-IR58MW909-299	2/8/2001	940 µg/L
RU5-IR58MW909-300	2/8/2001	150 µg/L
RU5-IR58MW909-193	1/24/2001	460 µg/L

IR58MW31A

SAMPLE ID	DATE	RESULT
0446J016	11/22/2004	200 µg/L
0437C036	9/15/2004	360 µg/L
0424O017	6/7/2004	150 µg/L
0233D010	8/15/2002	210 µg/L
0107T012	2/22/2001	51 µg/L
RU5-IR58MW31A-339	2/15/2001	360 µg/L
RU5-IR58MW31A-194	1/24/2001	170 µg/L
0033J007	8/11/2000	630 µg/L
9804A106	1/23/1998	760 µg/L

30 0 30

Scale in Feet



Location Map

Monitoring Well Types

- U Active A-Aquifer Monitoring Well
- D Active A/B-Aquifer Monitoring Well
- ! A-Aquifer Piezometer
- D̶ Decommissioned A-Aquifer Well
- D̶ Decommissioned A/B-Aquifer Well
-) Active B-Aquifer Monitoring Well
- * Active F-WBZ Monitoring Well

Color-Coding for 1,4-Dichlorobenzene Results

- " Detected Result Exceeding Surface Water Quality Criterion
- " Result Not Exceeding Surface Water Quality Criterion
- " Undetected Result
- " Well Not Analyzed
- Approximate Area of Concern for 1,4-Dichlorobenzene
- Potential Source Area
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- RU Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Surface water quality criterion for 1,4-Dichlorobenzene is 129 µg/L.

µg/L	Microgram per liter
F-WBZ	Bedrock water-bearing zone
ND	Result not detected at the associated reporting limit
RU	Remedial unit

N

150 0 150 300 450

Scale in Feet

SulTech

Hunters Point Shipyard, San Francisco, California

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

FIGURE G-4

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERION FOR 1,4-DICHLOROBENZENE IN THE A-AQUIFER

Feasibility Study Report for Parcel C

PARCEL B

PARCEL C

PARCEL D

SEE RU-C5 INSET FOR DETAIL OF THIS AREA

SEE RU-C2 INSET FOR DETAIL OF THIS AREA

SEE RU-C4 INSET FOR DETAIL OF THIS AREA

RU-C5

RU-C2

RU-C1

RU-C4

DRY DOCK 3

DRY DOCK 2

DRY DOCK 4

BERTH 57

BERTH 56

BERTH 55

BERTH 1

BERTH 2

BERTH 3

BERTH 4

BERTH 5

BERTH 6

BERTH 7

BERTH 8

BERTH 9

BERTH 10

San Francisco Bay

RU-C5 INSET

IR25MW18A

SAMPLE ID	DATE	RESULT
0224E011	6/13/2002	1400 µg/L
0110T008	3/13/2001	4400 µg/L
RU6-IR25MW18A-255	2/1/2001	310 µg/L
RU6-IR25MW18A-171	1/18/2001	2000 µg/L
9805A131	1/29/1998	15000 µg/L

IR25MW15A1

SAMPLE ID	DATE	RESULT
0233E005	8/13/2002	24000 µg/L
0104L017	2/1/2001	22000 µg/L
RU6-IR25MW15A1-256	2/1/2001	14000 µg/L
RU6-IR25MW15A1-209	1/31/2001	13000 µg/L
RU6-IR25MW15A1-210	1/31/2001	2900 µg/L
RU6-IR25MW15A1-138	1/11/2001	32000 µg/L
0034L016	8/17/2000	37000 µg/L
9806A203	2/5/1998	39000 µg/L
4424E014	6/13/1994	37000 µg/L

IR25MW15A2

SAMPLE ID	DATE	RESULT
0224D013	6/12/2002	3300 µg/L
0104L016	2/1/2001	3600 µg/L
RU6-IR25MW15A2-257	2/1/2001	2000 µg/L
RU6-IR25MW15A2-211	1/31/2001	710 µg/L
RU6-IR25MW15A2-212	1/31/2001	2400 µg/L
RU6-IR25MW15A2-213	1/31/2001	2400 µg/L
RU6-IR25MW15A2-144	1/11/2001	4300 µg/L
0034L013	8/16/2000	4000 µg/L
9806A204	2/5/1998	2800 µg/L J

IR25MW903B

SAMPLE ID	DATE	RESULT
RU6-IR25MW903B-251	2/1/2001	2500 µg/L
RU6-IR25MW903B-237	1/31/2001	1400 µg/L
RU6-IR25MW903B-238	1/31/2001	1800 µg/L
RU6-IR25MW903B-145	1/11/2001	3000 µg/L

IR25MW19A

SAMPLE ID	DATE	RESULT
0110T011	3/14/2001	21000 µg/L
RU6-IR25MW19A-254	2/5/2001	11000 µg/L
RU6-IR25MW19A-182	1/22/2001	59000 µg/L
9805A132	1/29/1998	59000 µg/L

IR25MW902B

SAMPLE ID	DATE	RESULT
RU6-IR25MW902B-250	2/1/2001	12000 µg/L
RU6-IR25MW902B-215	1/31/2001	20000 µg/L
RU6-IR25MW902B-216	1/31/2001	13000 µg/L
RU6-IR25MW902B-217	1/31/2001	24000 µg/L
RU6-IR25MW902B-218	1/31/2001	35000 µg/L
RU6-IR25MW902B-156	1/16/2001	17000 µg/L

IR25MW900B

SAMPLE ID	DATE	RESULT
RU6-IR25MW900B-248	2/1/2001	4000 µg/L
RU6-IR25MW900B-139	1/11/2001	6800 µg/L

IR25MW901B

SAMPLE ID	DATE	RESULT
0231H006	8/2/2002	4600 µg/L
0231H005	8/1/2002	6500 µg/L
0231H003	8/1/2002	5800 µg/L
0231H002	7/31/2002	6800 µg/L
RU6-IR25MW901B-249	2/1/2001	4100 µg/L
RU6-IR25MW901B-140	1/11/2001	2800 µg/L

40 0 40

Scale in Feet

RU-C2 INSET

IR28MW911A

SAMPLE ID	DATE	RESULT
RU5-IR58MW911-332	2/12/2001	190 µg/L
RU5-IR58MW911-303	2/8/2001	92 µg/L
RU5-IR58MW911-304	2/8/2001	93 µg/L
RU5-IR28MW911-198	1/25/2001	170 µg/L

IR28MW909A

SAMPLE ID	DATE	RESULT
RU5-IR58MW909-329	2/12/2001	380 µg/L
RU5-IR58MW909-298	2/8/2001	180 µg/L
RU5-IR58MW909-299	2/8/2001	1100 µg/L
RU5-IR58MW909-300	2/8/2001	190 µg/L
RU5-IR58MW909-193	1/24/2001	530 µg/L

IR28MW913A

SAMPLE ID	DATE	RESULT
RU5-IR58MW913-335	2/12/2001	87 µg/L
RU5-IR58MW913-308	2/8/2001	0.56 µg/L
RU5-IR58MW913-307	2/8/2001	35 µg/L
RU5-IR28MW913-197	1/25/2001	130 µg/L

IR58MW35A

SAMPLE ID	DATE	RESULT
0228H006	7/11/2002	160 µg/L
0228H005	7/11/2002	150 µg/L
0228H003	7/11/2002	150 µg/L
0228H002	7/10/2002	160 µg/L

IR58MW31A

SAMPLE ID	DATE	RESULT
0448J016	11/22/2004	140 µg/L
0437C036	9/10/2004	270 µg/L
0424G017	6/7/2004	190 µg/L
0233D010	8/15/2002	450 µg/L
0107T012	2/22/2001	160 µg/L
RU5-IR58MW31A-339	2/15/2001	1300 µg/L
RU5-IR58MW31A-194	1/24/2001	630 µg/L
0033J007	8/11/2000	2700 µg/L
9804A106	1/23/1998	3300 µg/L

30 0 30

Scale in Feet

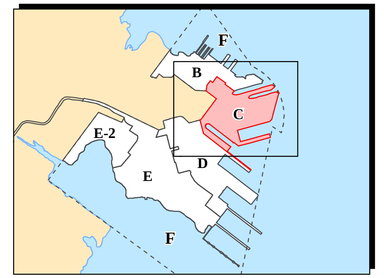
RU-C4 INSET

IR28MW407

SAMPLE ID	DATE	RESULT
0449J037	12/2/2004	92 µg/L
0437J003	9/7/2004	200 µg/L
0423T014	6/4/2004	190 µg/L

50 0 50

Scale in Feet



Location Map

Monitoring Well Types

- U Active A-Aquifer Monitoring Well
- D Active A/B-Aquifer Monitoring Well
- ! A-Aquifer Piezometer
- D Decommissioned A-Aquifer Well
- D Decommissioned A/B-Aquifer Well
-) Active B-Aquifer Monitoring Well
- * Active F-WBZ Monitoring Well

Color-Coding for 1,2-Dichlorobenzene Results

- " Detected Result Exceeding Surface Water Quality Criterion
- " Result Not Exceeding Surface Water Quality Criterion
- " Undetected Result
- " Well Not Analyzed
- Approximate Area of Concern for 1,2-Dichlorobenzene
- Potential Source Area
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- RU Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Surface water quality criterion for 1,2-Dichlorobenzene is 129 µg/L.

µg/L	Microgram per liter
F-WBZ	Bedrock water-bearing zone
J	Estimated concentration
RU	Remedial unit

150 0 150 300 450

Scale in Feet

SulTech

Hunters Point Shipyard, San Francisco, California

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

FIGURE G-5

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERION FOR 1,2-DICHLOROBENZENE IN THE A-AQUIFER

Feasibility Study Report for Parcel C

2008-07-16
V:\Hunters_Point\Projects\Parcel_C\FS_2005\Nature and Extent\Groundwater\GW_Results\VOC's\1_2_Dichlorobenzene_szD.mxd TtEMI-SF Kevin Ernst

RU-C5 INSET

IR25MW18A

SAMPLE ID	DATE	RESULT
0224E011	6/13/2002	540 µg/L
011070I8	3/13/2001	1400 µg/L
RU6-IR25MW18A-255	2/1/2001	160 µg/L
RU6-IR25MW18A-171	1/18/2001	760 µg/L
9805A131	1/29/1998	7300 µg/L J

IR25MW15A1

SAMPLE ID	DATE	RESULT
0233E005	8/13/2002	20000 µg/L

IR25MW903B

SAMPLE ID	DATE	RESULT
RU6-IR25MW903B-251	2/1/2001	1400 µg/L
RU6-IR25MW903B-237	1/31/2001	540 µg/L
RU6-IR25MW903B-238	1/31/2001	600 µg/L
RU6-IR25MW903B-145	1/11/2001	2300 µg/L

IR25MW15A2

SAMPLE ID	DATE	RESULT
0224D013	6/12/2002	760 µg/L
0104L016	2/1/2001	1200 µg/L
RU6-IR25MW15A2-257	2/1/2001	710 µg/L
RU6-IR25MW15A2-211	1/31/2001	540 µg/L
RU6-IR25MW15A2-212	1/31/2001	510 µg/L
RU6-IR25MW15A2-213	1/31/2001	470 µg/L
RU6-IR25MW15A2-144	1/11/2001	1600 µg/L
0034L013	8/16/2000	1800 µg/L
9806A204	2/5/1998	130 µg/L
9540H754	10/5/1995	220 µg/L

IR25MW19A

SAMPLE ID	DATE	RESULT
011070I1	3/14/2001	17000 µg/L
RU6-IR25MW19A-254	2/5/2001	5000 µg/L
RU6-IR25MW19A-182	1/22/2001	72000 µg/L
9805A132	1/29/1998	72000 µg/L J

IR25MW902B

SAMPLE ID	DATE	RESULT
RU6-IR25MW902B-250	2/1/2001	13000 µg/L
RU6-IR25MW902B-215	1/31/2001	28000 µg/L
RU6-IR25MW902B-216	1/31/2001	14000 µg/L
RU6-IR25MW902B-217	1/31/2001	32000 µg/L
RU6-IR25MW902B-218	1/31/2001	36000 µg/L
RU6-IR25MW902B-156	1/16/2001	15000 µg/L

IR25MW901B

SAMPLE ID	DATE	RESULT
0231H006	8/2/2002	3500 µg/L
0231H005	8/1/2002	4200 µg/L
0231H003	8/1/2002	4800 µg/L
0231H002	7/31/2002	5400 µg/L
RU6-IR25MW901B-249	2/1/2001	3400 µg/L
RU6-IR25MW901B-140	1/11/2001	2400 µg/L

IR25MW900B

SAMPLE ID	DATE	RESULT
RU6-IR25MW900B-248	2/1/2001	5300 µg/L
RU6-IR25MW900B-139	1/11/2001	6300 µg/L

40 U 0 40

Scale in Feet

SEE RU-C5 INSET FOR DETAIL OF THIS AREA

PARCEL B

PARCEL C

PARCEL D

RU-C5

RU-C1

RU-C2

RU-C4

San Francisco Bay

DRY DOCK 2

DRY DOCK 3

DRY DOCK 4

BERTH 1

BERTH 2

BERTH 3

BERTH 4

BERTH 5

BERTH 6

BERTH 7

BERTH 8

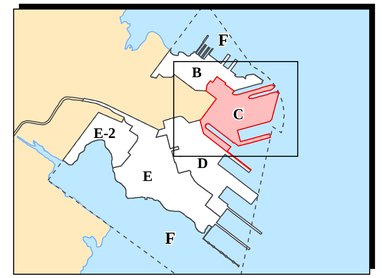
BERTH 9

BERTH 10

BERTH 55

BERTH 56

BERTH 57



Location Map

Monitoring Well Types

- U Active A-Aquifer Monitoring Well
- D Active A/B-Aquifer Monitoring Well
- ! A-Aquifer Piezometer
- D Decommissioned A-Aquifer Well
- D Decommissioned A/B-Aquifer Well
-) Active B-Aquifer Monitoring Well
- * Active F-WBZ Monitoring Well

Color-Coding for Tetrachloroethene Results

- " Detected Result Exceeding Surface Water Quality Criterion
- " Result Not Exceeding Surface Water Quality Criterion
- " Undetected Result
- " Well Not Analyzed
- Approximate Area of Concern for Tetrachloroethene
- Potential Source Area
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- RU Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Surface water quality criterion for Tetrachloroethene is 450 µg/L.

µg/L	Microgram per liter
F-WBZ	Bedrock water-bearing zone
J	Estimated concentration
RU	Remedial unit

150 0 150 300 450

Scale in Feet

SulTech

Hunters Point Shipyard, San Francisco, California

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

FIGURE G-6

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERION FOR TETRACHLOROETHENE IN THE A-AQUIFER

Feasibility Study Report for Parcel C

PARCEL B

PARCEL C

PARCEL D

RU-C5

RU-C1

RU-C2

RU-C4

SEE RU-C5 INSET FOR DETAIL OF THIS AREA

SEE RU-C4 INSET FOR DETAIL OF THIS AREA

San Francisco Bay

DRY DOCK 3

DRY DOCK 2

DRY DOCK 4

BERTH 57

BERTH 56

BERTH 55

BERTH 1

BERTH 2

BERTH 3

BERTH 4

BERTH 5

BERTH 6

BERTH 9

BERTH 10

S-211

Tank

RU-C5 INSET

IR25MW18A		
SAMPLE ID	DATE	RESULT
0224E011	6/13/2002	1500 µg/L
0110T008	3/13/2001	2600 µg/L
RU6-IR25MW18A-255	2/1/2001	890 µg/L
RU6-IR25MW18A-171	1/18/2001	1900 µg/L
9805A131	1/29/1998	9000 µg/L

IR25MW19A		
SAMPLE ID	DATE	RESULT
0110T011	3/14/2001	5700 µg/L
RU6-IR25MW19A-254	2/5/2001	1600 µg/L
RU6-IR25MW19A-182	1/22/2001	18000 µg/L
9805A132	1/29/1998	8900 µg/L

IR25MW902B		
SAMPLE ID	DATE	RESULT
RU6-IR25MW902B-250	2/1/2001	1600 µg/L
RU6-IR25MW902B-215	1/31/2001	4900 µg/L
RU6-IR25MW902B-216	1/31/2001	3000 µg/L
RU6-IR25MW902B-217	1/31/2001	5100 µg/L
RU6-IR25MW902B-218	1/31/2001	5100 µg/L
RU6-IR25MW902B-156	1/16/2001	1400 µg/L

IR25MW901B		
SAMPLE ID	DATE	RESULT
0231H006	8/2/2002	520 µg/L
0231H005	8/1/2002	430 µg/L
0231H003	8/1/2002	810 µg/L
0231H002	7/31/2002	1300 µg/L
RU6-IR25MW901B-249	2/1/2001	1200 µg/L
RU6-IR25MW901B-140	1/11/2001	300 µg/L

IR25MW900B		
SAMPLE ID	DATE	RESULT
RU6-IR25MW900B-248	2/1/2001	1150 µg/L
RU6-IR25MW900B-139	1/11/2001	480 µg/L

IR25MW15A1		
SAMPLE ID	DATE	RESULT
0233E005	8/13/2002	2700 µg/L
0104L017	2/1/2001	5000 µg/L
RU6-IR25MW15A1-256	2/1/2001	3700 µg/L
RU6-IR25MW15A1-209	1/31/2001	3700 µg/L
RU6-IR25MW15A1-210	1/31/2001	1200 µg/L
RU6-IR25MW15A1-138	1/11/2001	5300 µg/L
0034L016	8/17/2000	4200 µg/L
9806A203	2/5/1998	10000 µg/L
9540H750	10/5/1995	10000 µg/L
9540H752	10/5/1995	7200 µg/L

IR25MW15A2		
SAMPLE ID	DATE	RESULT
0224D013	6/12/2002	710 µg/L
0104L016	2/1/2001	1100 µg/L
RU6-IR25MW15A2-257	2/1/2001	750 µg/L
RU6-IR25MW15A2-211	1/31/2001	670 µg/L
RU6-IR25MW15A2-212	1/31/2001	1500 µg/L
RU6-IR25MW15A2-213	1/31/2001	1600 µg/L
RU6-IR25MW15A2-144	1/11/2001	850 µg/L
0034L013	8/16/2000	920 µg/L
9806A204	2/5/1998	220 µg/L
9540H754	10/5/1995	98 µg/L

40 0 40

Scale in Feet

IR25MW16A		
SAMPLE ID	DATE	RESULT
0449G047	12/3/2004	120 µg/L J
0438B041	9/14/2004	11 µg/L
0424M004	6/9/2004	510 µg/L J
0233E002	8/12/2002	150 µg/L
0108T021	2/26/2001	6 µg/L
0034J018	8/17/2000	20 µg/L
9522X455	6/1/1995	66 µg/L
9433K017	8/18/1994	86 µg/L
9422X351	6/1/1994	5 µg/L

IR28MW151A		
SAMPLE ID	DATE	RESULT
0450P038	12/6/2004	55 µg/L J
0438T013	9/15/2004	24 µg/L
0225R002	6/19/2002	360 µg/L
0203D013	1/17/2002	1400 µg/L
0135D003	8/27/2001	13 µg/L
RU2-IR28MW151A-321	2/8/2001	470 µg/L
0105R012	2/8/2001	310 µg/L
RU2-IR28MW151A-288	2/6/2001	98 µg/L
RU2-IR28MW151A-289	2/6/2001	240 µg/L
RU2-IR28MW151A-290	2/6/2001	140 µg/L

RU-C4 INSET

50 0 50 100

Scale in Feet

IR28MW407		
SAMPLE ID	DATE	RESULT
0449J037	12/2/2004	23 µg/L
0437J003	9/7/2004	77 µg/L
0423T014	6/4/2004	110 µg/L
0336C005	9/2/2003	4300 µg/L

IR28MW409		
SAMPLE ID	DATE	RESULT
0336C017	9/4/2003	1000 µg/L

IR28MW408		
SAMPLE ID	DATE	RESULT
0336M015	9/4/2003	570 µg/L

IR28MW342F		
SAMPLE ID	DATE	RESULT
0336C015	9/4/2003	20 µg/L
0312H008	3/18/2003	180 µg/L
0306H010	2/5/2003	79 µg/L
0302H019	1/9/2003	47 µg/L
0246H003	11/12/2002	5100 µg/L J
RU4-IR28MW342F-427	4/2/2001	1500 µg/L
RU4-IR28MW342F-428	4/2/2001	1700 µg/L
9806A153	2/3/1998	930 µg/L J

IR28MW211F		
SAMPLE ID	DATE	RESULT
0449G034	12/1/2004	7.7 µg/L
0437G021	9/9/2004	150 µg/L
0423T001	6/1/2004	69 µg/L
0336M018	9/4/2003	1700 µg/L
0312H024	3/21/2003	850 µg/L
0306H025	2/7/2003	730 µg/L
0302H022	1/9/2003	420 µg/L
0246H009	11/13/2002	76000 µg/L
0236D008	7/9/2002	42000 µg/L
RU4-IR28MW211B-482	4/10/2003	44000 µg/L

IR28MW360F		
SAMPLE ID	DATE	RESULT
0336C013	9/4/2003	380 µg/L
0312H020	3/21/2003	630 µg/L
0306H023	2/7/2003	610 µg/L
0302H013	1/8/2003	690 µg/L
0249H009	12/4/2002	7400 µg/L

IR28MW936F		
SAMPLE ID	DATE	RESULT
RU4-IR28MW936-459	4/5/2001	27000 µg/L
RU4-IR28MW936-418	4/2/2001	19000 µg/L
RU4-IR28MW936-419	4/2/2001	17000 µg/L
RU4-IR28MW936-420	4/2/2001	22000 µg/L
RU4-IR28MW936-421	4/2/2001	17000 µg/L
RU4-IR28MW936-375	3/12/2001	15000 µg/L

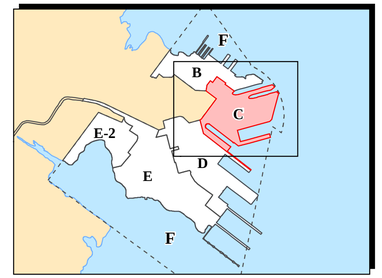
IR28MW934F2		
SAMPLE ID	DATE	RESULT
RU4-IR28MW934F2-467	4/9/2001	730 µg/L
RU4-IR28MW934F-2-354	3/6/2001	630 µg/L

IR28MW934F3		
SAMPLE ID	DATE	RESULT
RU4-IR28MW934F3-468	4/9/2001	450 µg/L
RU4-IR28MW934F-3-355	3/6/2001	450 µg/L

IR28MW933F1		
SAMPLE ID	DATE	RESULT
0336M019	9/4/2003	120 µg/L
RU4IR28MW933F1474	4/10/2001	2100 µg/L
RU4-IR28MW933F-1-363	3/7/2001	1800 µg/L

IR28MW937F		
SAMPLE ID	DATE	RESULT
RU4-IR28MW937-455	4/5/2001	2200 µg/L
RU4-IR28MW937-456	4/5/2001	2300 µg/L
RU4-IR28MW937-422	4/2/2001	2300 µg/L
RU4-IR28MW937-423	4/2/2001	30000 µg/L
RU4-IR28MW937-424	4/2/2001	2000 µg/L
RU4-IR28MW937-374	3/12/2001	1300 µg/L
RU4-IR28MW937-379	3/12/2001	1500 µg/L

IR28MW341F		
SAMPLE ID	DATE	RESULT
0336C016	9/4/2003	220 µg/L
0312H012	3/19/2003	160 µg/L
0306H019	2/6/2003	160 µg/L J
0302H023	1/9/2003	100 µg/L
0246H008	11/13/2002	41000 µg/L J
RU4-IR28MW341F-480	4/10/2001	40000 µg/L
RU4-IR28MW341F-425	4/2/2001	20000 µg/L
RU4-IR28MW341F-426	4/2/2001	16000 µg/L
RU4-IR28MW341F-373	3/12/2001	41000 µg/L
9806A152	2/3/1998	2900 µg/L J



Location Map

Monitoring Well Types

- U Active A-Aquifer Monitoring Well
- D Active A/B-Aquifer Monitoring Well
- I A-Aquifer Piezometer
- D Decommissioned A-Aquifer Well
- D Decommissioned A/B-Aquifer Well
-) Active B-Aquifer Monitoring Well
- * Active F-WBZ Monitoring Well

Color-Coding for Trichloroethene Results

- " Detected Result Exceeding Surface Water Quality Criterion
- " Result Not Exceeding Surface Water Quality Criterion
- " Undetected Result
- " Well Not Analyzed
- Area of Concern for Trichloroethene
- Potential Source Area
- Former Abovegound Storage Tank
- Former Underground Storage Tank
- RU Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Surface water quality criterion for Trichloroethene is 400 µg/L.

µg/L	Microgram per liter
F-WBZ	Bedrock water-bearing zone
J	Estimated concentration
RU	Remedial unit

150 0 150 300 450

Scale in Feet

SulTech

Hunters Point Shipyard, San Francisco, California

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

FIGURE G-7

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERION FOR TRICHLORETHENE IN THE A-AQUIFER

Feasibility Study Report for Parcel C

RU-C5 INSET

IR25MW15A1

DATE	TPH (Diesel)	TPH (Gasoline)	TPH (Motor Oil)	Total TPH
2/1/2001	12000	7100	1000 ND	19100
2/1/2001	18000	120000	1000 ND	138000
1/11/2001	29000	13000	1000 ND	42000
8/17/2000	17000	30000	1000 ND	47000
5/6/1999	15000	33000	1000 ND	48000
5/26/1995	130000	150000	7100 J	287100
8/11/1994	110000	180000	10000 ND	290000
6/14/1994	37000		2000 ND	37000
6/13/1994		90000		90000

IR25MW19A

DATE	TPH (Diesel)	TPH (Gasoline)	TPH (Motor Oil)	Total TPH
3/15/2001	770000		200000	970000
3/14/2001		24000		24000
2/5/2001	91000	45000	2300	138300
1/23/2001	130000		2700	132700
1/22/2001		84000		84000

IR25MW902B

DATE	TPH (Diesel)	TPH (Gasoline)	TPH (Motor Oil)	Total TPH
2/1/2001	27000	23000	2500 ND	50000
1/16/2001	27000	23000	1000 ND	50000

IR25MW11A

DATE	TPH (Diesel)	TPH (Gasoline)	TPH (Motor Oil)	Total TPH
8/24/2000	54000	80	500	54580
4/27/1999	21000	400	2000	23400
6/7/1995	250000 J	13000 ND	17000 J	267000
8/18/1994	3400000	25000 ND	200000 ND	3400000
12/28/1993	480000	1500		481500
12/28/1993	490000	1300000		1790000

IR25MW22A

DATE	TPH (Diesel)	TPH (Gasoline)	TPH (Motor Oil)	Total TPH
1/31/2001	22000	37	500 ND	22037
1/18/2001		67		67
1/17/2001	78000		1300	79300

40 0 40

Scale in Feet

SEE RU-C5 INSET FOR DETAIL OF THIS AREA

IR28MW269A

DATE	TPH (Diesel)	TPH (Gasoline)	TPH (Motor Oil)	Total TPH
2/26/2001	100 ND	50 ND	100 ND	0 ND
8/22/2000	100 ND	50 ND	100 ND	0 ND
4/29/1999	100 ND	50 ND	100 ND	0 ND
5/8/1996	1500	270	300	2070
2/28/1996	380	50	190	620
2/28/1996	500	56	200	756
11/9/1995	490	50 ND	160	650

DATE	TPH (Diesel)	TPH (Gasoline)	TPH (Motor Oil)	Total TPH
11/29/1995	10000	300	12000	22300
6/27/1995	4000	490	9000	13490
5/31/1994	4800	76 ND	5000	9800

PARCEL B

PARCEL C

PARCEL D

RU-C5

RU-C1

RU-C2

RU-C4

San Francisco Bay

DRY DOCK 2

DRY DOCK 3

DRY DOCK 4

BERTH 1

BERTH 2

BERTH 3

BERTH 4

BERTH 5

BERTH 6

BERTH 7

BERTH 8

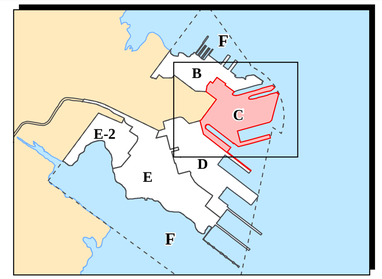
BERTH 9

BERTH 10

BERTH 55

BERTH 56

BERTH 57



Location Map

Monitoring Well Types

- U Active A-Aquifer Monitoring Well
- D Active A/B-Aquifer Monitoring Well
- ! A-Aquifer Piezometer
- D Decommissioned A-Aquifer Well
- D Decommissioned A/B-Aquifer Well
-) Active B-Aquifer Monitoring Well
- * Active F-WBZ Monitoring Well

Color-Coding for Total TPH Results

- " Detected Result Exceeding Surface Water Quality Criterion
- " Result Not Exceeding Surface Water Quality Criterion
- " Undetected Result
- " Well Not Analyzed
- Approximate Area of Concern for Total TPH
- Potential Source Area
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- RU Boundary
- Parcel C Boundary
- Other Parcels
- Non-Navy Property
- Building
- Road
- Rail Line

Notes:

Historical analytical results are only shown for sampling locations with one or more exceedances of surface water quality criteria.

Total TPH Screening Criteria

Distance from Shoreline	TTPH Concentration
< 50 feet	1,400 µg/L
50 to 100 feet	2,100 µg/L
100 to 150 feet	4,800 µg/L
150 to 200 feet	9,500 µg/L
200 to 250 feet	16,000 µg/L
>250 feet	20,000 µg/L

µg/L	Microgram per liter
J	Estimated concentration
ND	Result not detected at the associated reporting limit
RU	Remedial unit
TPH	Total petroleum hydrocarbons
TTPH	Total TPH

N

150 0 150 300 450

Scale in Feet

SulTech

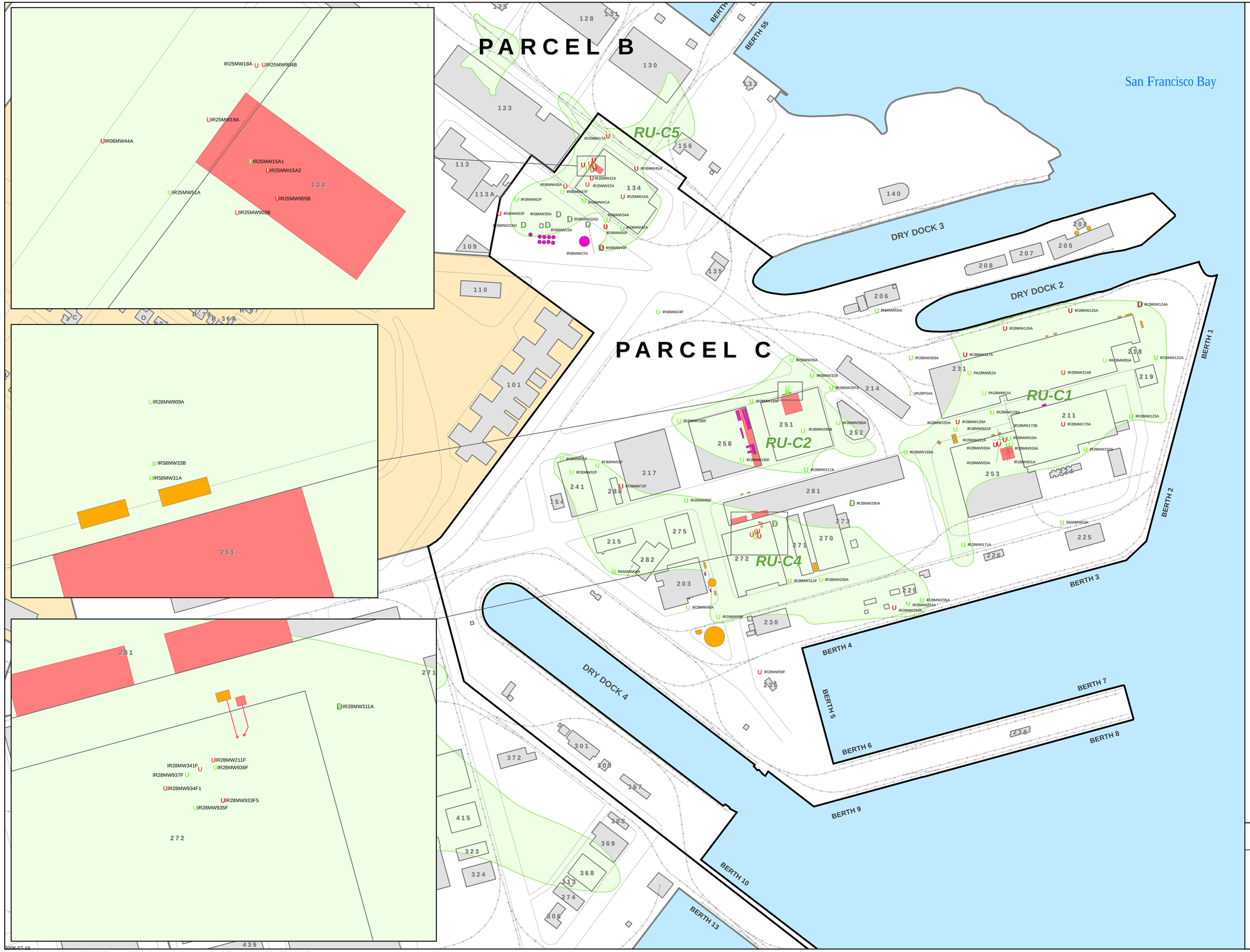
Hunters Point Shipyard, San Francisco, California

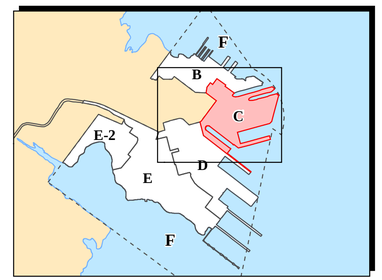
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE G-8

GROUNDWATER EXCEEDANCES OF SURFACE WATER QUALITY CRITERIA FOR TOTAL TPH IN THE A-AQUIFER

Feasibility Study Report for Parcel C





Location Map

Color Coding for Metals Results

- " At Least One Historical Detection (through 2004) Exceeding Surface Water Criterion or HGAL (see notes)
- " No Historical Detections Exceeding Surface Water Criterion or HGAL

Monitoring Well Types

- U A-Aquifer Monitoring Well Active
- D A/B-Aquifer Monitoring Well Active
- D A-Aquifer Well, Decommissioned
- D A/B-Aquifer Well Decommissioned

- Remedial Unit (RU) Boundary
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- Parcel C Boundary
- Potential Source Area
- Building
- Other Parcels
- Non-Navy Property
- Road
- Rail Line

Notes:

This figure shows the monitoring well locations (in red) where historical detections (through 2004) of metals above surface water criteria have been observed. Surface water criteria are listed in Table G-1. Where HGALs exceed surface water criteria for copper, lead, mercury, nickel, silver, zinc, HGALs are used as screening criteria.

N

150 0 150 300 450

Scale in Feet

SulTech

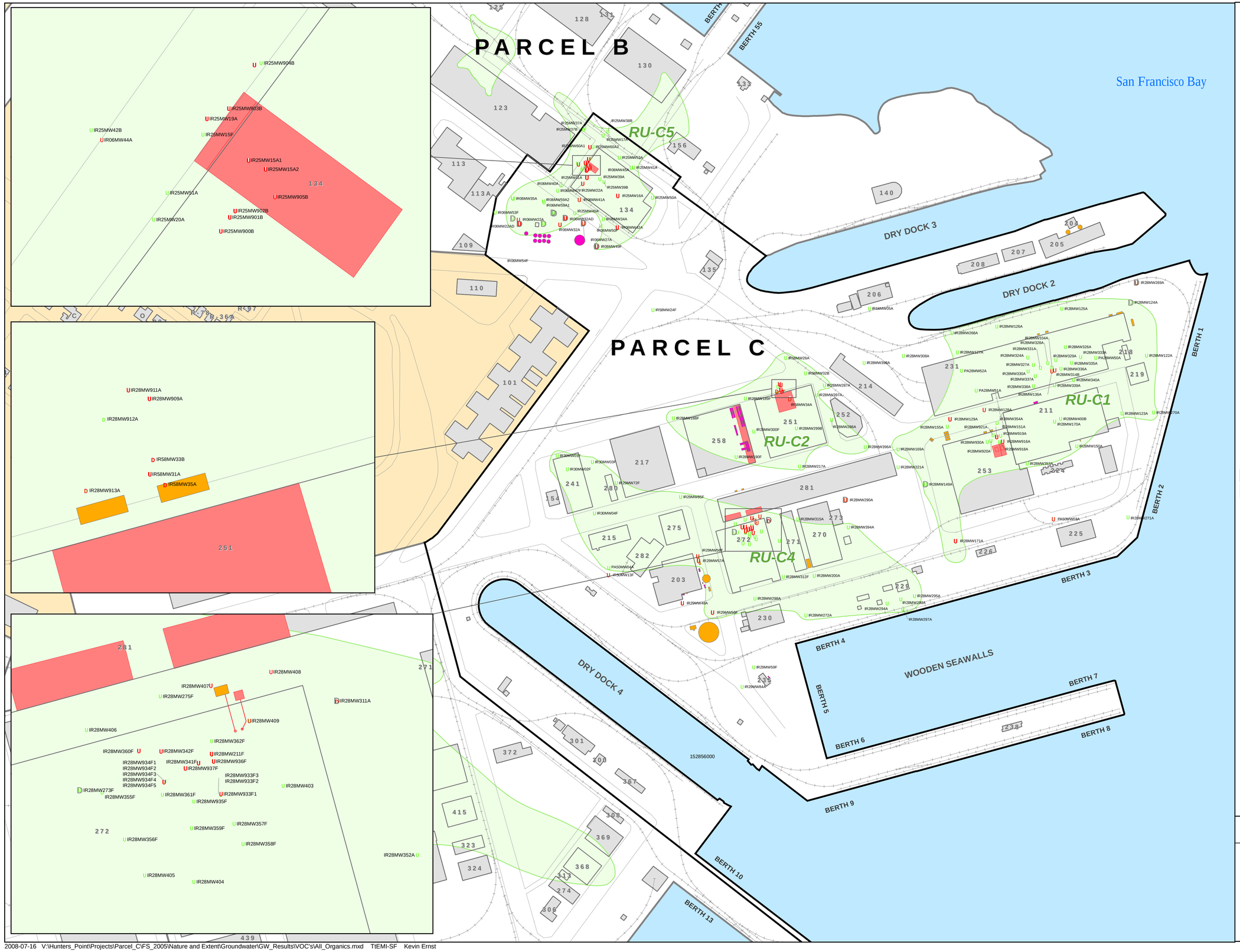
Hunters Point Shipyard, San Francisco, California

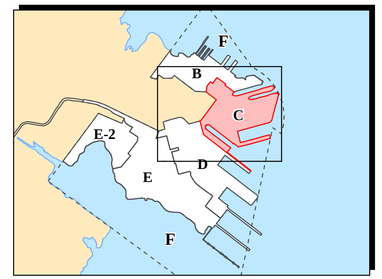
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE G-9
LOCATIONS OF GROUNDWATER EXCEEDANCES OF SURFACE WATER OR HGAL CRITERIA FOR METALS IN THE A-AQUIFER

Feasibility Study Report for Parcel C

2009-07-16
V:\Hunters_Point\Projects\Parcel_CIFS_2005\Nature and Extent\Groundwater\GW_Results\Metals\All_Metals.mxd TtEMI-SF Kevin Ernst





Location Map

Color Coding for Organic Chemicals Results

- At Least One Historical Detection (through 2004) Exceeding Surface Water Criterion
- No Historical Detections Exceeding Surface Water Criterion

Monitoring Well Types

- A-Aquifer Monitoring Well Active
- A/B-Aquifer Monitoring Well Active
- A-Aquifer Piezometer
- A-Aquifer Well Decommissioned
- A/B-Aquifer Well Decommissioned
- B-Aquifer Monitoring Well
- F-WBZ Monitoring Well

- Remedial Unit (RU) Boundary
- Former Aboveground Storage Tank
- Former Underground Storage Tank
- Potential Source Area
- Parcel C Boundary
- Other Parcels
- Building
- Non-Navy Property
- Road
- Rail Line

Notes:

This figure shows the monitoring well locations (in red) where historical detections (through 2004) of organic chemicals above surface water crtieria have been observed. Surface water criteria are listed in Table G-1.

F-WBZ Bedrock water-bearing zone
RU Remedial Unit

N

150 0 150 300 450
Scale in Feet

SulTech

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

FIGURE G-10
LOCATIONS OF GROUNDWATER EXCEEDANCES OF SURFACE WATER CRITERIA FOR ORGANIC CHEMICALS IN THE A-AQUIFER

Feasibility Study Report for Parcel C

2008-07-16 V:\Hunters_Point\Projects\Parcel_C\FS_2005\Nature and Extent\Groundwater\GW_Results\VOC's\All_Organics.mxd TtEMI-SF Kevin Ernst

TABLES

TABLE G-1: SURFACE WATER QUALITY CRITERIA FOR THE SAN FRANCISCO BAY
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Chemical	Pseudonym	San Francisco Bay Basin Plan[a] (µg/L)		California Toxics Rule Criteria for Enclosed Bays and Estuaries[e] (µg/L)								National Recommended Water Quality Criteria[k] (µg/L)					National Ambient Water Quality Criteria (AWQC) for Protection of Saltwater Aquatic Life[i] (µg/L)						Other Criteria (footnotes indicate source) (µg/L)		Selected Water Quality Criteria (µg/L)
				Chronic[g]		Acute[g]			Instantaneous Maximum			Saltwater Aquatic Life					Lowest Observed Effect Level (LOEL)								
												Chronic[g]		Acute[g]			Chronic[h]		Acute[i]			Other[j]			
		Concentration	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	10% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Other	Footnotes	
1,1,1-Trichloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	31,200	6,240	--	--	--	--	--	6,240
1,1,2,2-Tetrachloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9,020	1,804	--	--	--	--	--	1804
1,1-Dichloroethene	1,1-Dichloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44800	(27)	--	--	--	--	44,800
1,2,4,5-Tetrachlorobenzene		--	--	--	--	--	--	--	--	--	--						--	--	250	50	(22)	50	(22.23)	--	--	50
1,2,4-Trichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
1,2-Dichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)	--	--	--	--	129
1,2-Dichloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	113,000	22,600	--	--	--	--	--	22,600
1,2-Dichloroethene (total)	1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
1,2-Dichloropropane	Propylene dichloride	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,040	(28)	10,300	--	(28)			--	--	3,040
1,3-Dichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)			--	--	129
1,3-Dichloropropene (total)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	790	158	(29)	--	--	--	--	158
1,4-Dichlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	1,970	--	(24)	--	--	--	--	129
2,4-Dinitrophenol		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	230	46	(88)	150	(38,88)	--	--	46
2,4-Dinitrotoluene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	(53)	370	(53, 82)	--	--	118
2,6-Dinitrotoluene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	(53)	370	(53, 82)	--	--	118
2-Chloronaphthalene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.5	1.5	(48)	--	--	--	--	1.5
2-Nitrophenol	Nitrophenol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
4,4'-DDD	2,4-DDD; DDD	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.6	0.72	--	--	--	--	--	.72
4,4'-DDE	2,4-DDE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	2.8	--	--	--	--	--	2.8
4,4'-DDT		--	--	0.001	(114)	0.13	--	--	--	--	--	0.001	G,aa,ii	0.13	--	G,ii	--	--	--	--	--	--	--	--	--	.001
4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cresol	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
4-Amino-2,6-dinitrotoluene	Dinitrotoluenes; 4-Methyl-3,5-dinitroaniline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	590	118	--	370	(82)	--	--	118
4-Nitrophenol		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4,850	970	(88)	--	--	--	--	970
Acenaphthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	710	--	970	--	--	500	(38)	--	--	710
Acenaphthylene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Aldrin		--	--	--	--	--	--	--	1.3	--	II	--	--	1.3	0.26	G	--	--	--	--	--	--	--	--	--	.26
Alpha-chlordane	Chlordane	--	--	0.004	(114)	--	--	--	0.09	--	--	0.004	G,aa,o	0.09	--	G,o	--	--	--	--	--	--	--	--	--	.004
Anthracene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Aroclor 1016	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1221	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1232	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1242	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1248	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1254	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Aroclor 1260	Polychlorinated biphenyls (PCBs)	--	--	0.03	rr	--	--	--	--	--	--	0.03	N,aa	--	--	--	--	--	10	--	--	--	--	--	--	.03
Arsenic		36	b	36	mm, oo	69	--	mm, oo	--	--	--	36	A,D,bb	69	--	A,D,bb	--	--	2,319	--	(95)	13	(6)	--	--	36
Atrazine		--	--	--	--	--	--	--	--	--	--	11	r,(68)	310	--	r,(68)	--	--	--	--	--	--	--	--	--	11
Benzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,100	--	--	700	--	--	--	700
Benzo(a)anthracene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(a)pyrene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(b)fluoranthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(g,h,i)perylene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Benzo(k)fluoranthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Bromochloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Bromodichloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Bromoform		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Bromomethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Butylbenzylphthalate	n-Butyl benzyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Cadmium		9.3	b	9.3	(1, 142)	42	--	(1, 142)	--	--	--	8.8	D,bb,gg	40	--	D,bb,gg	--	--	--	--	--	--	--	--	--	8.8
Carbon tetrachloride		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	50,000	--	--	11,500	(20, 82)	--	--	6,400
Chlordane				0.004	(114)	--	--	--	0.09	0.009	--	0.004	G,aa	0.09	0.009	G	--	--	--	--	--	--	--	--	--	.004
Chlorobenzene	Monochlorobenzene	--	--	--	--	--		--				--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
Chloroform		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Chloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Chromium (total)		50 (VI)	b,o	50 (VI)	o	1100 (VI)	--	--	--	--	--	50 (VI)	D,bb,o	1100 (VI)	--	D,bb,o	--	--	--	--	--	--	--	400	s	400

TABLE G-1: SURFACE WATER QUALITY CRITERIA FOR THE SAN FRANCISCO BAY (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Chemical	Pseudonym	San Francisco Bay Basin Plan[a] (µg/L)		California Toxics Rule Criteria for Enclosed Bays and Estuaries[e] (µg/L)								National Recommended Water Quality Criteria[k] (µg/L)					National Ambient Water Quality Criteria (AWQC) for Protection of Saltwater Aquatic Life[i] (µg/L)								Other Criteria (footnotes indicate source) (µg/L)		Selected Water Quality Criteria (µg/L)
				Chronic[g]		Acute[g]			Instantaneous Maximum			Saltwater Aquatic Life					Lowest Observed Effect Level (LOEL)										
												Chronic[g]		Acute[g]			Chronic[h]		Acute[i]			Other[j]					
		Concentration	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	10% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Concentration	20% of Concentration[f]	Footnotes	Concentration	Footnotes	Other	Footnotes	
Chrysene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Cis-1,2-dichloroethene	Cis-1,2-dichloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
Copper		4.9	c	3.1	nn, oo	4.8	--	oo	--	--	--	3.1	D,cc,ff	4.8	--	D,cc,ff	--	--	--	--	--	--	--	--	--	3.1
Cyanide		5	c	1	pp	1	--	pp	--	--	--	1	Q,bb	1	--	Q,bb	--	--	--	--	--	--	--			1
Dibenz(a,h)anthracene	1,2:5,6-Dibenzanthracene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Dibromochloromethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 83)	--	--	6,400
Dieldrin		--	--	0.0019	(114), ll	--	--	--	0.71	--	ll	0.0019	G,aa	0.71	.142	G	--	--	--	--	--	--	--	--	--	.142
Diethylphthalate		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Dimethylphthalate		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	--	(45)	3.4	(38, 45)	--	--	3.4
Di-n-butylphthalate	Dibutyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Di-n-octylphthalate	Bis-n-octyl phthalate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,944	588.8	(45)	3.4	(38, 45)	--	--	588.8
Endosulfan I	Endosulfan (alpha)	--	--	0.0087	ll	--	--	--	0.034	--	(115), ll	0.0087	G,Y,o	0.034	--	G,Y,o	--	--	--	--	--	--	--	--	--	0.0087
Endosulfan II	Endosulfan (beta)	--	--	0.0087	ll	--	--	--	0.034	--	(115), ll	0.0087	G,Y,o	0.034	--	G,Y,o	--	--	--	--	--	--	--	--	--	0.0087
Endrin		--	--	0.0023	(114), ll	--	--	--	0.037	--	ll	0.0023	G,aa	0.037	--	G	--	--	--	--	--	--	--	--	--	0.0023
Ethylbenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	430	86	--	--	--	--	--	86
Fluoranthene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	40	--	--	--	--	--	--	16
Fluorene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Gamma-BHC (lindane)	Gamma-Benzene hexachloride	--	--	--	--	--	--	--	0.16	--	ll	--	--	0.16	0.032	G	--	--	--	--	--	--	--	--	--	.032
Gamma-chlordane	Chlordane	--	--	0.004	(114)	--	--	--	0.09	--	--	0.004	G,aa,o	0.09	--	G,o	--	--	--	--	--	--	--	--	--	.004
Heptachlor		--	--	0.0036	(114)	ll	--	--	0.053	--	ll	0.0036	G,aa	0.053	--	G	--	--	--	--	--	--	--	--	--	.0036
Heptachlor epoxide		--	--	0.0036	(114)	ll		--	0.053	--	ll	0.0036	G,V,aa	0.053	--	G,V	--	--	--	--	--	--	--	--	--	.0036
Hexachlorobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	(22)	160	--	(22)	--	--	--	--	129
Hexachlorobutadiene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	32	6.4	--	--	--	--	--	6.4
Hexachlorocyclopentadiene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.0	1.4	--	--	--	--	--	1.4
Hexachloroethane		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	940	188	--	--	--	--	--	188
Indeno(1,2,3-cd)pyrene	Ideno(1,2,3-cd)pyrene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Isophorone		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12,900	2,580	--	--	--	--	--	2,580
Lead		5.6	b	8.1	(1, 142), m	210	--	(1, 142), m	--	--	--	8.1	D,bb	210	--	D,bb	--	--	--	--	--	--	--	--	--	5.6
Mercury	Mercury, inorganic	0.025	b	--	--	--	--	--	--	--	--	0.94	D,ee,hh	1.8	--	D,ee,hh	--	--	--	--	--	--	--	--	--	0.025
Methoxychlor		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.003	(51),f	0.003
Methyl-tert-butyl-ether	butylether	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	p	8,000
Methylene chloride	Dichloromethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,400	(20)	12,000	--	(20)	11,500	(20, 82)	--	--	6,400
Mirex		--	--	--	--	--	--	--	--	--	--	0.001	F	--	--	--	--	--	--	--	--	--	--	--	--	0.001
Naphthalene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,350	470	--	--	--	--	--	470
Nickel		8.3	b	8.2	(2, 142), oo	74	--	(1, 142), oo	--	--	--	8.2	D,bb	74	--	D,bb	--	--	--	--	--	--	--	--	--	8.2
Nitrobenzene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,680	1,336	--	--	--	--	--	1,336
N-Nitroso-di-n-propylamine	propylamine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,300,000	660,000	(56)	--	--	--	--	660,000
N-nitrosodiphenylamine		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,300,000	660,000	(56)	--	--	--	--	660,000
Pentachlorophenol		--	--	7.9	--	13	--	--	--	--	--	7.9	bb	13	--	bb	--	--	--	--	--	--	--	--	--	7.9
Phenanthrene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Phenol		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,800	1,160	--	--	--	--	--	1,160
Pyrene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	60	(52)	--	--	--	--	60
Selenium		--	--	71	(1, 142)	290	--	(1, 142)	--	--	--	71	D,bb,dd	290	--	D,bb,dd	--	--	--	--	--	--	--	--	--	71
Silver		2.3	d	--	--	1.9	0.38	(1, 142)	--	--	--	--	--	1.9	0.38	D,G	--	--	--	--	--	--	--	--	--	0.38
Sulfide	Sulfide-Hydrogen Sulfide	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.2	(51),f	0.2
Tetrachloroethene	Tetrachloroethylene (PCE)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	450	--	10,200	--	--	--	--	--	--	450
Thallium		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,130	426	--	--	--	--	--	426
Toluene		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,000	--	6,300	--	--	--	--	--	--	5,000
Toxaphene		--	--	0.0002	--	0.21	--	--	--	--	--	0.0002	aa	0.21	--	--	--	--	--	--	--	--	--	--	--	0.0002
TPH-Diesel	Diesel range organics; Diesel Fuel; Diesel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400	q	1,400
TPH-Gasoline	Gasoline range organics; Gasoline	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400	q	1,400
TPH-Motor Oil	Motor oil; motor oil range organics	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,400	q	1,400
trans-1,2-Dichloroethene	trans-1,2-Dichloroethylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224,000	44,800	(27)	--	--	--	--	44,800
Trichloroethene	Trichloroethylene (TCE)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,000	400	--	--	--	--	--	400
Zinc		58	c	81	mm, oo	90	--	oo	--	--	--	81	D,bb	90	--	D,bb	--	--	--	--	--	--	--	--	--	81

TABLE G-1: SURFACE WATER QUALITY CRITERIA FOR THE SAN FRANCISCO BAY (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, CA

Notes: **Values shaded are those selected as screening criteria.**
Footnotes and references are detailed below.

--	No criterion available
ug/L	Microgram per liter
BHC	Benzene Hexachloride (Lindane)
DDD	Dichlorodiphenyldichloroethane
DDE	1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene
DDT	1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane
TPH	Total petroleum hydrocarbons

Footnotes:

a	California Environmental Protection Agency, Regional Water Quality Control Board, San Francisco Bay Area Region (Water Board). 1995. "San Francisco Bay Basin Plan Water Quality Control Plan." June 21. Table 3-3 Water Quality Objectives for Toxic Pollutants for Surface Water with Salinities Greater Than 5 Parts Per Billion.
b	From Water Board "Basin Plan" 4-Day Average (Chronic)
c	From Water Board "Basin Plan" 24-Hour and 1-Hour Average (Acute)
d	From Water Board "Basin Plan" Instantaneous Maximum
e	From "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (CTR) (EPA 2000) and "Water Quality Control Plan, San Francisco Bay Basin Region" (Water Board 1995). The most appropriate criteria were used.
f	Criterion made more suitably protective by means of standard convention of lowering acute values by 80 percent and instantaneous values by 90 percent to make them more appropriate for use under chronic exposure scenarios.
g	An acute criterion (EPA identified as Criteria Maximum Concentration [CMC]) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The chronic concentration (EPA identified as Criterion Continuous Concentration [CCC]) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The CMC and CCC are just two if the six parts of an aquatic life criterion; the other four parts are the acute averaging period, chronic averaging period, acute frequency of allowed exceedance, and chronic frequency of allowed exceedance. Because 304(a) aquatic life criteria are national guidance, they are intended to be protective of the vast majority of the aquatic communities in the United States (EPA 2002a).
h	EPA National "AWQC Lowest Observed Effect Level (Chronic)" (Water Board 2000)
i	EPA National "AWQC Lowest Observed Effect Level (Acute)" (Water Board 2000)
j	EPA National "AWQC Lowest Observed Effect Level (Other)" (Water Board 2000)
k	From "National Recommended Water Quality Criteria: 2002" (EPA 2002a) and "Revision of National Recommended Water Quality Criteria." (EPA 2002b), unless otherwise noted.
l	From "Final Technical Memorandum Estimation of Ambient Concentrations of Metals in Groundwater" (Tetra Tech 2001).
m	In instances where criteria from "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (EPA 2000) refer to the "Water Quality Control Plan, San Francisco Bay Basin Region" (Water Board 1995), Water Board 1995 criteria were used. The Water Board 1995 criteria are distinguished by an "m" in the footnote column.
o	Detailed application of this toxicity criterion may require the review and/or summation of analyte isomer, congener, or speciation results, as applicable. Please see applicable regulatory agency source document for additional detail.
p	Water Board 1998
q	Tetra Tech EM Inc. 1999
r	Water Board 2000
s	Value derived in Appendix G; based on EPA "Ambient Water Quality Criteria for Chromium" EPA 440/5-80-035 with adjustment for chronic from acute criterion.

The following lettered footnotes are derived from EPA "National Recommended Water Quality Criteria: 2002" (EPA 2002a), Table 1 - Priority Toxic Pollutants:

A	This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EAP 440/5-84-033, January 1985), Species Mean Acute Values (SMAVs) are given for both arsenic (III) and arsenic (V) for five species, and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.
D	Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and mulitplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are currently unavailable. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria," October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington DC 20460; and 40CFR 131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble - Conversion Factors for Dissolved Metals.
F	The deviation of this value is presented in the Red Book (EPA 440/9-76-023, July 1976).
G	The criterion is based on 304(a) aquatic life criterion issued in 1980 and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), Dichlorodiphenyltrichloroethane (DDT) (EPA 440/5-80-38), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The minimum data requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.
N	This criterion applies to total polychlorinated biphenyls (e.g. the sum of all congener or all isomer or homolog or Aroclor analyses).
Q	This recommended water quality criterion is expressed as mg free cyanide (as CN)/L.
V	This value was derived from data for heptachlor, and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.
Y	This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
aa	This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents : Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 4405-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60 FR 15393-15399, March 23, 1995), the EPA no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the EPA anticipates that future revisions of this CCC will not be based on FRV procedure.
bb	This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227046, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA 882-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene (EPA 440/5-86-006), Zinc (EPA 440/5-87-003).
cc	When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic, and use of Water-Effect Rations might be appropriate.
dd	The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fish in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 mg/L in saltwater because the saltwater CCC does not take into account uptake via the food chain.
ee	This recommended water quality criterion was derived on page 43 of the mercury document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025µg/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60 FR 15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.
ff	This recommended water quality criterion was derived in Ambient Water Quality Criteria Saltwater Copper Addendum (draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule (60 FR 22228-222237, May 4, 1995).
gg	EPA is actively working on this criterion, and so this recommended water quality criterion may change substantially in the near future.
hh	This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury, and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.
ii	This criterion applies to DDT and its metabolites (that is, the total concentration of DDT and its metabolites should not exceed this value).

Notes: (Continued)

The following lettered footnotes are derived from EPA "Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (EPA 2000):

ll This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/ Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptochlor (440/5-80-025), Hexachlorocyclohexane (EPA 440/5/80/054), Silver (EPA 440/5-80-071) (originally footnote g in CTR).

mm Criteria for these metals are expressed as a function of the water-effect ratio (WER) (originally footnote I in the CTR).

nn No criterion for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even though the results of such calculations were not shown in the document.

oo These freshwater and saltwater criteria for metals are expressed in terms of dissolved fraction of the metal in the water column. Criterion values were calculated by using EPA's Clean Water Act 304(a) guidance values (described in the total recoverable fraction) and then applying the conversion factors in 131.36(b)() and (2).

pp These criteria were promulgated for specific waters in California in the National Toxics Rule (NTR). The specific waters to which the NTR criteria apply include Waters of the State defined as bays or estuaries, including the San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This section does not apply instead of the NTR for these criteria.

rr PCBs are a class of chemicals that include Aroclors 1242,1254,1221,1232,1248,1260, and 1016. The aquatic life criteria apply to the sum of this set of seven Aroclors.

The following numbered footnotes are derived from "A Compilation of Water Quality Goals" (Water Board 2000). These footnotes directly correlate with the source document:

1 Expressed as dissolved
2 Expressed as total recoverable
6 Pentavalent arsenic [As(V)] effects on plants
20 For halomethanes
22 For chlorinated benzenes
23 Toxicity to a fish species exposed for 7.5 days
24 For dichlorobenzenes
27 For dichloroethylenes
28 For dichloropropanes
29 For dichloropropenes
38 Toxicity to algae occurs
45 For phthalate esters
48 For chlorinated naphthalenes
51 From U.S. Environmental Protection Agency, *Quality Criteria for Water* (1976) "The Red Book."
52 For polycyclic aromatic hydrocarbons
53 For dinitrotoluenes
56 For nitrosamines
68 Draft/tentative/provisional; applies only to second value if more than one value is listed.
82 A decrease in the number of algal cells occurs.
83 Adverse effects on a fish species exposed for 168 days.
88 For nitrophenols
95 For the pentavalent form
114 Developed as 24-hour average using 1980 EPA guidelines, but applied as 4-day average in the National Toxics Rule and/or Proposed California Toxics Rule.
115 Criterion most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
116 Applies separately to Aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016; based on carcinogenicity at 1-in-a-million risk level.
142 Criteria do not apply to waters subject to water quality objectives in Tables III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's 1986 Basin Plan.
143 These criteria were promulgated for specific California waters in the National Toxics Rule.
144 The ambient level was set at or below the minimum reported detection limit.
145 The ambient concentraton represents the 95th percentile of the distribution. Additionally, the 95th percentile of the distribution was calculated using distribution dependent formulae. For normal and lognormal distributions, the 95th percentile calculation used the parameters of the best-fitted regression line drawn through the detected values on the probability plot. For nonparametric distribution, the analytical formula was used (Gilbert 1987).

References:

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EPA. 2002a. "National Recommended Water Quality Criteria: 2002." EPA-822-R-02-047. November.
EPA. 2002b. "Revision of National Recommended Water Quality Criteria." FRL-OW-7431-3. December 27.

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CHROM	Chromium VI	µg/L	266	26	9.77	NA	50	NA	5	260	IR28MW125A (15-AUG-2000)	86.08	90.55	60.66	NA	0.65	NA	50	17 / 266	COEC
METAL	Aluminum	µg/L	335	37	11.04	NA	NA	NA	15.7	26,300	IR28MW294A (17-NOV-1995)	1,085	82.8	4,284	NA	NA	NA	NA	NA	-
METAL	Antimony	µg/L	332	37	11.14	43.26	NA	NA	0.21	40.1	IR06MW44A (07-JAN-1992)	9.54	5.4	10.13	0.00	NA	NA	43.26	0 / 332	-
METAL	Arsenic	µg/L	403	166	41.19	27.34	36	NA	1.2	27.6	PA28MW52A (13-DEC-1995)	5.83	4.3	4.72	0.01	0.00	NA	36	0 / 403	-
METAL	Barium	µg/L	332	314	94.58	504.2	NA	NA	3.8	929	IR06MW41A (08-JAN-1992)	128	74.95	151	0.04	NA	NA	504.2	12 / 332	-
METAL	Beryllium	µg/L	386	16	4.15	1.4	NA	NA	0.2	1.1	IR06MW45A (11-OCT-2000)	0.54	0.37	0.27	0.00	NA	NA	1.4	0 / 386	-
METAL	Cadmium	µg/L	337	20	5.93	5.08	8.8	NA	0.26	9.2	IR06MW53F (11-AUG-1994)	2.34	1.3	2.36	0.15	0.05	NA	8.8	1 / 337	COPEC
METAL	Calcium	µg/L	445	426	95.73	NA	NA	NA	2,220	730,000	IR29MW56F (22-JUN-1995)	94,947	56,900	104,516	NA	NA	NA	NA	NA	-
METAL	Chromium	µg/L	405	108	26.67	15.66	400	8	0.74	1,200	IR28MW920A (28-AUG-2001)	62.64	11.2	149	0.44	0.03	0.56	400	3 / 405	COPEC
METAL	Cobalt	µg/L	332	127	38.25	20.8	NA	NA	0.41	98.4	IR25MW15A2 (26-MAY-1995)	6.04	2	10.77	0.04	NA	NA	20.8	5 / 332	-
METAL	Copper	µg/L	337	84	24.93	28.04	3.1	NA	1.1	270	IR28MW170A (11-JUL-2002)	16.71	5.05	34.09	0.17	0.79	NA	28.04	14 / 337	COPEC
METAL	Iron	µg/L	499	213	42.69	2,380	NA	NA	8.5	550,000	IR25MW19A (29-JAN-1998)	6,143	468	38,760	0.29	NA	NA	2,380	61 / 499	-
METAL	Lead	µg/L	331	24	7.25	14.44	5.6	NA	0.79	29.7	IR28MW127A (27-NOV-1995)	6.65	3.5	7.50	0.13	0.33	NA	14.44	3 / 331	COPEC
METAL	Magnesium	µg/L	448	447	99.78	1,440,000	NA	NA	2,950	1,150,000	IR25MW17A (14-JUN-2002)	317,426	234,000	283,448	0.00	NA	NA	1,440,000	0 / 448	-
METAL	Manganese	µg/L	381	339	88.98	8140	NA	NA	0.69	10,500	IR28MW311A (28-MAY-1996)	1,221	366	2,055	0.02	NA	NA	8,140	7 / 381	-
METAL	Mercury	µg/L	417	60	14.39	0.6	0.025	NA	0.046	54	IR28MW170A (23-JAN-2001)	1.79	0.29	6.94	0.35	1.00	NA	0.6	21 / 417	COPEC
METAL	Molybdenum	µg/L	308	77	25.00	61.9	NA	NA	0.95	360	IR30MW01F (12-JUL-2002)	37.87	7	73.43	0.17	NA	NA	61.9	13 / 308	-
METAL	Nickel	µg/L	341	175	51.32	96.48	8.2	NA	1.4	384	IR28MW294A (17-NOV-1995)	30.73	14.9	47.11	0.05	0.67	NA	96.48	9 / 341	COPEC
METAL	Potassium	µg/L	448	430	95.98	448,000	NA	NA	258	710,000	IR28MW920A (28-AUG-2001)	79,126	33,800	112,187	0.01	NA	NA	448,000	6 / 448	-
METAL	Selenium	µg/L	329	45	13.68	14.5	71	NA	2.2	64.2	IR06MW45A (30-MAR-2004)	10.54	4.4	13.40	0.22	0.00	NA	71	0 / 329	-
METAL	Silver	µg/L	331	10	3.02	7.43	0.38	NA	0.55	24.1	IR28MW314B (03-JUL-1996)	3.59	0.92	6.90	0.10	1.00	NA	7.43	1 / 331	COPEC
METAL	Sodium	µg/L	448	446	99.55	9,242,000	NA	NA	980	9,700,000	IR28MW123A (18-MAY-1994)	1,629,632	712,500	2,176,934	0.01	NA	NA	9,242,000	3 / 448	-
METAL	Thallium	µg/L	327	39	11.93	12.97	426	NA	0.103	52.7	IR25MW17A (14-JUN-2002)	6.54	4	8.66	0.08	0.00	NA	426	0 / 327	-
METAL	Vanadium	µg/L	329	189	57.45	26.62	NA	NA	0.55	71.6	IR28MW294A (17-NOV-1995)	6.00	4.1	7.77	0.02	NA	NA	26.62	3 / 329	-
METAL	Zinc	µg/L	337	97	28.78	75.68	81	10	3	1,300	IR28MW170A (11-JUL-2002)	56.24	21	140	0.14	0.13	0.81	81	13 / 337	COEC
VOA	1,1,1,2-Tetrachloroethane	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1,1-Trichloroethane	µg/L	1,067	8	0.75	NA	6,240	NA	0.14	720	IR25MW15A1 (13-JUN-1994)	98.97	4.5	235	NA	0.00	NA	6,240	0 / 1067	-
VOA	1,1,2,2-Tetrachloroethane	µg/L	1,067	2	0.19	NA	1,804	0.5	6	120	IR28MW211F (13-NOV-2002)	63.00	63	57.00	NA	0.00	1.00	1,804	0 / 1067	-
VOA	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	469	47	10.02	NA	NA	NA	0.14	140	IR25MW52A (17-JUN-2002)	13.73	0.95	27.15	NA	NA	NA	NA	NA	-
VOA	1,1,2-Trichloroethane	µg/L	1,067	34	3.19	NA	NA	0.5	0.2	170	IR28MW211F (09-JUL-2002)	24.34	3	39.14	NA	NA	0.91	NA	NA	-
VOA	1,1-Dichloroethane	µg/L	1,067	59	5.53	NA	NA	0.5	0.17	38	IR28MW916A (23-JAN-2001)	5.25	0.6	10.15	NA	NA	0.54	NA	NA	-
VOA	1,1-Dichloroethene	µg/L	1,067	72	6.75	NA	44,800	NA	0.14	42	IR25MW15A1 (11-JAN-2001)	3.82	0.975	7.48	NA	0.00	NA	44,800	0 / 1067	-
VOA	1,1-Dichloropropene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichlorobenzene	µg/L	352	8	2.27	NA	NA	NA	0.5	1.4	IR58MW35A (11-JUL-2002)	0.94	0.98	0.33	NA	NA	NA	NA	NA	-
VOA	1,2,3-Trichloropropane	µg/L	382	2	0.52	NA	NA	0.5	1.5	16	IR28MW934F2 (06-MAR-2001)	8.75	8.75	7.25	NA	NA	1.00	NA	NA	-
VOA	1,2,4-Trichlorobenzene	µg/L	1,051	56	5.33	NA	129	0.5	0.32	200	IR25MW19A (29-JAN-1998)	18.30	4.85	36.95	NA	0.04	0.89	129	2 / 1051	COPEC
VOA	1,2,4-Trimethylbenzene	µg/L	207	29	14.01	NA	NA	0.5	0.2	220	IR28MW909A (08-FEB-2001, 12-FEB-2001)	45.06	13	67.23	NA	NA	0.97	NA	NA	-
VOA	1,2-Dibromo-3-Chloropropane	µg/L	707	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromoethane	µg/L	545	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dichlorobenzene	µg/L	1,065	206	19.34	NA	129	0.5	0.09	62,000	IR25MW15A1 (14-JUN-1994)	3,577	37	10,039	NA	0.39	0.90	129	80 / 1065	COPEC
VOA	1,2-Dichloroethane	µg/L	1,083	125	11.54	NA	22,600	0.5	0.17	150,000	IR25MW15A1 (26-MAY-1995)	8,263	93	23,217	NA	0.10	0.94	22,600	13 / 1083	COPEC
VOA	1,2-Dichloroethene (Total)	µg/L	287	89	31.01	NA	44,800	0.5	0.3	57,000	IR25MW15A1 (11-AUG-1994)	2,304	14	9,200	NA	0.01	0.94	44,800	1 / 287	COPEC
VOA	1,2-Dichloropropane	µg/L	1,067	38	3.56	NA	3,040	0.5	0.2	350	IR25MW19A (29-JAN-1998)	53.04	2.85	99.82	NA	0.00	0.79	3,040	0 / 1067	-
VOA	1,3,5-Trimethylbenzene	µg/L	207	10	4.83	NA	NA	0.5	0.79	28	IR28MW909A (24-JAN-2001)	9.44	5.7	9.30	NA	NA	1.00	NA	NA	-
VOA	1,3-Dichlorobenzene	µg/L	1,064	87	8.18	NA	129	NA	0.1	630	IR25MW19A (22-JAN-2001)	44.70	10	97.11	NA	0.10	NA	129	9 / 1064	COPEC
VOA	1,3-Dichloropropane	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,4-Dichlorobenzene	µg/L	1,064	175	16.45	NA	129	0.5	0.12	15,000	IR25MW19A (29-JAN-1998)	983	31	2,488	NA	0.39	0.89	129	69 / 1064	COPEC
VOA	2,2'-Oxybis(1-Chloropropane)	µg/L	2	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2,2-Dichloropropane	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Butanone	µg/L	785	3	0.38	NA	NA	NA	0.7	29	IR06MW22AD (15-JUL-1991)	12.23	7	12.13	NA	NA	NA	NA	NA	-
VOA	2-Chloroethyl Vinyl Ether	µg/L	60	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Chlorotoluene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Hexanone	µg/L	582	1	0.17	NA	NA	NA	0.4	0.4	IR28MW342F (18-MAR-2003)	0.40	0.4	NA	NA	NA	NA	NA	NA	-
VOA	4-Chlorotoluene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Methyl-2-Pentanone	µg/L	758	5	0.66	NA	NA	NA	0.2	9	IR25MW15A1 (26-MAY-1995)	2.44	1.1	3.31	NA	NA	NA	NA	NA	-
VOA	Acetone	µg/L	708	26	3.67	NA	NA	NA	4.3	6,900	IR28MW936F (05-APR-2001)	428	22	1,359	NA	NA	NA	NA	NA	-
VOA	Benzene	µg/L	1,076	223	20.72	NA	700	0.5	0.1	400	IR25MW19A (22-JAN-2001)	17.74	2	51.86	NA	0.00	0.80	700	0 / 1076	-
VOA	Bromobenzene	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Bromochloromethane	µg/L	504	0	0.00	NA	6,400	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 504	-
VOA	Bromodichloromethane	µg/L	1,067	11	1.03	NA	6,400	0.5	0.15	130	IR25MW19A (22-JAN-2001)	17.86	0.9	37.98	NA	0.00	0.64	6,400	0 / 1067	-
VOA	Bromoform	µg/L	1,067	4	0.37	NA	6,400	NA	1	33	IR28MW930A (28-AUG-2001)	10.75	4.5	13.15	NA	0.00	NA	6,400	0 / 1067	-
VOA	Bromomethane	µg/L	1,067	6	0.56	NA	6,400	NA	0.3	8.1	IR58MW34A (08-JUL-2002)	2.98	1.995	2.82	NA	0.00	NA	6,400	0 / 1067	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	Carbon Disulfide	µg/L	832	59	7.09	NA	NA	NA	0.16	39	IR29MW56F (10-AUG-1994)	3.08	0.94	6.10	NA	NA	NA	NA	NA	-
VOA	Carbon Tetrachloride	µg/L	1,083	95	8.77	NA	6,400	0.5	0.15	520	IR28MW937F (02-APR-2001)	40.89	12	81.99	NA	0.00	0.89	6,400	0 / 1083	-
VOA	Chlorobenzene	µg/L	1,067	118	11.06	NA	129	0.5	0.13	9,900	IR28MW909A (08-FEB-2001)	456	28.5	1,140	NA	0.32	0.86	129	38 / 1067	COPEC
VOA	Chloroethane	µg/L	1,066	44	4.13	NA	NA	0.5	0.52	81	IR06MW30A (23-AUG-1994)	12.97	5	18.36	NA	NA	1.00	NA	NA	-
VOA	Chloroform	µg/L	1,083	246	22.71	NA	6,400	0.5	0.09	1,000	IR28MW937F (02-APR-2001)	49.15	3	133	NA	0.00	0.88	6,400	0 / 1083	-
VOA	Chloromethane	µg/L	1,067	15	1.41	NA	6,400	NA	0.2	3.8	IR58MW34A (08-JUL-2002)	0.75	0.3	1.05	NA	0.00	NA	6,400	0 / 1067	-
VOA	Cis-1,2-Dichloroethene	µg/L	796	443	55.65	NA	44,800	0.5	0.12	58,000	IR25MW15A1 (05-FEB-1998)	1,342	21	6,111	NA	0.00	0.87	44,800	2 / 796	COPEC
VOA	Cis-1,3-Dichloropropene	µg/L	1,067	2	0.19	NA	NA	0.5	0.54	4	IR58MW33B (23-MAY-1996)	2.27	2.27	1.73	NA	NA	1.00	NA	NA	-
VOA	Cyclohexane	µg/L	123	6	4.88	NA	NA	NA	0.26	1.6	IR28MW128A (09-AUG-2002)	0.73	0.585	0.43	NA	NA	NA	NA	NA	-
VOA	Dibromochloromethane	µg/L	1,067	5	0.47	NA	6,400	0.5	0.2	3	IR58MW33B (23-MAY-1996)	0.85	0.32	1.08	NA	0.00	0.40	6,400	0 / 1067	-
VOA	Dibromomethane	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Dichlorodifluoromethane	µg/L	628	11	1.75	NA	NA	NA	0.22	4.2	IR25MW52A (08-JUN-2004)	1.74	1.8	1.12	NA	NA	NA	NA	NA	-
VOA	Ethylbenzene	µg/L	1,076	67	6.23	NA	86	NA	0.1	79	IR28MW155A (31-MAY-1994)	6.17	3	10.47	NA	0.00	NA	86	0 / 1076	-
VOA	Isopropylbenzene	µg/L	393	34	8.65	NA	NA	0.5	0.11	15	IR28MW909A (24-JAN-2001)	2.13	0.92	3.24	NA	NA	0.74	NA	NA	-
VOA	M,P-Xylenes	µg/L	125	13	10.40	NA	NA	NA	0.23	28	IR25MW15A1 (13-AUG-2002)	6.27	1.7	8.02	NA	NA	NA	NA	NA	-
VOA	Methyl Acetate	µg/L	121	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylcyclohexane	µg/L	123	4	3.25	NA	NA	NA	0.22	0.73	IR28MW128A (09-AUG-2002)	0.50	0.515	0.23	NA	NA	NA	NA	NA	-
VOA	Methylene Chloride	µg/L	1,067	33	3.09	NA	6,400	0.5	0.3	270	IR28MW936F (05-APR-2001)	40.13	12	66.42	NA	0.00	0.82	6,400	0 / 1067	-
VOA	N-Butylbenzene	µg/L	207	4	1.93	NA	NA	NA	1.1	6.5	IR58MW35A (11-JUL-2002)	4.43	5.05	2.17	NA	NA	NA	NA	NA	-
VOA	Naphthalene	µg/L	603	103	17.08	NA	470	0.05	0.06	1,800	IR06MW42A (10-JAN-1992)	110	25	242	NA	0.04	1.00	470	4 / 603	COPEC
VOA	O-Xylene	µg/L	125	23	18.40	NA	NA	NA	0.08	16	IR25MW15A1 (13-AUG-2002)	2.32	0.47	3.66	NA	NA	NA	NA	NA	-
VOA	Para-Isopropyl Toluene	µg/L	207	12	5.80	NA	NA	NA	0.52	34	IR25MW19A (22-JAN-2001)	6.60	2.75	9.28	NA	NA	NA	NA	NA	-
VOA	Propylbenzene	µg/L	207	9	4.35	NA	NA	NA	0.46	27	IR28MW909A (12-FEB-2001)	7.12	2.7	8.97	NA	NA	NA	NA	NA	-
VOA	Sec-Butylbenzene	µg/L	207	13	6.28	NA	NA	NA	0.2	4.8	IR28MW913A (25-JAN-2001)	1.88	1.5	1.52	NA	NA	NA	NA	NA	-
VOA	Styrene	µg/L	832	3	0.36	NA	NA	NA	1	7.9	IR25MW15A1 (11-JAN-2001)	4.30	4	2.82	NA	NA	NA	NA	NA	-
VOA	Tert-Butyl Methyl Ether	µg/L	716	67	9.36	NA	8,000	NA	0.09	25	IR28MW155A (18-JUN-2002)	3.00	1.2	4.19	NA	0.00	NA	8,000	0 / 716	-
VOA	Tert-Butylbenzene	µg/L	207	1	0.48	NA	NA	NA	0.4	0.4	IR58MW34A (08-JUL-2002)	0.40	0.4	NA	NA	NA	NA	NA	NA	-
VOA	Tetrachloroethene	µg/L	1,083	334	30.84	NA	450	0.5	0.1	72,000	IR25MW19A (29-JAN-1998, 22-JAN-2001)	2,031	5.15	8,612	NA	0.15	0.79	450	51 / 1083	COPEC
VOA	Toluene	µg/L	1,076	105	9.76	NA	5,000	NA	0.1	66	IR25MW19A (29-JAN-1998)	6.79	1	12.69	NA	0.00	NA	5,000	0 / 1076	-
VOA	Trans-1,2-Dichloroethene	µg/L	796	215	27.01	NA	44,800	0.5	0.14	2,400	IR25MW19A (22-JAN-2001)	59.51	5	236	NA	0.00	0.88	44,800	0 / 796	-
VOA	Trans-1,3-Dichloropropene	µg/L	1,067	1	0.09	NA	NA	0.5	3	3	IR58MW33B (23-MAY-1996)	3.00	3	NA	NA	NA	1.00	NA	NA	-
VOA	Trichloroethene	µg/L	1,082	578	53.42	NA	400	0.5	0.12	76,000	IR28MW211F (13-NOV-2002)	1,950	13	7,820	NA	0.19	0.89	400	108 / 1082	COPEC
VOA	Trichlorofluoromethane	µg/L	628	82	13.06	NA	NA	0.5	0.24	5,900	IR25MW52A (17-JUN-2002)	122	3.35	661	NA	NA	0.80	NA	NA	-
VOA	Vinyl Acetate	µg/L	98	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Vinyl Chloride	µg/L	1,083	318	29.36	NA	NA	0.5	0.28	6,600	IR25MW15A1 (05-OCT-1995)	286	62	669	NA	NA	0.94	NA	NA	-
VOA	Xylene (Total)	µg/L	951	77	8.10	NA	NA	NA	0.2	150	IR25MW19A (22-JAN-2001)	14.11	3	28.84	NA	NA	NA	NA	NA	-
SVOA	1,4-Dioxane	µg/L	13	2	15.38	NA	NA	NA	0.66	1.4	IR28MW151A (06-DEC-2004)	1.03	1	0.37	NA	NA	NA	NA	NA	-
SVOA	1-Methylnaphthalene	µg/L	4	2	50.00	NA	NA	NA	0.02	4	IR06MW22A (18-AUG-2000)	2.01	2	1.99	NA	NA	NA	NA	NA	-
SVOA	2-Chloronaphthalene	µg/L	402	2	0.50	NA	1.5	NA	1	1	IR25MW15A2 (26-MAY-1995), IR28MW129A (27-JUN-1995)	1.00	1	0.00	NA	0.00	NA	1.5	0 / 402	-
SVOA	2-Chlorophenol	µg/L	398	2	0.50	NA	NA	NA	1	24	IR25MW15A1 (13-AUG-2002)	12.50	13	11.50	NA	NA	NA	NA	NA	-
SVOA	2-Methylnaphthalene	µg/L	413	55	13.32	NA	NA	NA	0.5	920	IR25MW11A (18-AUG-1994)	49.04	9.8	137	NA	NA	NA	NA	NA	-
SVOA	2-Methylphenol	µg/L	392	11	2.81	NA	NA	NA	0.2	3,800	IR25MW15A1 (11-AUG-1994)	774	63	1,235	NA	NA	NA	NA	NA	-
SVOA	2-Nitroaniline	µg/L	379	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitrophenol	µg/L	398	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 398	-
SVOA	2,4-Dichlorophenol	µg/L	393	4	1.02	NA	NA	NA	1.7	37	IR25MW15A1 (13-AUG-2002)	10.93	3	15.06	NA	NA	NA	NA	NA	-
SVOA	2,4-Dimethylphenol	µg/L	393	25	6.36	NA	NA	10	0.6	16,000	IR25MW15A1 (11-AUG-1994)	1,225	32	3,345	NA	NA	0.68	NA	NA	-
SVOA	2,4-Dinitrophenol	µg/L	388	0	0.00	NA	46	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	46	0 / 388	-
SVOA	2,4-Dinitrotoluene	µg/L	403	1	0.25	NA	118	10	4,900	4,900	IR25MW11A (07-JUN-1995)	4,900	4,900	NA	NA	1.00	1.00	118	1 / 403	COPEC
SVOA	2,4,5-Trichlorophenol	µg/L	375	1	0.27	NA	NA	NA	0.57	0.57	IR25MW15A1 (13-AUG-2002)	0.57	1	NA	NA	NA	NA	NA	NA	-
SVOA	2,4,6-Trichlorophenol	µg/L	393	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,6-Dinitrotoluene	µg/L	402	0	0.00	NA	118	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	118	0 / 402	-
SVOA	3,3'-Dichlorobenzidine	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	3,4-Methylphenol	µg/L	13	2	15.38	NA	NA	10	380	3,200	IR25MW19A (24-JAN-2001)	1,790	1,790	1,410	NA	NA	1.00	NA	NA	-
SVOA	3-Nitroaniline	µg/L	377	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4,6-Dinitro-2-Methylphenol	µg/L	391	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 391	-
SVOA	4-Bromophenyl-Phenylether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloro-3-Methylphenol	µg/L	393	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloroaniline	µg/L	384	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chlorophenyl-Phenylether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Methylphenol	µg/L	380	15	3.95	NA	NA	10	0.7	9,100	IR25MW15A1 (11-AUG-1994)	703	10	2,251	NA	NA	0.47	NA	NA	-
SVOA	4-Nitroaniline	µg/L	384	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitrophenol	µg/L	399	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 399	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
SVOA	Acenaphthene	µg/L	417	85	20.38	NA	710	NA	0.1	230	IR06MW42A (10-JAN-1992)	42.24	17	48.58	NA	0.00	NA	710	0 / 417	-
SVOA	Acenaphthylene	µg/L	417	14	3.36	NA	60	NA	0.07	10	IR06MW42A (16-JAN-2001, 01-MAY-2001)	2.34	0.9	3.21	NA	0.00	NA	60	0 / 417	-
SVOA	Acetophenone	µg/L	13	3	23.08	NA	NA	NA	2	24	IR06MW42A (28-AUG-2002)	10.67	6	9.57	NA	NA	NA	NA	NA	-
SVOA	Aniline	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Anthracene	µg/L	417	45	10.79	NA	60	NA	0.074	21	IR06MW42A (08-JAN-1991)	4.00	3	4.06	NA	0.00	NA	60	0 / 417	-
SVOA	Atrazine	µg/L	13	0	0.00	NA	11	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	0 / 13	-
SVOA	Azobenzene	µg/L	12	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzaldehyde	µg/L	14	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzo(a)anthracene	µg/L	417	10	2.40	NA	60	0.05	0.01	10	IR06MW42A (16-JAN-2001)	2.14	0.6	2.91	NA	0.00	0.80	60	0 / 417	-
SVOA	Benzo(a)pyrene	µg/L	415	3	0.72	NA	60	0.05	0.21	3	IR28MW311A (19-APR-1996)	1.74	2	1.15	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzo(b)fluoranthene	µg/L	415	3	0.72	NA	60	0.05	0.055	4	IR28MW311A (19-APR-1996)	2.02	2	1.61	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzo(e)pyrene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzo(g,h,i)perylene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Benzo(k)fluoranthene	µg/L	415	2	0.48	NA	60	0.05	1	1	IR28MW311A (19-APR-1996), PA28MW52A (23-FEB-1993)	1.00	1	0.00	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzoic Acid	µg/L	92	2	2.17	NA	NA	NA	5	10	IR25MW15A1 (13-AUG-2002)	7.50	7.5	2.50	NA	NA	NA	NA	NA	-
SVOA	Benzyl Alcohol	µg/L	75	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Biphenyl	µg/L	17	4	23.53	NA	NA	NA	0.1	10	IR06MW42A (16-JAN-2001, 01-MAY-2001)	5.28	5.5	4.74	NA	NA	NA	NA	NA	-
SVOA	Bis(2-chloroethoxy)methane	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethyl)ether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-ethylhexyl)phthalate	µg/L	402	6	1.49	NA	NA	NA	1	99	PA50MW03A (11-JUL-1994)	53.67	56.5	31.55	NA	NA	NA	NA	NA	-
SVOA	Butylbenzylphthalate	µg/L	402	1	0.25	NA	588.8	NA	7	7	IR06MW30A (12-JUN-1990)	7.00	7	NA	NA	0.00	NA	588.8	0 / 402	-
SVOA	Caprolactam	µg/L	15	2	13.33	NA	NA	NA	10	25	IR06MW42A (12-OCT-2000)	17.50	17.5	7.50	NA	NA	NA	NA	NA	-
SVOA	Carbazole	µg/L	308	30	9.74	NA	NA	NA	0.1	53	IR06MW42A (16-MAY-1994)	8.29	4.35	12.68	NA	NA	NA	NA	NA	-
SVOA	Chrysene	µg/L	418	7	1.67	NA	60	0.05	0.02	200	IR25MW11A (07-JUN-1995)	31.05	3	69.05	NA	0.14	0.71	60	1 / 418	COPEC
SVOA	Di-N-Butylphthalate	µg/L	402	2	0.50	NA	588.8	NA	0.9	1	IR28MW128A (25-MAY-1994)	0.95	0.95	0.05	NA	0.00	NA	588.8	0 / 402	-
SVOA	Di-N-Octylphthalate	µg/L	400	0	0.00	NA	588.8	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 400	-
SVOA	Dibenz(a,h)anthracene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Dibenzofuran	µg/L	403	56	13.90	NA	NA	NA	0.42	140	IR06MW42A (08-JAN-1991, 16-JUL-1991, 10-JAN-1992)	23.68	7.1	35.56	NA	NA	NA	NA	NA	-
SVOA	Dibenzothiophene	µg/L	4	2	50.00	NA	NA	NA	0.09	0.1	IR06MW22A (18-AUG-2000)	0.10	0.095	0.01	NA	NA	NA	NA	NA	-
SVOA	Diethylphthalate	µg/L	402	2	0.50	NA	588.8	NA	6	10	IR06MW42A (03-JUN-2004)	8.00	8	2.00	NA	0.00	NA	588.8	0 / 402	-
SVOA	Dimethylphthalate	µg/L	402	0	0.00	NA	3.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	0 / 402	-
SVOA	Fluoranthene	µg/L	417	55	13.19	NA	16	NA	0.06	36	IR06MW42A (08-JAN-1991)	8.37	8	7.42	NA	0.16	NA	16	9 / 417	COPEC
SVOA	Fluorene	µg/L	418	65	15.55	NA	60	NA	0.2	180	IR25MW11A (28-DEC-1993)	25.73	7	41.17	NA	0.14	NA	60	9 / 418	COPEC
SVOA	Hexachlorobenzene	µg/L	402	0	0.00	NA	129	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	129	0 / 402	-
SVOA	Hexachlorobutadiene	µg/L	587	0	0.00	NA	6.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.4	0 / 587	-
SVOA	Hexachlorocyclopentadiene	µg/L	402	0	0.00	NA	1.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 402	-
SVOA	Hexachloroethane	µg/L	402	1	0.25	NA	188	NA	8	8	IR25MW16A (01-JUN-1995)	8.00	8	NA	NA	0.00	NA	188	0 / 402	-
SVOA	Indeno(1,2,3-cd)pyrene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Isophorone	µg/L	402	0	0.00	NA	2,580	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,580	0 / 402	-
SVOA	N-Nitroso-Di-N-Propylamine	µg/L	402	0	0.00	NA	660,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 402	-
SVOA	N-Nitrosodimethylamine	µg/L	31	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	N-Nitrosodiphenylamine	µg/L	402	1	0.25	NA	660,000	NA	6.4	6.4	IR29MW56F (13-SEP-2004)	6.40	6.4	NA	NA	0.00	NA	660,000	0 / 402	-
SVOA	Naphthalene, 1,6,7-Trimethyl-	µg/L	4	2	50.00	NA	NA	NA	0.4	0.4	IR06MW22A (18-AUG-2000), IR25MW16A (17-AUG-2000)	0.40	0.4	0.00	NA	NA	NA	NA	NA	-
SVOA	Naphthalene, 2,6-Dimethyl-	µg/L	4	2	50.00	NA	NA	NA	0.2	2	IR06MW22A (18-AUG-2000)	1.10	1.1	0.90	NA	NA	NA	NA	NA	-
SVOA	Nitrobenzene	µg/L	402	0	0.00	NA	1,336	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,336	0 / 402	-
SVOA	Pentachlorophenol	µg/L	393	4	1.02	NA	7.9	50	0.3	6,100	IR25MW11A (07-JUN-1995)	1,526	1.75	2,641	NA	0.25	0.25	7.9	1 / 393	COPEC
SVOA	Perylene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Phenacetin	µg/L	7	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Phenanthrene	µg/L	418	78	18.66	NA	60	NA	0.08	590	IR25MW11A (18-AUG-1994)	27.42	5.5	78.76	NA	0.13	NA	60	10 / 418	COPEC
SVOA	Phenanthrene, 1-Methyl-	µg/L	4	2	50.00	NA	NA	NA	0.01	0.05	IR06MW22A (18-AUG-2000)	0.03	0.03	0.02	NA	NA	NA	NA	NA	-
SVOA	Phenol	µg/L	393	10	2.54	NA	1,160	NA	1.5	2,300	IR25MW15A1 (11-AUG-1994)	414	80.5	671	NA	0.10	NA	1,160	1 / 393	COPEC
SVOA	Pyrene	µg/L	417	55	13.19	NA	60	NA	0.1	16	IR06MW42A (08-JAN-1991)	5.26	5	3.75	NA	0.00	NA	60	0 / 417	-
PEST	4,4'-DDD	µg/L	247	3	1.21	NA	0.72	NA	0.01	0.06	IR58MW33B (23-MAY-1996)	0.04	0	0.02	NA	0.00	NA	0.72	0 / 247	-
PEST	4,4'-DDE	µg/L	247	5	2.02	NA	2.8	NA	0.006	0.2	IR29MW48A (06-JUN-1994)	0.05	0	0.07	NA	0.00	NA	2.8	0 / 247	-
PEST	4,4'-DDT	µg/L	247	7	2.83	NA	0.001	NA	0.0094	0.5	IR58MW31A (22-FEB-2001)	0.11	0	0.16	NA	1.00	NA	0.001	7 / 247	COPEC
PEST	Aldrin	µg/L	247	4	1.62	NA	0.26	NA	0.01	0.08	IR28MW124A (02-AUG-1995), IR29MW48A (06-JUN-1994)	0.05	0	0.03	NA	0.00	NA	0.26	0 / 247	-
PEST	alpha-BHC	µg/L	247	2	0.81	NA	NA	NA	0.02	0.02	IR25MW15A1 (17-AUG-2000, 01-FEB-2001)	0.02	0	0.00	NA	NA	NA	NA	NA	-
PEST	alpha-Chlordane	µg/L	247	7	2.83	NA	0.004	NA	0.0079	1	IR29MW48A (06-JUN-1994)	0.15	0	0.35	NA	1.00	NA	0.004	7 / 247	COPEC
PEST	Azinphos Methyl	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	beta-BHC	µg/L	247	6	2.43	NA	NA	NA	0.005	0.04	IR58MW32B (17-APR-1996)	0.02	0	0.01	NA	NA	NA	NA	NA	-
PEST	Bolstar	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Chlorpyrifos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
PEST	Coumaphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	delta-BHC	µg/L	247	8	3.24	NA	NA	NA	0.0018	0.03	IR06MW42A (16-JAN-2001), IR25MW15A1 (17-AUG-2000)	0.01	0	0.01	NA	NA	NA	NA	NA	-
PEST	Demeton	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Diazinon	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dichlorvos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dieldrin	µg/L	247	7	2.83	NA	0.142	NA	0.006	0.09	IR58MW31A (22-FEB-2001)	0.05	0	0.03	NA	0.00	NA	0.142	0 / 247	-
PEST	Dimethoate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Disulfoton	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endosulfan I	µg/L	247	0	0.00	NA	0.0087	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 247	-
PEST	Endosulfan II	µg/L	247	2	0.81	NA	0.0087	NA	0.02	0.07	IR29MW48A (06-JUN-1994)	0.05	0	0.03	NA	1.00	NA	0.0087	2 / 247	COPEC
PEST	Endosulfan Sulfate	µg/L	247	3	1.21	NA	NA	NA	0.01	0.1	IR25MW16A (02-JUN-1994)	0.04	0	0.04	NA	NA	NA	NA	NA	-
PEST	Endrin	µg/L	247	5	2.02	NA	0.0023	NA	0.0041	0.02	IR58MW31A (11-AUG-2000)	0.01	0	0.01	NA	1.00	NA	0.0023	5 / 247	COPEC
PEST	Endrin Aldehyde	µg/L	247	6	2.43	NA	NA	NA	0.007	0.1	IR58MW31A (01-JUL-1994)	0.05	0	0.04	NA	NA	NA	NA	NA	-
PEST	Endrin Ketone	µg/L	243	2	0.82	NA	NA	NA	0.01	0.1	IR25MW15A1 (26-MAY-1995)	0.06	0	0.05	NA	NA	NA	NA	NA	-
PEST	EPN	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ethion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ethoprop	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Famphur	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Fensulfothion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Fenthion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	gamma-BHC (Lindane)	µg/L	247	2	0.81	NA	0.032	NA	0.01	0.01	IR25MW15A1 (17-AUG-2000, 01-FEB-2001)	0.01	0	0.00	NA	0.00	NA	0.032	0 / 247	-
PEST	gamma-Chlordane	µg/L	247	5	2.02	NA	0.004	NA	0.006	1	IR29MW48A (06-JUN-1994)	0.21	0	0.40	NA	1.00	NA	0.004	5 / 247	COPEC
PEST	Heptachlor	µg/L	247	4	1.62	NA	0.0036	NA	0.002	0.013	IR06MW42A (05-MAR-2003)	0.01	0	0.00	NA	0.50	NA	0.0036	2 / 247	COPEC
PEST	Heptachlor Epoxide	µg/L	243	6	2.47	NA	0.0036	NA	0.002	0.03	IR25MW15A1 (14-JUN-1994), IR28MW311A (27-JUN-1996)	0.02	0	0.01	NA	0.83	NA	0.0036	5 / 243	COPEC
PEST	Heptachlor Epoxide A	µg/L	4	1	25.00	NA	NA	NA	0.055	0.055	IR25MW15A1 (13-AUG-2002)	0.06	0	NA	NA	NA	NA	NA	NA	-
PEST	Heptachlor Epoxide B	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Malathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Merphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Methoxychlor	µg/L	247	1	0.40	NA	0.003	NA	0.0084	0.0084	IR06MW42A (20-MAY-2003)	0.01	0	NA	NA	1.00	NA	0.003	1 / 247	COPEC
PEST	Methyl Parathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Mevinphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Naled	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Parathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Phorate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ronnel	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Sulfotep	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Tetrachlorvinphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Tokuthion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Toxaphene	µg/L	247	0	0.00	NA	0.0002	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0002	0 / 247	-
PEST	Trichloronate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PCB	Aroclor-1016	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1221	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1232	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1242	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1248	µg/L	291	1	0.34	NA	0.03	NA	2	2	IR29MW48A (06-JUN-1994)	2.00	2	NA	NA	1.00	NA	0.03	1 / 291	COPEC
PCB	Aroclor-1254	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1260	µg/L	291	31	10.65	NA	0.03	NA	0.06	23	IR28MW129A (27-JUN-1995)	2.79	1	4.47	NA	1.00	NA	0.03	31 / 291	COPEC
TPHEXT	Diesel-Range Organics	µg/L	643	295	45.88	NA	1,400	NA	39	3,400,000	IR25MW11A (18-AUG-1994)	20,299	500	205,051	NA	0.24	NA	1,400	71 / 643	COPEC
TPHEXT	Motor Oil-Range Organics	µg/L	571	265	46.41	NA	1,400	NA	20	200,000	IR25MW19A (15-MAR-2001)	1,383	240	12,321	NA	0.08	NA	1,400	22 / 571	COPEC
TPHEXT	TPH-Extractable Unknown Hydrocarbon	µg/L	17	5	29.41	NA	NA	NA	310	7,000	IR06MW22AD (06-JAN-1992)	2,544	2,000	2,446	NA	NA	NA	NA	NA	-
TPHEXT	TPH-Kerosene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
TPHPRG	Diesel-Range Organics	µg/L	3	1	33.33	NA	1,400	NA	920	920	IR06MW42A (23-MAR-2004)	920	920	NA	NA	0.00	NA	1,400	0 / 3	-
TPHPRG	Gasoline-Range Organics	µg/L	553	220	39.78	NA	1,400	NA	8.5	1,300,000	IR25MW11A (28-DEC-1993)	10,759	170	89,358	NA	0.20	NA	1,400	45 / 553	COPEC
TPHPRG	Motor Oil-Range Organics	µg/L	3	0	0.00	NA	1,400	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,400	0 / 3	-
TPHPRG	TPH-Purgeable Unknown Hydrocarbons	µg/L	9	2	22.22	NA	NA	NA	17	68	IR28MW124A (20-MAY-1994)	42.50	42.5	25.50	NA	NA	NA	NA	NA	-
ORGAN	Tributyltin	µg/L	11	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	-
TOC	Total Organic Carbon	µg/L	50	40	80.00	NA	NA	NA	720	50,000	IR25MW15A1 (06-MAY-1999)	5,508	2,650	8,044	NA	NA	NA	NA	NA	-
ALKALN	Bicarbonate Alkalinity	µg/L	126	126	100.00	NA	NA	NA	44,000	1,430,000	IR28MW170A (22-FEB-2001)	403,751	353,500	250,490	NA	NA	NA	NA	NA	-
ALKALN	Carbonate Alkalinity	µg/L	126	24	19.05	NA	NA	NA	40,000	229,000	IR28MW330A (28-JAN-1998)	131,900	139,500	52,212	NA	NA	NA	NA	NA	-
ALKALN	Hydroxide Alkalinity	µg/L	101	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Total Alkalinity	µg/L	219	219	100.00	NA	NA	NA	14,000	1,430,000	IR28MW170A (22-FEB-2001)	346,329	287,000	253,020	NA	NA	NA	NA	NA	-
AMMON	Ammonia	µg/L	28	27	96.43	NA	NA	NA	120	2,500	IR06MW40A (17-JUL-1991)	986	890	722	NA	NA	NA	NA	NA	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
ANION	Chloride	µg/L	386	385	99.74	NA	NA	NA	7,700	17,400,000	IR28MW270A (06-MAY-1996)	2,810,272	1,290,000	4,035,306	NA	NA	NA	NA	NA	-
ANION	Fluoride	µg/L	79	46	58.23	NA	NA	NA	110	3,700	IR25MW20A (29-JAN-1998)	569	405	624	NA	NA	NA	NA	NA	-
ANION	Nitrate as Nitrogen	µg/L	322	197	61.18	NA	NA	NA	10	104,000	IR29MW56F (22-JUN-1995)	3,139	710	9,409	NA	NA	NA	NA	NA	-
ANION	Nitrate/Nitrite as Nitrogen	µg/L	161	110	68.32	NA	NA	NA	10	30,900	IR28MW217A (28-APR-1999)	1,646	425	4,003	NA	NA	NA	NA	NA	-
ANION	Nitrite as Nitrogen	µg/L	229	27	11.79	NA	NA	NA	6	870	IR06MW44A (28-JAN-1998)	84.52	15	196	NA	NA	NA	NA	NA	-
ANION	Orthophosphate	µg/L	142	24	16.90	NA	NA	NA	64	29,000	IR29MW85F (24-MAY-1996)	2,222	530	5,766	NA	NA	NA	NA	NA	-
ANION	Sulfate	µg/L	335	320	95.52	NA	NA	NA	1,300	6,580,000	IR28MW297A (07-MAY-1996)	452,637	172,000	679,947	NA	NA	NA	NA	NA	-
CEC	Calcium	µg/L	32	32	100.00	NA	NA	NA	2,300	330,000	IR28MW150A (03-AUG-2000), IR28MW270A (04-AUG-2000), IR29MW57A (23-JUN-1995)	79,150	35,500	88,793	NA	NA	NA	NA	NA	-
CEC	Iron	µg/L	32	7	21.88	2,380	NA	NA	590	16,000	IR25MW15A2 (16-AUG-2000)	5,459	5,600	5,046	0.57	NA	NA	2,380	4 / 32	-
CEC	Magnesium	µg/L	32	32	100.00	1,440,000	NA	NA	2,800	1,100,000	IR25MW17A (29-MAR-2004), IR28MW270A (04-AUG-2000), IR28MW297A (20-NOV-1995)	335,784	255,000	307,068	0.00	NA	NA	1,440,000	0 / 32	-
CEC	Potassium	µg/L	32	31	96.88	448,000	NA	NA	370	360,000	IR28MW270A (04-AUG-2000)	68,117	41,000	85,398	0.00	NA	NA	448,000	0 / 32	-
CEC	Sodium	µg/L	32	31	96.88	9,242,000	NA	NA	12,000	11,000,000	IR28MW270A (04-AUG-2000)	1,812,710	860,000	2,555,009	0.03	NA	NA	9,242,000	1 / 32	-
CYAN	Cyanide	µg/L	9	2	22.22	NA	1	NA	0.76	1.2	PA50MW03A (25-MAR-1996)	0.98	0.98	0.22	NA	0.50	NA	1	1 / 9	COPEC
DGASES	Carbon Dioxide in Water	µg/L	33	14	42.42	NA	NA	NA	16,000	406,000	IR28MW217A (28-APR-1999)	146,000	146,500	107,038	NA	NA	NA	NA	NA	-
DGASES	Ethane	µg/L	118	31	26.27	NA	NA	NA	0.3	77	IR28MW211F (21-MAR-2003)	20.77	7.2	24.07	NA	NA	NA	NA	NA	-
DGASES	Ethene	µg/L	118	28	23.73	NA	NA	NA	0.4	620	IR25MW15A1 (06-MAY-1999)	54.53	10.5	123	NA	NA	NA	NA	NA	-
DGASES	Hydrogen in Water	µg/L	84	4	4.76	NA	NA	NA	35.9	226	IR28MW362F (06-FEB-2003)	117	102.45	80.95	NA	NA	NA	NA	NA	-
DGASES	Methane	µg/L	67	45	67.16	NA	NA	NA	2	8,500	IR06MW34A (27-APR-1999)	625	160	1,475	NA	NA	NA	NA	NA	-
DO	Dissolved Oxygen	µg/L	227	227	100.00	NA	NA	NA	50	8,660	IR29MW56F (22-AUG-2000)	3,101	2,860	2,488	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Bottom	µg/L	157	157	100.00	NA	NA	NA	50	6,300	IR28MW275F (17-AUG-2000)	1,117	510	1,282	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Middle	µg/L	160	160	100.00	NA	NA	NA	80	8,400	IR28MW169A (23-FEB-2001)	1,683	965	1,608	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Top	µg/L	164	164	100.00	NA	NA	NA	250	9,000	IR28MW298A (14-AUG-2000)	2,503	1,905	1,907	NA	NA	NA	NA	NA	-
FTK-METAL	Dissolved Iron (II)	µg/L	1	1	100.00	NA	NA	NA	0	0	IR29MW56F (02-MAR-2001)	0.00	0	NA	NA	NA	NA	NA	NA	-
FTK-METAL	Dissolved Managanese (II)	µg/L	3	3	100.00	NA	NA	NA	100	800	IR28MW398A (01-MAR-2001)	500	600	294	NA	NA	NA	NA	NA	-
FTK-METAL	Total Iron (II)	µg/L	117	117	100.00	NA	NA	NA	0	7,200	IR25MW15A2 (16-AUG-2000)	503	0	1,227	NA	NA	NA	NA	NA	-
FTK-METAL	Total Manganese (II)	µg/L	92	92	100.00	NA	NA	NA	0	14,000	IR06MW41A (14-AUG-2002)	1,440	300	2,637	NA	NA	NA	NA	NA	-
H2S	Hydrogen Sulfide	µg/L	30	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
HARD	Hardness	µg/L	25	25	100.00	NA	NA	NA	140	4,500,000	IR25MW18A (29-JAN-1998)	1,099,109	970,000	927,443	NA	NA	NA	NA	NA	-
IRON_ION	Iron (II)	µg/L	34	2	5.88	NA	NA	NA	180	510	IR25MW15A2 (27-APR-1999)	345	345	165	NA	NA	NA	NA	NA	-
IRON_ION	Iron (III)	µg/L	1	1	100.00	NA	NA	NA	110	110	IR25MW37A (11-JUN-2002)	110	110	NA	NA	NA	NA	NA	NA	-
MEE	Ethane	µg/L	183	5	2.73	NA	NA	NA	3.4	13	IR28MW916A (08-FEB-2001)	6.76	5.9	3.44	NA	NA	NA	NA	NA	-
MEE	Ethene	µg/L	183	46	25.14	NA	NA	NA	3.9	570	IR25MW15A1 (01-FEB-2001)	144	32.5	175	NA	NA	NA	NA	NA	-
MEE	Methane	µg/L	183	124	67.76	NA	NA	NA	2	16,000	IR28MW918A (08-FEB-2001)	762	165	2,239	NA	NA	NA	NA	NA	-

Notes:

µg/L	Microgram per liter
BHC	Benzene hexachloride
CEC	Cation exchange capacity
COEC	Chemical of ecological concern
COPEC	Chemical of potential ecological concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DGASES	Dissolved gases
BHC	Benzene hexachloride
CEC	Cation exchange capacity
COEC	Chemical of ecological concern
CONC.	Concentration
COPEC	Chemical of potential ecological concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DGASES	Dissolved gases
DO	Dissolved oxygen
FTK	Field test kit
HGAL	Hunters Point groundwater ambient level
MEE	Methane, ethane, ethene
NA	Not applicable or not available
ND	Nondetect
PAH	Polynuclear aromatic hydrocarbon
PEST	Pesticides
SVOA	Semivolatile organic compound
TOC	Total organic carbon
VOA	Volatile organic compound

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CHROM	Chromium VI	µg/L	10	0	0.00	NA	50	ND	ND	ND	ND	ND	ND	ND	50	0 / 10	-
METAL	Aluminum	µg/L	12	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
METAL	Antimony	µg/L	12	2	16.67	43.26	NA	3.4	5.3	4.4	4.4	1.0	0.00	NA	43.26	0 / 12	-
METAL	Arsenic	µg/L	12	2	16.67	27.34	36	1.9	2.8	2.4	2.4	0.5	0.00	0.00	36	0 / 12	-
METAL	Barium	µg/L	12	12	100.00	504.2	NA	65.8	730	435	467	243	0.50	NA	504.2	6 / 12	-
METAL	Beryllium	µg/L	12	0	0.00	1.4	NA	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 12	-
METAL	Cadmium	µg/L	12	2	16.67	5.08	8.8	0.37	0.63	0.50	0.5	0.13	0.00	0.00	8.8	0 / 12	-
METAL	Calcium	µg/L	21	21	100.00	NA	NA	7,700	1,070,000	270,148	123,000	279,349	NA	NA	NA	NA	-
METAL	Chromium	µg/L	12	1	8.33	15.66	400	5.9	5.9	5.9	5.9	NA	0.00	0.00	400	0 / 12	-
METAL	Cobalt	µg/L	12	9	75.00	20.8	NA	0.82	6.3	2.7	2.1	1.8	0.00	NA	20.8	0 / 12	-
METAL	Copper	µg/L	12	2	16.67	28.04	3.1	3.6	4	3.8	3.8	0.2	0.00	1.00	28.04	0 / 12	-
METAL	Iron	µg/L	21	5	23.81	2380	NA	10.1	429	131	70	152	0.00	NA	2,380	0 / 21	-
METAL	Lead	µg/L	12	1	8.33	14.44	5.6	2	2	2.0	2.0	NA	0.00	0.00	14.44	0 / 12	-
METAL	Magnesium	µg/L	21	21	100.00	1,440,000	NA	14,700	3,640,000	884,224	657,000	804,047	0.24	NA	1,440,000	5 / 21	-
METAL	Manganese	µg/L	12	12	100.00	8,140	NA	30	1,480	823	767	461	0.00	NA	8,140	0 / 12	-
METAL	Mercury	µg/L	19	1	5.26	0.6	0.025	0.18	0.18	0.18	0.18	NA	0.00	1.00	0.6	0 / 19	-
METAL	Molybdenum	µg/L	12	1	8.33	61.9	NA	1.7	1.7	1.7	1.7	NA	0.00	NA	61.9	0 / 12	-
METAL	Nickel	µg/L	12	11	91.67	96.48	8.2	15.9	49.6	27.1	24.5	9.4	0.00	1.00	96.48	0 / 12	-
METAL	Potassium	µg/L	21	21	100.00	448,000	NA	765	295,000	56,075	27,000	78,460	0.00	NA	448,000	0 / 21	-
METAL	Selenium	µg/L	12	4	33.33	14.5	71	2.8	4.6	3.9	4.2	0.7	0.00	0.00	71	0 / 12	-
METAL	Silver	µg/L	12	0	0.00	7.43	0.38	ND	ND	ND	ND	ND	ND	ND	7.43	0 / 12	-
METAL	Sodium	µg/L	21	21	100.00	9,242,000	NA	193,000	8,000,000	3,027,667	2,400,000	1,989,383	0.00	NA	9,242,000	0 / 21	-
METAL	Thallium	µg/L	12	1	8.33	12.97	426	3	3	3.0	3.0	NA	0.00	0.00	426	0 / 12	-
METAL	Vanadium	µg/L	12	9	75.00	26.62	NA	0.72	11	5.4	5.9	3.4	0.00	NA	26.62	0 / 12	-
METAL	Zinc	µg/L	13	5	38.46	75.68	81	11.3	143	50.6	28.0	49.1	0.20	0.20	81	1 / 13	COPEC
VOA	1,1,1,2-Tetrachloroethane	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1,1-Trichloroethane	µg/L	77	0	0.00	NA	6,240	ND	ND	ND	ND	ND	ND	ND	6,240	0 / 77	-
VOA	1,1,2,2-Tetrachloroethane	µg/L	77	0	0.00	NA	1,804	ND	ND	ND	ND	ND	ND	ND	1,804	0 / 77	-
VOA	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	46	4	8.70	NA	NA	0.4	2.6	1.2	0.8	0.9	NA	NA	NA	NA	-
VOA	1,1,2-Trichloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1-Dichloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1-Dichloroethene	µg/L	77	0	0.00	NA	44,800	ND	ND	ND	ND	ND	ND	ND	44,800	0 / 77	-
VOA	1,1-Dichloropropene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichlorobenzene	µg/L	22	1	4.55	NA	NA	0.77	0.77	0.77	0.77	NA	NA	NA	NA	NA	-
VOA	1,2,3-Trichloropropane	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,4-Trichlorobenzene	µg/L	77	3	3.90	NA	129	0.35	0.94	0.56	0.4	0.27	NA	0.00	129	0 / 77	-
VOA	1,2,4-Trimethylbenzene	µg/L	14	7	50.00	NA	NA	8	48	31.0	25.0	14.5	NA	NA	NA	NA	-
VOA	1,2-Dibromo-3-Chloropropane	µg/L	68	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromoethane	µg/L	32	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dichlorobenzene	µg/L	77	12	15.58	NA	129	0.17	100	50.0	57.5	28.8	NA	0.00	129	0 / 77	-
VOA	1,2-Dichloroethane	µg/L	77	0	0.00	NA	22,600	ND	ND	ND	ND	ND	ND	ND	22,600	0 / 77	-
VOA	1,2-Dichloroethene (Total)	µg/L	9	0	0.00	NA	44,800	ND	ND	ND	ND	ND	ND	ND	44,800	0 / 9	-
VOA	1,2-Dichloropropane	µg/L	77	0	0.00	NA	3,040	ND	ND	ND	ND	ND	ND	ND	3,040	0 / 77	-
VOA	1,3,5-Trimethylbenzene	µg/L	14	3	21.43	NA	NA	1.8	3.7	2.5	1.9	0.9	NA	NA	NA	NA	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	1,3-Dichlorobenzene	µg/L	77	12	15.58	NA	129	0.2	84	29.9	21.0	30.6	NA	0.00	129	0 / 77	-
VOA	1,3-Dichloropropane	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,4-Dichlorobenzene	µg/L	77	13	16.88	NA	129	0.37	180	62.3	25.0	65.6	NA	0.23	129	3 / 77	COPEC
VOA	2,2-Dichloropropane	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Butanone	µg/L	33	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Chlorotoluene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Hexanone	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Chlorotoluene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Methyl-2-Pentanone	µg/L	33	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Acetone	µg/L	34	4	11.76	NA	NA	16	120	58.8	49.5	44.7	NA	NA	NA	NA	-
VOA	Benzene	µg/L	77	4	5.19	NA	700	0.24	9	4.6	4.5	4.2	NA	0.00	700	0 / 77	-
VOA	Bromobenzene	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Bromochloromethane	µg/L	32	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 32	-
VOA	Bromodichloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Bromoform	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Bromomethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Carbon Disulfide	µg/L	41	4	9.76	NA	NA	0.25	6	2.8	2.5	2.1	NA	NA	NA	NA	-
VOA	Carbon Tetrachloride	µg/L	77	6	7.79	NA	6,400	0.31	11	5.0	5.2	3.4	NA	0.00	6,400	0 / 77	-
VOA	Chlorobenzene	µg/L	77	11	14.29	NA	129	0.1	1000	365	300	405	NA	0.55	129	6 / 77	COPEC
VOA	Chloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Chloroform	µg/L	77	17	22.08	NA	6,400	0.17	7.3	1.9	1.4	1.8	NA	0.00	6,400	0 / 77	-
VOA	Chloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	cis-1,2-Dichloroethene	µg/L	68	17	25.00	NA	44,800	0.15	870	217	55	294	NA	0.00	44,800	0 / 68	-
VOA	cis-1,3-Dichloropropene	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Cyclohexane	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Dibromochloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Dibromomethane	µg/L	50	1	2.00	NA	NA	0.25	0.25	0.25	0.25	NA	NA	NA	NA	NA	-
VOA	Dichlorodifluoromethane	µg/L	58	3	5.17	NA	NA	0.28	0.6	0.41	0.34	0.14	NA	NA	NA	NA	-
VOA	Ethylbenzene	µg/L	77	6	7.79	NA	86	0.19	16	3.0	0.4	5.8	NA	0.00	86	0 / 77	-
VOA	Isopropylbenzene	µg/L	22	2	9.09	NA	NA	0.12	0.59	0.36	0.355	0.24	NA	NA	NA	NA	-
VOA	m,p-Xylenes	µg/L	10	2	20.00	NA	NA	0.74	2.1	1.4	1.4	0.7	NA	NA	NA	NA	-
VOA	Methyl Acetate	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylcyclohexane	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylene Chloride	µg/L	77	2	2.60	NA	6,400	0.66	21	10.8	10.8	10.2	NA	0.00	6,400	0 / 77	-
VOA	n-Butylbenzene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Naphthalene	µg/L	29	7	24.14	NA	470	2.6	42	21.9	19.0	11.3	NA	0.00	470	0 / 29	-
VOA	o-Xylene	µg/L	10	1	10.00	NA	NA	1.1	1.1	1.1	1.1	NA	NA	NA	NA	NA	-
VOA	Para-Isopropyl Toluene	µg/L	14	1	7.14	NA	NA	0.62	0.62	0.62	0.62	NA	NA	NA	NA	NA	-
VOA	Propylbenzene	µg/L	14	1	7.14	NA	NA	0.74	0.74	0.74	0.74	NA	NA	NA	NA	NA	-
VOA	Sec-Butylbenzene	µg/L	14	1	7.14	NA	NA	0.55	0.55	0.55	0.55	NA	NA	NA	NA	NA	-
VOA	Styrene	µg/L	41	1	2.44	NA	NA	0.8	0.8	0.80	0.8	NA	NA	NA	NA	NA	-
VOA	Tert-Butyl Methyl Ether	µg/L	68	0	0.00	NA	8,000	ND	ND	ND	ND	ND	ND	ND	8,000	0 / 68	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
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VOA	Tert-Butylbenzene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Tetrachloroethene	µg/L	77	12	15.58	NA	450	1.7	55	12.2	2.8	18.6	NA	0.00	450	0 / 77	-
VOA	Toluene	µg/L	77	3	3.90	NA	5,000	0.2	0.87	0.55	0.58	0.27	NA	0.00	5,000	0 / 77	-
VOA	Total LMW PAH	µg/L	29	7	24.14	NA	NA	5.2	84	43.9	38.0	22.5	NA	NA	NA	NA	-
VOA	Total PAH	µg/L	29	7	24.14	NA	NA	5.2	84	43.9	38.0	22.5	NA	NA	NA	NA	-
VOA	trans-1,2-Dichloroethene	µg/L	68	2	2.94	NA	44,800	0.52	0.83	0.68	0.675	0.16	NA	0.00	44,800	0 / 68	-
VOA	trans-1,3-Dichloropropene	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Trichloroethene	µg/L	77	23	29.87	NA	400	0.2	28	6.1	3.5	7.0	NA	0.00	400	0 / 77	-
VOA	Trichlorofluoromethane	µg/L	58	10	17.24	NA	NA	0.14	16	5.1	1.8	6.1	NA	NA	NA	NA	-
VOA	Vinyl Acetate	µg/L	2	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Vinyl Chloride	µg/L	77	13	16.88	NA	NA	0.29	84	33.6	34.0	29.8	NA	NA	NA	NA	-
VOA	Xylene (Total)	µg/L	67	6	8.96	NA	NA	0.57	31	6.9	2.2	10.9	NA	NA	NA	NA	-
SVOA	1,4-Dioxane	µg/L	3	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,2'-Oxybis(1-chloropropane)	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,5-Trichlorophenol	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,6-Trichlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dichlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dimethylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dinitrophenol	µg/L	15	0	0.00	NA	46	ND	ND	ND	ND	ND	ND	ND	46	0 / 15	-
SVOA	2,4-Dinitrotoluene	µg/L	15	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 15	-
SVOA	2,6-Dinitrotoluene	µg/L	15	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 15	-
SVOA	2-Chloronaphthalene	µg/L	15	0	0.00	NA	1.5	ND	ND	ND	ND	ND	ND	ND	1.5	0 / 15	-
SVOA	2-Chlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylnaphthalene	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitrophenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	3,3'-Dichlorobenzidine	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	3-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4,6-Dinitro-2-Methylphenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	4-Bromophenyl-Phenylether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloro-3-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chlorophenyl-Phenylether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitrophenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	Acenaphthene	µg/L	15	0	0.00	NA	710	ND	ND	ND	ND	ND	ND	ND	710	0 / 15	-
SVOA	Acenaphthylene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(a)anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(a)pyrene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(b)fluoranthene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-

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SVOA	Benzo(g,h,i)perylene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(k)fluoranthene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzoic Acid	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzyl Alcohol	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethoxy)methane	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethyl)ether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-ethylhexyl)phthalate	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Butylbenzylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Carbazole	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Chrysene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Di-N-Butylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Di-N-Octylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Dibenz(a,h)anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Dibenzofuran	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Diethylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Dimethylphthalate	µg/L	15	0	0.00	NA	3.4	ND	ND	ND	ND	ND	ND	ND	3.4	0 / 15	-
SVOA	Fluoranthene	µg/L	15	1	6.67	NA	16	1	1	1.0	1.0	NA	NA	0.00	16	0 / 15	-
SVOA	Fluorene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Hexachlorobenzene	µg/L	15	0	0.00	NA	129	ND	ND	ND	ND	ND	ND	ND	129	0 / 15	-
SVOA	Hexachlorobutadiene	µg/L	29	0	0.00	NA	6.4	ND	ND	ND	ND	ND	ND	ND	6.4	0 / 29	-
SVOA	Hexachlorocyclopentadiene	µg/L	15	0	0.00	NA	1.4	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 15	-
SVOA	Hexachloroethane	µg/L	15	0	0.00	NA	188	ND	ND	ND	ND	ND	ND	ND	188	0 / 15	-
SVOA	Indeno(1,2,3-cd)pyrene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Isophorone	µg/L	15	0	0.00	NA	2,580	ND	ND	ND	ND	ND	ND	ND	2,580	0 / 15	-
SVOA	n-Nitroso-Di-N-Propylamine	µg/L	15	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 15	-
SVOA	n-Nitrosodimethylamine	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	n-Nitrosodiphenylamine	µg/L	15	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 15	-
SVOA	Nitrobenzene	µg/L	15	0	0.00	NA	1,336	ND	ND	ND	ND	ND	ND	ND	1,336	0 / 15	-
SVOA	Pentachlorophenol	µg/L	15	0	0.00	NA	7.9	ND	ND	ND	ND	ND	ND	ND	7.9	0 / 15	-
SVOA	Phenanthrene	µg/L	15	1	6.67	NA	60	0.8	0.8	0.80	0.8	NA	NA	0.00	60	0 / 15	-
SVOA	Phenol	µg/L	15	0	0.00	NA	1,160	ND	ND	ND	ND	ND	ND	ND	1,160	0 / 15	-
SVOA	Pyrene	µg/L	15	1	6.67	NA	60	1	1	1.0	1.0	NA	NA	0.00	60	0 / 15	-
SVOA	Total Chlordane	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PCB	Aroclor-1016	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1221	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1232	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1242	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1248	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1254	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1260	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-

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PCB	Total Aroclor	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	4,4'-DDD	µg/L	9	0	0.00	NA	0.72	ND	ND	ND	ND	ND	ND	ND	0.72	0 / 9	-
PEST	4,4'-DDE	µg/L	9	0	0.00	NA	2.8	ND	ND	ND	ND	ND	ND	ND	2.8	0 / 9	-
PEST	4,4'-DDT	µg/L	9	0	0.00	NA	0.001	ND	ND	ND	ND	ND	ND	ND	0.001	0 / 9	-
PEST	Aldrin	µg/L	9	0	0.00	NA	0.26	ND	ND	ND	ND	ND	ND	ND	0.26	0 / 9	-
PEST	alpha-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	alpha-Chlordane	µg/L	9	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 9	-
PEST	beta-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	delta-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dieldrin	µg/L	9	0	0.00	NA	0.142	ND	ND	ND	ND	ND	ND	ND	0.142	0 / 9	-
PEST	Endosulfan I	µg/L	9	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 9	-
PEST	Endosulfan II	µg/L	9	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 9	-
PEST	Endosulfan Sulfate	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin	µg/L	9	0	0.00	NA	0.0023	ND	ND	ND	ND	ND	ND	ND	0.0023	0 / 9	-
PEST	Endrin Aldehyde	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin Ketone	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	gamma-BHC (Lindane)	µg/L	9	0	0.00	NA	0.032	ND	ND	ND	ND	ND	ND	ND	0.032	0 / 9	-
PEST	Gamma-Chlordane	µg/L	9	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 9	-
PEST	Heptachlor	µg/L	9	0	0.00	NA	0.0036	ND	ND	ND	ND	ND	ND	ND	0.0036	0 / 9	-
PEST	Heptachlor Epoxide	µg/L	9	0	0.00	NA	0.0036	ND	ND	ND	ND	ND	ND	ND	0.0036	0 / 9	-
PEST	Methoxychlor	µg/L	9	0	0.00	NA	0.003	ND	ND	ND	ND	ND	ND	ND	0.003	0 / 9	-
PEST	Total Chlordane	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Total DDT	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Toxaphene	µg/L	9	0	0.00	NA	0.0002	ND	ND	ND	ND	ND	ND	ND	0.0002	0 / 9	-
SOLIDS	Total Dissolved Solids	µg/L	44	44	100.00	NA	NA	620,000	30,700,000	11,030,455	10,600,000	7,675,599	NA	NA	NA	NA	-
SOLIDS	Total Suspended Solids	µg/L	1	1	100.00	NA	NA	11,000	11,000	11,000	11,000	NA	NA	NA	NA	NA	-
TOC	Total Organic Carbon	µg/L	3	2	66.67	NA	NA	1,300	2,300	1,800	1,800	500	NA	NA	NA	NA	-
TPHEXT	Diesel-Range Organics	µg/L	28	8	28.57	NA	1,400	75	660	302	185	242	NA	0.00	1,400	0 / 28	-
TPHEXT	Motor Oil-Range Organics	µg/L	28	10	35.71	NA	1,400	22	900	242	87	272	NA	0.00	1,400	0 / 28	-
TPHPRG	Gasoline-Range Organics	µg/L	28	9	32.14	NA	1,400	24	420	167	60	166	NA	0.00	1,400	0 / 28	-
ALKALN	Bicarbonate Alkalinity	µg/L	9	9	100.00	NA	NA	250,000	1,090,000	480,222	428,000	230,326	NA	NA	NA	NA	-
ALKALN	Carbonate Alkalinity	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Hydroxide Alkalinity	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Total Alkalinity	µg/L	10	10	100.00	NA	NA	250,000	1,090,000	481,800	440,000	218,558	NA	NA	NA	NA	-
ANION	Chloride	µg/L	15	15	100.00	NA	NA	192,000	19,000,000	7,913,933	6,660,000	5,762,438	NA	NA	NA	NA	-
ANION	Fluoride	µg/L	3	1	33.33	NA	NA	160	160	160	160	NA	NA	NA	NA	NA	-
ANION	Nitrate As Nitrogen	µg/L	15	7	46.67	NA	NA	20	23,000	5,051	420	7,809	NA	NA	NA	NA	-
ANION	Nitrate/Nitrite As Nitrogen	µg/L	10	8	80.00	NA	NA	20	23,000	4,465	330	7,500	NA	NA	NA	NA	-
ANION	Nitrite As Nitrogen	µg/L	13	4	30.77	NA	NA	17	210	82.3	51.0	75.5	NA	NA	NA	NA	-
ANION	Orthophosphate	µg/L	5	1	20.00	NA	NA	26,700	26,700	26,700	26,700	NA	NA	NA	NA	NA	-
ANION	Sulfate	µg/L	15	15	100.00	NA	NA	37,200	1,810,000	616,080	343,000	550,174	NA	NA	NA	NA	-
CEC	Calcium	µg/L	1	1	100.00	NA	NA	98,000	98,000	98,000	98,000	NA	NA	NA	NA	NA	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CEC	Iron	µg/L	1	1	100.00	2,380	NA	310	310	310	310	NA	0.00	NA	2,380	0 / 1	-
CEC	Magnesium	µg/L	1	1	100.00	1,440,000	NA	390,000	390,000	390,000	390,000	NA	0.00	NA	1,440,000	0 / 1	-
CEC	Potassium	µg/L	1	1	100.00	448,000	NA	34,000	34,000	34,000	34,000	NA	0.00	NA	448,000	0 / 1	-
CEC	Sodium	µg/L	1	1	100.00	9,242,000	NA	2,200,000	2,200,000	2,200,000	2,200,000	NA	0.00	NA	9,242,000	0 / 1	-
DGASES	Ethane	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DGASES	Ethene	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DGASES	Methane	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DO	Dissolved Oxygen	µg/L	17	17	100.00	NA	NA	40	6,670	2,269	1,380	2,148	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Bottom	µg/L	10	10	100.00	NA	NA	400	1,560	794	755	349	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Middle	µg/L	11	11	100.00	NA	NA	190	2,980	1,379	1,100	854	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Top	µg/L	10	10	100.00	NA	NA	740	5,280	2,255	1,740	1,366	NA	NA	NA	NA	-
FTK-METAL	Dissolved Iron (II)	µg/L	3	3	100.00	NA	NA	0	1,000	333	0	471	NA	NA	NA	NA	-
FTK-METAL	Dissolved Manganese (II)	µg/L	3	3	100.00	NA	NA	0	11,000	4,033	1,100	4,947	NA	NA	NA	NA	-
FTK-METAL	Total Iron (II)	µg/L	10	10	100.00	NA	NA	0	2,080	698	300	786	NA	NA	NA	NA	-
FTK-METAL	Total Manganese (II)	µg/L	9	9	100.00	NA	NA	0	11,000	3,119	600	4,296	NA	NA	NA	NA	-
MEE	Ethane	µg/L	16	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
MEE	Ethene	µg/L	16	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
MEE	Methane	µg/L	16	11	68.75	NA	NA	4	7,000	1,949	410	2,622	NA	NA	NA	NA	-

Notes:

µg/L	Microgram per liter	FTK	Field test kit
BHC	Benzene hexachloride	HGAL	Hunters Point groundwater ambient level
CEC	Cation exchange capacity	MEE	Methane, ethane, ethene
COPEC	Chemical of potential ecological concern	ND	Nondetect
COEC	Chemical of ecological concern	NA	Not applicable or not available
DDD	Dichlorodiphenyldichloroethane	PAH	Polynuclear aromatic hydrocarbon
DDE	Dichlorodiphenyldichloroethene	PEST	Pesticides
DDT	Dichlorodiphenyltrichloroethane	SVOA	Semi-volatile organic compound
DGASES	Dissolved gases	TOC	Total organic carbon
DO	Dissolved oxygen	VOA	Volatile organic compound

TABLE G-4: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN F-WBZ GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA

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

Analytical Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CHROM	Chromium VI	µg/L	26	13	50.00	NA	50	12.0	70.0	50.7	50.0	14.5	NA	0.46	50	6 / 26	COPEC
METAL	Aluminum	µg/L	39	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
METAL	Antimony	µg/L	39	4	10.26	43.26	NA	3.6	4.6	4.1	4.2	0.4	0.00	NA	43.26	0 / 39	-
METAL	Arsenic	µg/L	47	12	25.53	27.34	36	1.5	6.3	3.2	3.4	1.3	0.00	0.00	36	0 / 47	-
METAL	Barium	µg/L	39	33	84.62	504.2	NA	1.5	732.0	92.1	26.1	166.3	0.06	NA	504.2	2 / 39	-
METAL	Beryllium	µg/L	39	0	0.00	1.4	NA	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 39	-
METAL	Cadmium	µg/L	39	1	2.56	5.08	8.8	3.4	3.4	3.4	3.4	NA	0.00	0.00	8.8	0 / 39	-
METAL	Calcium	µg/L	49	44	89.80	NA	NA	3,090	285,000	56,768	25,200	69,086	NA	NA	NA	NA	-
METAL	Chromium	µg/L	49	33	67.35	15.66	400	3.2	76.2	37.6	36.1	25.6	0.70	0.00	400	0 / 49	-
METAL	Cobalt	µg/L	39	7	17.95	20.8	NA	0.7	3.4	1.7	1.1	1.0	0.00	NA	20.8	0 / 39	-
METAL	Copper	µg/L	39	10	25.64	28.04	3.1	1.2	12.1	4.4	3.3	3.1	0.00	0.70	28.04	0 / 39	-
METAL	Iron	µg/L	66	23	34.85	2,380	NA	16	5,980	886	238	1,360	0.09	NA	2,380	2 / 66	-
METAL	Lead	µg/L	39	0	0.00	14.44	5.6	ND	ND	ND	ND	ND	ND	ND	14.44	0 / 39	-
METAL	Magnesium	µg/L	49	49	100.00	1,440,000	NA	25,600	946,000	154,110	68,300	215,219	0.00	NA	1,440,000	0 / 49	-
METAL	Manganese	µg/L	48	26	54.17	8,140	NA	1	1,900	370	92	559	0.00	NA	8140	0 / 48	-
METAL	Mercury	µg/L	51	6	11.76	0.6	0.025	0.16	0.87	0.41	0.36	0.24	0.17	1.00	0.6	1 / 51	COPEC
METAL	Molybdenum	µg/L	37	1	2.70	61.9	NA	7.6	7.6	7.6	7.6	NA	0.00	NA	61.9	0 / 37	-
METAL	Nickel	µg/L	39	8	20.51	96.48	8.2	1.2	11.6	5.8	6.1	3.9	0.00	0.25	96.48	0 / 39	-
METAL	Potassium	µg/L	49	37	75.51	448,000	NA	692	488,000	44,168	3,760	103,821	0.03	NA	448,000	1 / 49	-
METAL	Selenium	µg/L	39	2	5.13	14.5	71	5.7	8.3	7.0	7.0	1.3	0.00	0.00	71	0 / 39	-
METAL	Silver	µg/L	39	0	0.00	7.43	0.38	ND	ND	ND	ND	ND	ND	ND	7.43	0 / 39	-
METAL	Sodium	µg/L	49	48	97.96	9,242,000	NA	31,000	8,790,000	785,923	74,200	1,999,917	0.00	NA	9,242,000	0 / 49	-
METAL	Thallium	µg/L	38	4	10.53	12.97	426	1.7	3.3	2.5	2.5	0.6	0.00	0.00	426	0 / 38	-
METAL	Vanadium	µg/L	37	29	78.38	26.62	NA	0.7	21.3	5.7	3.4	5.9	0.00	NA	26.62	0 / 37	-
METAL	Zinc	µg/L	39	9	23.08	75.68	81	3.8	63.5	24.8	17.6	17.7	0.00	0.00	81	0 / 39	-
VOA	1,1,1,2-Tetrachloroethane	µg/L	56	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1,1-Trichloroethane	µg/L	130	0	0.00	NA	6,240	ND	ND	ND	ND	ND	ND	ND	6,240	0 / 130	-
VOA	1,1,2,2-Tetrachloroethane	µg/L	130	0	0.00	NA	1,804	ND	ND	ND	ND	ND	ND	ND	1,804	0 / 130	-
VOA	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	68	5	7.35	NA	NA	0.6	2.6	1.4	1.0	0.7	NA	NA	NA	NA	-
VOA	1,1,2-Trichloroethane	µg/L	130	11	8.46	NA	NA	0.2	10.0	1.8	1.0	2.6	NA	NA	NA	NA	-
VOA	1,1-Dichloroethane	µg/L	130	4	3.08	NA	NA	1.0	4.0	2.0	1.5	1.2	NA	NA	NA	NA	-
VOA	1,1-Dichloroethene	µg/L	130	4	3.08	NA	44,800	0.4	6.2	1.9	0.5	2.5	NA	0.00	44,800	0 / 130	-
VOA	1,1-Dichloropropene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichlorobenzene	µg/L	46	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichloropropane	µg/L	56	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,4-Trichlorobenzene	µg/L	130	1	0.77	NA	129	4.1	4.1	4.1	4.1	NA	NA	0.00	129	0 / 130	-
VOA	1,2,4-Trimethylbenzene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromo-3-Chloropropane	µg/L	94	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromoethane	µg/L	58	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dichlorobenzene	µg/L	132	3	2.27	NA	129	0.6	2.6	1.3	0.8	0.9	NA	0.00	129	0 / 132	-
VOA	1,2-Dichloroethane	µg/L	130	16	12.31	NA	22,600	0.2	170.0	34.2	0.8	53.1	NA	0.00	22,600	0 / 130	-
VOA	1,2-Dichloroethene (Total)	µg/L	34	0	0.00	NA	44,800	ND	ND	ND	ND	ND	ND	ND	44,800	0 / 34	-
VOA	1,2-Dichloropropane	µg/L	130	9	6.92	NA	3,040	0.20	3.80	0.79	0.40	1.08	NA	0.00	3,040	0 / 130	-
VOA	1,3,5-Trimethylbenzene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,3-Dichlorobenzene	µg/L	132	0	0.00	NA	129	ND	ND	ND	ND	ND	ND	ND	129	0 / 132	-

TABLE G-4: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN F-WBZ GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analytical Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	1,3-Dichloropropane	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,4-Dichlorobenzene	µg/L	132	5	3.79	NA	129	0.19	0.84	0.34	0.22	0.25	NA	0.00	129	0 / 132	-
VOA	2,2-Dichloropropane	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Butanone	µg/L	81	2	2.47	NA	NA	2	36,000	18,001	18,001	17,999	NA	NA	NA	NA	-
VOA	2-Chloroethyl Vinyl Ether	µg/L	2	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Chlorotoluene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Hexanone	µg/L	66	1	1.52	NA	NA	0.40	0.40	0.40	0.40	NA	NA	NA	NA	NA	-
VOA	4-Chlorotoluene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Methyl-2-Pentanone	µg/L	84	1	1.19	NA	NA	1,800	1,800	1,800	1,800	NA	NA	NA	NA	NA	-
VOA	Acetone	µg/L	80	6	7.50	NA	NA	4	220,000	36,757	81	81,949	NA	NA	NA	NA	-
VOA	Benzene	µg/L	130	6	4.62	NA	700	0	8,100	1,353	5	3,017	NA	0.17	700	1 / 130	COPEC
VOA	Bromobenzene	µg/L	56	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Bromochloromethane	µg/L	58	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 58	-
VOA	Bromodichloromethane	µg/L	130	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 130	-
VOA	Bromoform	µg/L	130	1	0.77	NA	6,400	0.65	0.65	0.65	0.65	NA	NA	0.00	6,400	0 / 130	-
VOA	Bromomethane	µg/L	130	2	1.54	NA	6,400	0.20	0.40	0.30	0.30	0.10	NA	0.00	6,400	0 / 130	-
VOA	Carbon Disulfide	µg/L	92	4	4.35	NA	NA	0.2	25.0	6.6	0.5	10.7	NA	NA	NA	NA	-
VOA	Carbon Tetrachloride	µg/L	130	56	43.08	NA	6,400	0.3	200.0	19.1	4.1	34.9	NA	0.00	6,400	0 / 130	-
VOA	Chlorobenzene	µg/L	130	0	0.00	NA	129	ND	ND	ND	ND	ND	ND	ND	129	0 / 130	-
VOA	Chloroethane	µg/L	130	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Chloroform	µg/L	130	56	43.08	NA	6,400	0.2	500.0	47.7	7.0	102.6	NA	0.00	6,400	0 / 130	-
VOA	Chloromethane	µg/L	130	2	1.54	NA	6,400	0.30	0.50	0.40	0.40	0.10	NA	0.00	6,400	0 / 130	-
VOA	cis-1,2-Dichloroethene	µg/L	96	47	48.96	NA	44,800	0.2	620.0	45.1	5.7	129.4	NA	0.00	44,800	0 / 96	-
VOA	cis-1,3-Dichloropropene	µg/L	130	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Cyclohexane	µg/L	10	1	10.00	NA	NA	2.1	2.1	2.1	2.1	NA	NA	NA	NA	NA	-
VOA	Dibromochloromethane	µg/L	130	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 130	-
VOA	Dibromomethane	µg/L	56	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Dichlorodifluoromethane	µg/L	84	1	1.19	NA	NA	0.27	0.27	0.27	0.27	NA	NA	NA	NA	NA	-
VOA	Ethylbenzene	µg/L	130	2	1.54	NA	86	1	200	100	100	100	NA	0.50	86	1 / 130	COPEC
VOA	Isopropylbenzene	µg/L	46	3	6.52	NA	NA	0	1,100	367	0	518	NA	NA	NA	NA	-
VOA	m,p-Xylenes	µg/L	14	1	7.14	NA	NA	9.6	9.6	9.6	9.6	NA	NA	NA	NA	NA	-
VOA	Methyl Acetate	µg/L	10	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylcyclohexane	µg/L	10	1	10.00	NA	NA	0.59	0.59	0.59	0.59	NA	NA	NA	NA	NA	-
VOA	Methylene Chloride	µg/L	130	6	4.62	NA	6,400	7	1,200	217	17	440	NA	0.00	6,400	0 / 130	-
VOA	n-Butylbenzene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Naphthalene	µg/L	56	0	0.00	NA	470	ND	ND	ND	ND	ND	ND	ND	470	0 / 56	-
VOA	o-Xylene	µg/L	14	1	7.14	NA	NA	4.1	4.1	4.1	4.1	NA	NA	NA	NA	NA	-
VOA	Para-Isopropyl Toluene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Propylbenzene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Sec-Butylbenzene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Styrene	µg/L	92	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Tert-Butyl Methyl Ether	µg/L	93	1	1.08	NA	8,000	0.22	0.22	0.22	0.22	NA	NA	0.00	8,000	0 / 93	-
VOA	Tert-Butylbenzene	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Tetrachloroethene	µg/L	130	15	11.54	NA	450	0.2	250.0	39.1	0.5	83.7	NA	0.00	450	0 / 130	-
VOA	Toluene	µg/L	130	5	3.85	NA	5,000	0.3	370.0	74.7	0.4	147.7	NA	0.00	5,000	0 / 130	-

TABLE G-4: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN F-WBZ GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analytical Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	Total LMW PAH	µg/L	56	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Total PAH	µg/L	56	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	trans-1,2-Dichloroethene	µg/L	96	11	11.46	NA	44,800	0.21	1.80	0.59	0.50	0.41	NA	0.00	44,800	0 / 96	-
VOA	trans-1,3-Dichloropropene	µg/L	130	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Trichloroethene	µg/L	130	64	49.23	NA	400	0	8,700	485	35	1,614	NA	0.19	400	12 / 130	COPEC
VOA	Trichlorofluoromethane	µg/L	84	18	21.43	NA	NA	0.3	7.2	1.6	0.5	1.9	NA	NA	NA	NA	-
VOA	Vinyl Acetate	µg/L	4	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Vinyl Chloride	µg/L	130	6	4.62	NA	NA	0.3	36.0	12.2	2.5	15.2	NA	NA	NA	NA	-
VOA	Xylene (Total)	µg/L	116	2	1.72	NA	NA	0.3	180.0	90.2	90.2	89.9	NA	NA	NA	NA	-
SVOA	2,2'-Oxybis(1-chloropropane)	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,5-Trichlorophenol	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,6-Trichlorophenol	µg/L	36	1	2.78	NA	NA	40.0	40.0	40.0	40.0	NA	NA	NA	NA	NA	-
SVOA	2,4-Dichlorophenol	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dimethylphenol	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dinitrophenol	µg/L	35	0	0.00	NA	46	ND	ND	ND	ND	ND	ND	ND	46	0 / 35	-
SVOA	2,4-Dinitrotoluene	µg/L	36	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 36	-
SVOA	2,6-Dinitrotoluene	µg/L	36	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 36	-
SVOA	2-Chloronaphthalene	µg/L	36	0	0.00	NA	1.5	ND	ND	ND	ND	ND	ND	ND	1.5	0 / 36	-
SVOA	2-Chlorophenol	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylnaphthalene	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylphenol	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitroaniline	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitrophenol	µg/L	36	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 36	-
SVOA	3,3'-Dichlorobenzidine	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	3-Nitroaniline	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4,6-Dinitro-2-Methylphenol	µg/L	35	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 35	-
SVOA	4-Bromophenyl-Phenylether	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloro-3-Methylphenol	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloroaniline	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chlorophenyl-Phenylether	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Methylphenol	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitroaniline	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitrophenol	µg/L	36	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 36	-
SVOA	Acenaphthene	µg/L	36	0	0.00	NA	710	ND	ND	ND	ND	ND	ND	ND	710	0 / 36	-
SVOA	Acenaphthylene	µg/L	36	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 36	-
SVOA	Anthracene	µg/L	36	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 36	-
SVOA	Benzo(a)anthracene	µg/L	36	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 36	-
SVOA	Benzo(a)pyrene	µg/L	35	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 35	-
SVOA	Benzo(b)fluoranthene	µg/L	35	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 35	-
SVOA	Benzo(g,h,i)perylene	µg/L	35	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 35	-
SVOA	Benzo(k)fluoranthene	µg/L	35	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 35	-
SVOA	Bis(2-chloroethoxy)methane	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethyl)ether	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-ethylhexyl)phthalate	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Butylbenzylphthalate	µg/L	36	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 36	-

TABLE G-4: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN F-WBZ GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analytical Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
SVOA	Carbazole	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Chrysene	µg/L	36	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 36	-
SVOA	Di-N-Butylphthalate	µg/L	36	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 36	-
SVOA	Di-N-Octylphthalate	µg/L	35	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 35	-
SVOA	Dibenz(a,h)anthracene	µg/L	35	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 35	-
SVOA	Dibenzofuran	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Diethylphthalate	µg/L	36	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 36	-
SVOA	Dimethylphthalate	µg/L	36	0	0.00	NA	3.4	ND	ND	ND	ND	ND	ND	ND	3.4	0 / 36	-
SVOA	Fluoranthene	µg/L	36	0	0.00	NA	16	ND	ND	ND	ND	ND	ND	ND	16	0 / 36	-
SVOA	Fluorene	µg/L	36	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 36	-
SVOA	Hexachlorobenzene	µg/L	36	0	0.00	NA	129	ND	ND	ND	ND	ND	ND	ND	129	0 / 36	-
SVOA	Hexachlorobutadiene	µg/L	56	0	0.00	NA	6.4	ND	ND	ND	ND	ND	ND	ND	6.4	0 / 56	-
SVOA	Hexachlorocyclopentadiene	µg/L	36	0	0.00	NA	1.4	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 36	-
SVOA	Hexachloroethane	µg/L	36	0	0.00	NA	188	ND	ND	ND	ND	ND	ND	ND	188	0 / 36	-
SVOA	Indeno(1,2,3-cd)pyrene	µg/L	35	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 35	-
SVOA	Isophorone	µg/L	36	0	0.00	NA	2,580	ND	ND	ND	ND	ND	ND	ND	2,580	0 / 36	-
SVOA	n-Nitroso-Di-N-Propylamine	µg/L	36	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 36	-
SVOA	n-Nitrosodiphenylamine	µg/L	36	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 36	-
SVOA	Nitrobenzene	µg/L	36	0	0.00	NA	1,336	ND	ND	ND	ND	ND	ND	ND	1,336	0 / 36	-
SVOA	Pentachlorophenol	µg/L	36	0	0.00	NA	7.9	ND	ND	ND	ND	ND	ND	ND	7.9	0 / 36	-
SVOA	Phenanthrene	µg/L	36	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 36	-
SVOA	Phenol	µg/L	36	0	0.00	NA	1,160	ND	ND	ND	ND	ND	ND	ND	1,160	0 / 36	-
SVOA	Pyrene	µg/L	36	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 36	-
PEST	4,4'-DDD	µg/L	41	0	0.00	NA	0.72	ND	ND	ND	ND	ND	ND	ND	0.72	0 / 41	-
PEST	4,4'-DDE	µg/L	41	0	0.00	NA	2.8	ND	ND	ND	ND	ND	ND	ND	2.8	0 / 41	-
PEST	4,4'-DDT	µg/L	41	0	0.00	NA	0.001	ND	ND	ND	ND	ND	ND	ND	0.001	0 / 41	-
PEST	Aldrin	µg/L	41	0	0.00	NA	0.26	ND	ND	ND	ND	ND	ND	ND	0.26	0 / 41	-
PEST	alpha-BHC	µg/L	41	1	2.44	NA	NA	0.08	0.08	0.08	0.08	NA	NA	NA	NA	NA	-
PEST	alpha-Chlordane	µg/L	41	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 41	-
PEST	beta-BHC	µg/L	41	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	delta-BHC	µg/L	41	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dieldrin	µg/L	41	0	0.00	NA	0.142	ND	ND	ND	ND	ND	ND	ND	0.142	0 / 41	-
PEST	Endosulfan I	µg/L	41	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 41	-
PEST	Endosulfan II	µg/L	41	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 41	-
PEST	Endosulfan Sulfate	µg/L	41	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin	µg/L	41	0	0.00	NA	0.0023	ND	ND	ND	ND	ND	ND	ND	0.0023	0 / 41	-
PEST	Endrin Aldehyde	µg/L	41	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin Ketone	µg/L	40	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	gamma-BHC (Lindane)	µg/L	41	0	0.00	NA	0.032	ND	ND	ND	ND	ND	ND	ND	0.032	0 / 41	-
PEST	gamma-Chlordane	µg/L	41	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 41	-
PEST	Heptachlor	µg/L	41	0	0.00	NA	0.0036	ND	ND	ND	ND	ND	ND	ND	0.0036	0 / 41	-
PEST	Heptachlor Epoxide	µg/L	40	1	2.50	NA	0.0036	0.03	0.03	0.03	0.03	NA	NA	1.00	0.0036	1 / 40	COPEC
PEST	Heptachlor Epoxide A	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Heptachlor Epoxide B	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Methoxychlor	µg/L	41	0	0.00	NA	0.003	ND	ND	ND	ND	ND	ND	ND	0.003	0 / 41	-

TABLE G-4: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN F-WBZ GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
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PEST	Total Chlordane	µg/L	41	1	2.44	NA	NA	0.21	0.21	0.21	0.21	NA	NA	NA	NA	NA	-
PEST	Total DDT	µg/L	41	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Toxaphene	µg/L	41	0	0.00	NA	0.0002	ND	ND	ND	ND	ND	ND	ND	0.0002	0 / 41	-
PCB	Aroclor-1016	µg/L	36	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 36	-
PCB	Aroclor-1221	µg/L	36	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 36	-
PCB	Aroclor-1232	µg/L	36	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 36	-
PCB	Aroclor-1242	µg/L	36	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 36	-
PCB	Aroclor-1248	µg/L	36	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 36	-
PCB	Aroclor-1254	µg/L	36	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 36	-
PCB	Aroclor-1260	µg/L	36	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 36	-
PCB	Total Aroclor	µg/L	36	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
TPHEXT	Diesel-Range Organics	µg/L	54	9	16.67	NA	1400	50	370	146	90	106	NA	0.00	1,400	0 / 54	-
TPHEXT	Motor Oil-Range Organics	µg/L	51	27	52.94	NA	1400	46	1,400	395	340	303	NA	0.00	1,400	0 / 51	-
TPHPRG	Gasoline-Range Organics	µg/L	53	16	30.19	NA	1400	10	3,300	435	52	960	NA	0.13	1,400	2 / 53	COPEC
TPHPRG	TPH-Purgeable Unknown Hydrocarbon	µg/L	2	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Alkalinity, Total (As CaCO3)	µg/L	1	1	100.00	NA	NA	164,000	164,000	164,000	164,000	NA	NA	NA	NA	NA	-
ALKALN	Bicarbonate Alkalinity	µg/L	13	13	100.00	NA	NA	125,000	307,000	193,308	168,000	63,127	NA	NA	NA	NA	-
ALKALN	Carbonate	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Carbonate Alkalinity	µg/L	12	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Hydroxide Alkalinity	µg/L	11	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Hydroxide As CaCO3	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Total Alkalinity	µg/L	31	31	100.00	NA	NA	49,000	307,000	142,387	125,000	66,854	NA	NA	NA	NA	-
ANION	Chloride	µg/L	47	47	100.00	NA	NA	54,500	14,000,000	891,060	195,000	2,187,763	NA	NA	NA	NA	-
ANION	Fluoride	µg/L	7	3	42.86	NA	NA	220	240	230	230	8	NA	NA	NA	NA	-
ANION	Nitrate As Nitrogen	µg/L	35	33	94.29	NA	NA	74	7,800	3,935	4,400	2,216	NA	NA	NA	NA	-
ANION	Nitrate/Nitrite As Nitrogen	µg/L	14	13	92.86	NA	NA	1,900	7,800	4,300	3,900	1,698	NA	NA	NA	NA	-
ANION	Nitrite As Nitrogen	µg/L	20	4	20.00	NA	NA	6.0	35.0	22.3	24.0	11.8	NA	NA	NA	NA	-
ANION	Orthophosphate	µg/L	16	9	56.25	NA	NA	75	300	185	210	74	NA	NA	NA	NA	-
ANION	Sulfate	µg/L	31	31	100.00	NA	NA	5,500	1,760,000	119,297	28,200	326,913	NA	NA	NA	NA	-
CEC	Calcium	µg/L	2	2	100.00	NA	NA	21,000	120,000	70,500	70,500	49,500	NA	NA	NA	NA	-
CEC	Iron	µg/L	2	0	0.00	2380	NA	ND	ND	ND	ND	ND	ND	ND	2,380	0 / 2	-
CEC	Magnesium	µg/L	2	2	100.00	1,440,000	NA	50,000	210,000	130,000	130,000	80,000	0.00	NA	1,440,000	0 / 2	-
CEC	Potassium	µg/L	2	1	50.00	448,000	NA	48,000	48,000	48,000	48,000	NA	0.00	NA	448,000	0 / 2	-
CEC	Sodium	µg/L	2	2	100.00	9,242,000	NA	91,000	890,000	490,500	490,500	399,500	0.00	NA	9,242,000	0 / 2	-
DGASES	Ethane	µg/L	19	7	36.84	NA	NA	0.6	89.0	26.9	5.6	31.4	NA	NA	NA	NA	-
DGASES	Ethene	µg/L	19	4	21.05	NA	NA	1.1	49.0	28.8	32.5	17.4	NA	NA	NA	NA	-
DGASES	Hydrogen In Water	µg/L	16	1	6.25	NA	NA	27.6	27.6	27.6	27.6	NA	NA	NA	NA	NA	-
DGASES	Methane	µg/L	3	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DO	Dissolved Oxygen	µg/L	26	26	100.00	NA	NA	110	8,570	4,148	3,895	2,468	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Bottom	µg/L	16	16	100.00	NA	NA	250	5,300	2,947	3,780	1,833	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Middle	µg/L	19	19	100.00	NA	NA	470	8,500	3,537	4,030	2,056	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Top	µg/L	18	18	100.00	NA	NA	640	8,300	3,989	4,665	2,124	NA	NA	NA	NA	-
FTK-METAL	Dissolved Iron (II)	µg/L	3	3	100.00	NA	NA	0	2,000	667	0	943	NA	NA	NA	NA	-
FTK-METAL	Dissolved Manganese (II)	µg/L	4	4	100.00	NA	NA	0	5,300	2,325	2,000	2,250	NA	NA	NA	NA	-
FTK-METAL	Total Iron (II)	µg/L	11	11	100.00	NA	NA	0	2,900	500	0	954	NA	NA	NA	NA	-

TABLE G-4: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN F-WBZ GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
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FTK-METAL	Total Manganese (II)	µg/L	9	9	100.00	NA	NA	0	6,100	1,700	700	2,304	NA	NA	NA	NA	-
HARD	Hardness	µg/L	1	1	100.00	NA	NA	230,000	230,000	230,000	230,000	NA	NA	NA	NA	NA	-
MEE	Ethane	µg/L	24	2	8.33	NA	NA	3.3	3.3	3.3	3.3	0.0	NA	NA	NA	NA	-
MEE	Ethene	µg/L	24	1	4.17	NA	NA	2.7	2.7	2.7	2.7	NA	NA	NA	NA	NA	-
MEE	Methane	µg/L	24	8	33.33	NA	NA	3	1,300	313	62	466	NA	NA	NA	NA	-

Notes:

µg/L	Microgram per liter
BHC	Benzene hexachloride
CEC	Cation exchange capacity
COPEC	Chemical of potential ecological concern
COEC	Chemical of ecological concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DGASES	Dissolved gases
DO	Dissolved oxygen
FTK	Field test kit
HGAL	Hunters Point groundwater ambient level
MEE	Methane, ethane, ethene
ND	Nondetect
NA	Not applicable or not available
PAH	Polynuclear aromatic hydrocarbon
PEST	Pesticides
SVOA	Semivolatile organic compound
TOC	Total organic carbon
VOA	Volatile organic compound

TABLE G-5: COEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chromium VI (Surface Water Screening Criteria = 50 µg/L) A-Aquifer					
IR06MW49F	ORIG	31-Oct-91	100	10	**Yes**
IR06MW49F	DUP	06-Jan-92	110	10	**Yes**
IR06MW49F	ORIG	06-Jan-92	**120**	10	**Yes**
IR06MW49F	ORIG	08-Nov-93	87.8	10	**Yes**
IR06MW49F	ORIG	16-Feb-94	82.9	10	**Yes**
IR06MW49F	ORIG	16-May-94	91.1	10	**Yes**
IR06MW49F	DUP	16-May-94	91.1	10	**Yes**
IR06MW49F	ORIG	19-Aug-94	83.2	10	**Yes**
IR06MW49F	DUP	19-Aug-94	78.5	10	**Yes**
IR06MW49F	ORIG	19-Aug-02	*10* ^{U}	10	No
IR06MW50F	ORIG	10-Jun-02	**120**	10	**Yes**
IR06MW50F	DUP	10-Jun-02	**120**	10	**Yes**
IR06MW50F	ORIG	10-Jun-04	**120**	20	**Yes**
IR06MW50F	DUP	10-Jun-04	**120**	20	**Yes**
IR06MW50F	ORIG	22-Nov-04	*100*	20	**Yes**
IR28MW125A	ORIG	15-Aug-00	**260**	10	**Yes**
IR28MW125A	ORIG	21-Feb-01	90	10	**Yes**
IR28MW125A	ORIG	18-Jun-02	*10* ^{U}	10	No
IR28MW125A	ORIG	08-Jun-04	37	20	No
IR28MW125A	ORIG	02-Sep-04	110	20	**Yes**
IR28MW125A	ORIG	23-Nov-04	100	20	**Yes**
IR28MW151A	ORIG	18-Jan-01	*10* ^{U}	10	No
IR28MW151A	ORIG	18-Jan-01	*10* ^{U}	10	No
IR28MW151A	ORIG	08-Feb-01	*10* ^{U}	10	No
IR28MW151A	ORIG	27-Aug-01	**210**	10	**Yes**
IR28MW151A	ORIG	17-Jan-02	*10* ^{U}	10	No
IR28MW151A	ORIG	11-Jul-02	20	10	No
IR28MW151A	ORIG	15-Sep-04	20^{U}	20	No
IR28MW151A	ORIG	06-Dec-04	20^{U}	20	No
IR28MW920A	ORIG	23-Jan-01	*10* ^{U}	10	No
IR28MW920A	ORIG	08-Feb-01	*10* ^{U}	10	No
IR28MW920A	ORIG	08-Feb-01	*10* ^{U}	10	No
IR28MW920A	ORIG	28-Aug-01	*10* ^{U}	10	No
IR28MW920A	ORIG	16-Jan-02	**100**	10	**Yes**
IR28MW920A	ORIG	10-Jul-02	*10* ^{U}	10	No
IR28MW930A	ORIG	18-Jan-01	*10* ^{U}	10	No
IR28MW930A	ORIG	08-Feb-01	*10* ^{U}	10	No

TABLE G-5: COEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chromium VI (Surface Water Screening Criteria = 50 µg/L) A-Aquifer (Continued)					
IR28MW930A	ORIG	28-Aug-01	*10 U*	10	No
IR28MW930A	DUP	28-Aug-01	*10 U*	10	No
IR28MW930A	ORIG	16-Jan-02	**160**	10	**Yes**
IR28MW930A	ORIG	10-Jul-02	110	10	**Yes**
Zinc (Surface Water Criteria = 81 µg/L) A-Aquifer					
IR06MW42A	ORIG	13-Jun-90	21	2	No
IR06MW42A	ORIG	10-Jan-91	36.6	1.9	No
IR06MW42A	ORIG	16-Jul-91	5.3U	5.3	No
IR06MW42A	ORIG	10-Jan-92	22.5	6.1	No
IR06MW42A	DUP	10-Jan-92	20.8	6.1	No
IR06MW42A	ORIG	07-Sep-99	3J	3	No
IR06MW42A	ORIG	13-Jan-00	**143**	1.9	**Yes**
IR06MW42A	ORIG	26-Apr-00	*1.6 U*	1.6	No
IR06MW42A	ORIG	14-Jul-00	5.9U	5.9	No
IR06MW42A	ORIG	12-Oct-00	23.2U	1	No
IR06MW42A	ORIG	16-Jan-01	5.2UJ3	3	No
IR06MW42A	ORIG	26-Apr-01	27.3	2	No
IR06MW42A	ORIG	18-Jul-01	5.3J	5	No
IR06MW42A	ORIG	14-Mar-02	3.2U	3.2	No
IR06MW42A	ORIG	04-Jun-02	7U	7	No
IR06MW42A	DUP	04-Jun-02	7U	7	No
IR06MW42A	ORIG	28-Aug-02	69.5	4.2	No
IR06MW42A	DUP	28-Aug-02	62.2	4.2	No
IR06MW42A	ORIG	13-Nov-02	15.9U	2.1	No
IR06MW42A	ORIG	05-Mar-03	3.6B	20	No
IR06MW42A	ORIG	20-May-03	6.8U	200	Limit > criteria
IR06MW42A	ORIG	20-Aug-03	16.5U	200	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	*1.6 U*	20	No
IR06MW42A	ORIG	23-Mar-04	60U	60	No
IR06MW42A	ORIG	03-Jun-04	60U	60	No
IR06MW42A	ORIG	31-Aug-04	60U	60	No
IR06MW42A	ORIG	16-Nov-04	60UJ3	60	No
IR06MW45A	ORIG	31-Oct-91	6.1U	6.1	No
IR06MW45A	ORIG	13-Jan-92	6.1U	6.1	No
IR06MW45A	ORIG	07-Sep-99	29.4	3	No
IR06MW45A	ORIG	11-Jan-00	**146**	1.9	**Yes**
IR06MW45A	ORIG	11-Jan-00	81.8	1.9	**Yes**
IR06MW45A	ORIG	11-Oct-00	*1 U*	1	No
IR06MW45A	ORIG	01-May-01	17.7J	2	No
IR06MW45A	ORIG	03-Jun-02	7U	7	No

TABLE G-5: COEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Zinc (Surface Water Criteria = 81 µg/L) A-Aquifer (Continued)					
IR06MW45A	ORIG	15-Nov-02	6.1[J]	2.1	No
IR06MW45A	ORIG	11-Mar-03	25.5[B]	200	Limit > criteria
IR06MW45A	ORIG	19-Aug-03	14.8[U]	200	Limit > criteria
IR06MW45A	ORIG	30-Mar-04	600[U]	600	Limit > criteria
IR06MW45A	ORIG	03-Jun-04	60[U]	60	No
IR06MW45A	ORIG	31-Aug-04	50[U]	50	No
IR25MW15A2	ORIG	10-Jun-94	33.9[UJ9]	33.9	No
IR25MW15A2	DUP	10-Jun-94	19.1[U]	19.1	No
IR25MW15A2	ORIG	11-Aug-94	17.8[U]	17.8	No
IR25MW15A2	ORIG	26-May-95	84.5[J4]	0.3	**Yes**
IR25MW15A2	DUP	26-May-95	50.3[J4]	0.3	No
IR25MW15A2	ORIG	01-Feb-01	**233**	0.8	**Yes**
IR25MW15A2	ORIG	12-Jun-02	*2.9 U*	2	No
IR25MW17A	ORIG	01-Jul-94	3.1[U]	3.1	No
IR25MW17A	ORIG	19-Aug-94	3.1[U]	3.1	No
IR25MW17A	ORIG	02-Jun-95	75.3[J234]	0.3	No
IR25MW17A	ORIG	07-Sep-99	5.6[J]	3	No
IR25MW17A	ORIG	14-Jan-00	**175**	1.9	**Yes**
IR25MW17A	ORIG	13-Oct-00	40[U]	40	No
IR25MW17A	ORIG	20-Jul-01	5[U]	5	No
IR25MW17A	ORIG	14-Jun-02	7[U]	7	No
IR25MW17A	ORIG	14-Jun-02	5.5[J]	2	No
IR25MW17A	ORIG	13-Nov-02	*2.1 U*	2.1	No
IR25MW17A	ORIG	11-Mar-03	20.6[B]	200	Limit > criteria
IR25MW17A	ORIG	19-Aug-03	14.8[U]	200	Limit > criteria
IR25MW17A	ORIG	29-Mar-04	60[UJ3]	60	No
IR25MW17A	ORIG	02-Sep-04	50[U]	50	No
IR28MW124A	ORIG	20-May-94	39.7	1	No
IR28MW124A	DUP	20-May-94	34.9	1	No
IR28MW124A	ORIG	12-Jul-95	**206**	0.3	**Yes**
IR28MW124A	ORIG	21-Nov-95	89.4[U]	89.4	Limit > criteria
IR28MW124A	DUP	21-Nov-95	87.2[U]	87.2	Limit > criteria
IR28MW124A	ORIG	28-Feb-01	53.9[J4]	0.8	No
IR28MW124A	ORIG	19-Jun-02	*20.2 U*	2	No
IR28MW126A	ORIG	20-May-94	12.9[U]	12.9	No
IR28MW126A	ORIG	12-Jun-95	12.4[UJ2]	12.4	No
IR28MW126A	DUP	12-Jun-95	14.2[UJ2]	14.2	No

TABLE G-5: COEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Zinc (Surface Water Criteria = 81 µg/L) A-Aquifer (Continued)					
IR28MW126A	ORIG	04-Dec-95	18.9 UJ9	18.9	No
IR28MW126A	DUP	04-Dec-95	**120**	1.2	**Yes**
IR28MW126A	ORIG	19-Mar-96	13.6 U	13.6	No
IR28MW126A	ORIG	18-Jun-02	*4.5 J*	2	No
IR28MW151A	ORIG	22-Jun-94	*2.2 U*	2.2	No
IR28MW151A	DUP	22-Jun-94	*2.2 U*	2.2	No
IR28MW151A	ORIG	29-Jun-95	16 UJ4	16	No
IR28MW151A	ORIG	12-Dec-95	14.5 U	14.5	No
IR28MW151A	ORIG	27-Aug-01	20 U	20	No
IR28MW151A	ORIG	17-Jan-02	20 U	20	No
IR28MW151A	ORIG	19-Jun-02	**283**	2	**Yes**
IR28MW151A	ORIG	15-Sep-04	50 U	50	No
IR28MW151A	ORIG	06-Dec-04	50 U	50	No
IR28MW170A	ORIG	11-Jul-94	*3.1 U*	3.1	No
IR28MW170A	ORIG	29-Jun-95	7.5 UJ4	7.5	No
IR28MW170A	DUP	29-Jun-95	11.6 UJ4	11.6	No
IR28MW170A	ORIG	12-Dec-95	11.9 U	11.9	No
IR28MW170A	DUP	12-Dec-95	6.8 U	6.8	No
IR28MW170A	ORIG	29-Aug-01	20 U	20	No
IR28MW170A	ORIG	15-Jan-02	20 U	20	No
IR28MW170A	ORIG	11-Jul-02	**1,300 J3**	20	**Yes**
IR28MW294A	ORIG	17-Nov-95	**105**	1.2	**Yes**
IR28MW294A	ORIG	27-Feb-96	8.4 U	8.4	No
IR28MW294A	ORIG	07-May-96	17.9 U	17.9	No
IR28MW294A	ORIG	14-Jun-02	*5.6 U*	2	No
IR28MW921A	ORIG	28-Aug-01	20 U	20	No
IR28MW921A	ORIG	17-Jan-02	*13 J*	20	No
IR28MW921A	ORIG	10-Jul-02	**180**	20	**Yes**
IR28MW930A	ORIG	28-Aug-01	34	20	No
IR28MW930A	DUP	28-Aug-01	40	20	No
IR28MW930A	ORIG	16-Jan-02	*18 J*	20	No
IR28MW930A	ORIG	10-Jul-02	**350**	20	**Yes**
IR30MW02F	ORIG	12-Jul-02	89 J3	20	**Yes**

TABLE G-5: COEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Notes:

Bold results indicate the maximum detected concentration for each well.

Italicized results indicate the lowest concentration identified for each well.

Surface water criteria derivation discussed in Section G2.0 of this appendix, and listed in Table G-1.

The listed detection limit for cyanide reflects the maximum sensitivity of current, routinely used analytical methods. The listed detection limit will be used as the project screening criterion unless reasonable grounds are established for pursuing non-routine methods.

--	Not applicable
µg/L	Microgram gram per liter
HGAL	Hunters Point groundwater ambient level
J	Estimated concentration
U	Nondetected concentration

Qualifier Comment Code:

B	The reported value was obtained from an instrument reading that was less than the sample quantitation limit
J1	Instrument/system performance
J2	Matrix duplicate
J3	Accuracy - blank spike, surrogate spike, matrix spike
J4	Serial dilution
J5	Holding time
J6	Results estimated due to field duplicate precision violations
J7	Initial and continuing calibration
J8	Exceeds calibration range
J9	Metals - interference check sample/Organic chemicals - percent different between columns
J0	Internal standards

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Cadmium (Surface Water Screening Criteria = 8.8 µg/L) A-Aquifer					
IR06MW53F	ORIG	15-Mar-94	0.3 U	0.3	No
IR06MW53F	ORIG	11-Aug-94	**9.2**	0.2	**Yes**
IR06MW53F	ORIG	25-May-95	*0.1 U*	0.1	No
IR06MW53F	ORIG	07-Jun-04	5 U	5	No
IR06MW53F	ORIG	10-Sep-04	5 U	5	No
IR06MW53F	DUP	10-Sep-04	5 U	5	No
IR06MW53F	ORIG	23-Nov-04	5 U	5	No
Chromium (Surface Water Screening Criteria = 400 µg/L) A-Aquifer					
IR06MW49F	ORIG	31-Oct-91	90.6	3	No
IR06MW49F	ORIG	6-Jan-92	**101**	3	No
IR06MW49F	DUP	6-Jan-92	96	3	No
IR06MW49F	ORIG	8-Nov-93	81.1	2.3	No
IR06MW49F	ORIG	16-Feb-94	87.8	2.3	No
IR06MW49F	DUP	16-May-94	80.7	0.9	No
IR06MW49F	ORIG	16-May-94	78.8	0.9	No
IR06MW49F	DUP	19-Aug-94	78.4	0.7	No
IR06MW49F	ORIG	19-Aug-94	83.9	0.7	No
IR06MW49F	ORIG	19-Aug-02	*7*	3	No
IR06MW50F	ORIG	14-Dec-93	118	2.5	No
IR06MW50F	DUP	14-Dec-93	115	2.5	No
IR06MW50F	ORIG	16-Aug-94	108	0.7	No
IR06MW50F	ORIG	25-May-95	113	1	No
IR06MW50F	ORIG	10-Jun-02	100	0.1	No
IR06MW50F	DUP	10-Jun-02	*97.1*	0.1	No
IR06MW50F	ORIG	10-Jun-04	**119**	5	No
IR06MW50F	DUP	10-Jun-04	118	5	No
IR06MW50F	ORIG	22-Nov-04	115	5	No
IR25MW11A	ORIG	28-Dec-93	2.3 U	2.3	No
IR25MW11A	DUP	28-Dec-93	2.3 U	2.3	No
IR25MW11A	ORIG	18-Aug-94	*0.7 U*	0.7	No
IR25MW11A	ORIG	07-Jun-95	1 U	1	No
IR25MW11A	ORIG	24-Aug-00	1.5	0.33	No
IR25MW11A	ORIG	24-Aug-00	**95.7**	0.33	No
IR25MW17A	ORIG	01-Jul-94	0.7 U	0.7	No
IR25MW17A	ORIG	19-Aug-94	0.7 U	0.7	No
IR25MW17A	ORIG	02-Jun-95	1 U	1	No
IR25MW17A	ORIG	07-Sep-99	1.7 J	1.3	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chromium (Surface Water Screening Criteria = 400 µg/L) A-Aquifer (Continued)					
IR25MW17A	ORIG	14-Jan-00	2.6 U	2.6	No
IR25MW17A	ORIG	13-Oct-00	1 U	1	No
IR25MW17A	ORIG	20-Jul-01	**92.2**	2	No
IR25MW17A	ORIG	14-Jun-02	1.1 U	1.1	No
IR25MW17A	ORIG	13-Nov-02	*0.41 U*	0.41	No
IR25MW17A	ORIG	11-Mar-03	2 U	10	No
IR25MW17A	ORIG	19-Aug-03	1.8 U	10	No
IR25MW17A	ORIG	29-Mar-04	10 U	10	No
IR25MW17A	ORIG	02-Sep-04	5 U	5	No
IR28MW125A	ORIG	26-May-94	**286**	3	No
IR28MW125A	DUP	26-May-94	275	3	No
IR28MW125A	ORIG	13-Jun-95	177	1	No
IR28MW125A	ORIG	04-Dec-95	250	0.5	No
IR28MW125A	ORIG	22-Aug-00	213	1.1	No
IR28MW125A	ORIG	21-Feb-01	99.1	0.5	No
IR28MW125A	ORIG	18-Jun-02	*20.9*	0.1	No
IR28MW125A	ORIG	08-Jun-04	48.4	5	No
IR28MW125A	ORIG	02-Sep-04	107	5	No
IR28MW125A	ORIG	23-Nov-04	95.1	5	No
IR28MW126A	ORIG	20-May-94	3 U	3	No
IR28MW126A	ORIG	12-Jun-95	1 U	1	No
IR28MW126A	DUP	12-Jun-95	1 U	1	No
IR28MW126A	ORIG	04-Dec-95	3.5 U	3.5	No
IR28MW126A	DUP	04-Dec-95	**88**	0.5	No
IR28MW126A	ORIG	19-Mar-96	*0.4 U*	0.4	No
IR28MW126A	ORIG	18-Jun-02	1.98 J	0.25	No
IR28MW127A	ORIG	23-May-94	2.8	0.4	No
IR28MW127A	DUP	23-May-94	2.9	0.4	No
IR28MW127A	ORIG	08-Jun-95	1 U	1	No
IR28MW127A	ORIG	27-Nov-95	*0.5 U*	0.5	No
IR28MW127A	DUP	27-Nov-95	**71.6**	0.5	No
IR28MW127A	ORIG	22-Aug-00	1.1 U	1.1	No
IR28MW127A	ORIG	21-Feb-01	8.2 J	0.5	No
IR28MW127A	ORIG	19-Jun-02	3 U	3	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chromium (Surface Water Screening Criteria = 400 µg/L) A-Aquifer (Continued)					
IR28MW129A	ORIG	31-May-94	*0.9* U	0.9	No
IR28MW129A	ORIG	27-Jun-95	1.8 U	1.8	No
IR28MW129A	ORIG	29-Nov-95	**50.6**	0.5	No
IR28MW151A	ORIG	22-Jun-94	0.71 U	0.71	No
IR28MW151A	DUP	22-Jun-94	*0.4* U	0.4	No
IR28MW151A	ORIG	29-Jun-95	1.8 U	1.8	No
IR28MW151A	ORIG	12-Dec-95	*0.4* U	0.4	No
IR28MW151A	ORIG	27-Aug-01	**69 J4**	10	No
IR28MW151A	ORIG	17-Jan-02	11	10	No
IR28MW151A	ORIG	19-Jun-02	11.1	3	No
IR28MW151A	ORIG	15-Sep-04	5 U	5	No
IR28MW151A	ORIG	06-Dec-04	5 U	5	No
IR28MW294A	ORIG	17-Nov-95	**267**	0.5	No
IR28MW294A	ORIG	27-Feb-96	*0.4* U	0.4	No
IR28MW294A	ORIG	07-May-96	1.5	0.7	No
IR28MW294A	ORIG	14-Jun-02	3 U	3	No
IR28MW920A	ORIG	28-Aug-01	**1,200 J4**	10	**Yes**
IR28MW920A	ORIG	16-Jan-02	120 J4	10	No
IR28MW920A	ORIG	10-Jul-02	*10* U	10	No
IR28MW930A	ORIG	28-Aug-01	**820 J4**	10	**Yes**
IR28MW930A	DUP	28-Aug-01	790 J4	10	**Yes**
IR28MW930A	ORIG	16-Jan-02	350 J4	10	No
IR28MW930A	ORIG	10-Jul-02	*93*	10	No
IR29MW72F	ORIG	25-Jul-94	33.8	0.7	No
IR29MW72F	DUP	25-Jul-94	55	0.7	No
IR29MW72F	ORIG	22-Jun-95	**195**	1.8	No
IR29MW72F	ORIG	07-Dec-95	101	0.5	No
IR29MW72F	ORIG	08-Jul-02	19	5	No
IR29MW72F	ORIG	09-Jun-04	*5* U	5	No
IR29MW72F	ORIG	07-Sep-04	*5* U	5	No
IR29MW72F	ORIG	22-Nov-04	*5* U	5	No
IR29MW72F	DUP	22-Nov-04	*5* U	5	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Copper (HGAL = 28.04 µg/L) A-Aquifer					
IR06MW40A	ORIG	13-Jun-90	**58.2**	1.7	**Yes**
IR06MW40A	ORIG	04-Jan-91	2.3 U	2.3	No
IR06MW40A	ORIG	17-Jul-91	3.5	1.3	No
IR06MW40A	DUP	17-Jul-91	*1.3 U*	1.3	No
IR06MW40A	ORIG	09-Jan-92	1.6 U	1.6	No
IR06MW40A	ORIG	20-Aug-02	8 U	8	No
IR06MW45A	ORIG	31-Oct-91	10.9	1.6	No
IR06MW45A	ORIG	13-Jan-92	4.7 U	4.7	No
IR06MW45A	ORIG	07-Sep-99	2.2 U	2.2	No
IR06MW45A	ORIG	11-Jan-00	19.1 J1	1.6	No
IR06MW45A	ORIG	11-Jan-00	**32.8 J1**	1.6	**Yes**
IR06MW45A	ORIG	11-Oct-00	2.3 U	1	No
IR06MW45A	ORIG	01-May-01	*1.6 J1*	1	No
IR06MW45A	ORIG	03-Jun-02	2 UJ23	2	No
IR06MW45A	ORIG	15-Nov-02	4.2 U	0.8	No
IR06MW45A	ORIG	11-Mar-03	12.6 B	25	No
IR06MW45A	ORIG	19-Aug-03	2.4 U	25	No
IR06MW45A	ORIG	30-Mar-04	250 U	250	Limit > criteria
IR06MW45A	ORIG	03-Jun-04	25 U	25	No
IR06MW45A	ORIG	31-Aug-04	5.2	5	No
IR06MW53F	ORIG	15-Mar-94	*7.3*	0.5	No
IR06MW53F	ORIG	11-Aug-94	**31.2**	1.7	**Yes**
IR06MW53F	ORIG	25-May-95	9	0.5	No
IR28MW124A	ORIG	20-May-94	10.7 U	10.7	No
IR28MW124A	DUP	20-May-94	17.6 U	17.6	No
IR28MW124A	ORIG	12-Jul-95	**36.8**	0.8	**Yes**
IR28MW124A	ORIG	21-Nov-95	29.5	0.8	**Yes**
IR28MW124A	DUP	21-Nov-95	30.3	0.8	**Yes**
IR28MW124A	ORIG	28-Feb-01	*8.3 J*	1.5	No
IR28MW124A	ORIG	19-Jun-02	18.7	8	No
IR28MW126A	ORIG	20-May-94	2.1 U	2.1	No
IR28MW126A	DUP	12-Jun-95	1.5 U	1.5	No
IR28MW126A	ORIG	12-Jun-95	0.88 U	0.88	No
IR28MW126A	DUP	04-Dec-95	**35.8**	0.8	**Yes**
IR28MW126A	ORIG	04-Dec-95	*0.8 UJ9*	0.8	No
IR28MW126A	ORIG	19-Mar-96	1.3 U	1.3	No
IR28MW126A	ORIG	18-Jun-02	3.96 J	0.25	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Copper (HGAL = 28.04 µg/L) A-Aquifer (Continued)					
IR28MW127A	ORIG	23-May-94	1.7 U	1.7	No
IR28MW127A	DUP	23-May-94	3.6	0.4	No
IR28MW127A	ORIG	08-Jun-95	0.81 U	0.81	No
IR28MW127A	ORIG	27-Nov-95	*0.8* U	0.8	No
IR28MW127A	DUP	27-Nov-95	**43**	0.8	**Yes**
IR28MW127A	ORIG	22-Aug-00	1.9 U	1.9	No
IR28MW127A	ORIG	21-Feb-01	4.5 U	1.5	No
IR28MW127A	ORIG	19-Jun-02	8 U	8	No
IR28MW151A	ORIG	22-Jun-94	*0.5* U	0.5	No
IR28MW151A	DUP	22-Jun-94	*0.5* U	0.5	No
IR28MW151A	ORIG	29-Jun-95	0.8 U	0.8	No
IR28MW151A	ORIG	12-Dec-95	*0.5* U	0.5	No
IR28MW151A	ORIG	27-Aug-01	**89**	10	**Yes**
IR28MW151A	ORIG	17-Jan-02	10 U	10	No
IR28MW151A	ORIG	19-Jun-02	68.7	8	**Yes**
IR28MW151A	ORIG	15-Sep-04	4.5 J	5	No
IR28MW151A	ORIG	06-Dec-04	1.1 J	5	No
IR28MW170A	ORIG	11-Jul-94	1.7 UJ9	1.7	No
IR28MW170A	ORIG	29-Jun-95	0.8 U	0.8	No
IR28MW170A	DUP	29-Jun-95	0.8 U	0.8	No
IR28MW170A	ORIG	12-Dec-95	*0.5* U	0.5	No
IR28MW170A	DUP	12-Dec-95	*0.5* U	0.5	No
IR28MW170A	ORIG	29-Aug-01	10 U	10	No
IR28MW170A	ORIG	15-Jan-02	10 U	10	No
IR28MW170A	ORIG	11-Jul-02	**270 J3**	10	**Yes**
IR28MW294A	ORIG	17-Nov-95	**36.6**	0.8	**Yes**
IR28MW294A	ORIG	27-Feb-96	*0.58* U	0.58	No
IR28MW294A	ORIG	07-May-96	2.2 U	2.2	No
IR28MW294A	ORIG	14-Jun-02	8 U	8	No
IR28MW930A	ORIG	28-Aug-01	72	10	**Yes**
IR28MW930A	DUP	28-Aug-01	**120**	10	**Yes**
IR28MW930A	ORIG	16-Jan-02	*10* U	10	No
IR28MW930A	ORIG	10-Jul-02	35 J3	10	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Copper (HGAL = 28.04 µg/L) A-Aquifer (Continued)					
IR29MW59F	ORIG	14-Nov-94	1.8 U	0.3	No
IR29MW59F	DUP	14-Nov-94	*0.3* U	0.3	No
IR29MW59F	ORIG	21-Jun-95	4 U	4	No
IR29MW59F	ORIG	06-Dec-95	**46.9**	0.8	**Yes**
IR29MW59F	ORIG	16-Aug-02	8 U	8	No
Lead (HGAL = 14.44 µg/L) A-Aquifer					
IR06MW45A	ORIG	31-Oct-91	2 U	2	No
IR06MW45A	ORIG	13-Jan-92	2 U	2	No
IR06MW45A	ORIG	07-Sep-99	0.8 UJ13	0.8	No
IR06MW45A	ORIG	11-Jan-00	**17**	1.3	**Yes**
IR06MW45A	ORIG	11-Jan-00	1.3 U	1.3	No
IR06MW45A	ORIG	01-May-01	2 UJ3	2	No
IR06MW45A	ORIG	03-Jun-02	2.4 U	2.4	No
IR06MW45A	ORIG	15-Nov-02	*0.7* U	0.7	No
IR06MW45A	ORIG	11-Mar-03	2 U	3	No
IR06MW45A	ORIG	19-Aug-03	1.4 U	3	No
IR06MW45A	ORIG	30-Mar-04	100 U	100	Limit > criteria
IR06MW45A	ORIG	03-Jun-04	10 U	10	No
IR06MW45A	ORIG	31-Aug-04	8.2	5	No
IR28MW126A	ORIG	20-May-94	3.9 UJ3	3.9	No
IR28MW126A	ORIG	12-Jun-95	1.3 U	1.3	No
IR28MW126A	DUP	12-Jun-95	1.3 U	1.3	No
IR28MW126A	ORIG	04-Dec-95	1.2 U	1.2	No
IR28MW126A	DUP	04-Dec-95	**25.6**	1.2	**Yes**
IR28MW126A	ORIG	19-Mar-96	*0.8* U	0.8	No
IR28MW126A	ORIG	18-Jun-02	0.866	0.02	No
IR28MW127A	ORIG	23-May-94	0.79 U	0.79	No
IR28MW127A	DUP	23-May-94	0.79 U	0.79	No
IR28MW127A	ORIG	08-Jun-95	1.3 U	1.3	No
IR28MW127A	ORIG	27-Nov-95	1.2 U	1.2	No
IR28MW127A	DUP	27-Nov-95	**29.7**	1.2	**Yes**
IR28MW127A	ORIG	22-Aug-00	1.7 U	1.7	No
IR28MW127A	ORIG	21-Feb-01	1.6 U	1.6	No
IR28MW127A	ORIG	19-Jun-02	*0.223* U	0.02	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Mercury (HGAL = 0.6 µg/L) A-Aquifer					
IR06MW44A	ORIG	31-Oct-91	0.2 U	0.2	No
IR06MW44A	ORIG	07-Jan-92	0.2 UJ3	0.2	No
IR06MW44A	ORIG	17-Aug-00	*0.1* U	0.1	No
IR06MW44A	ORIG	16-Jan-01	0.34	0.5	No
IR06MW44A	ORIG	16-Jan-01	**8**	2.5	**Yes**
IR06MW44A	ORIG	01-Feb-01	2	0.5	**Yes**
IR06MW44A	ORIG	01-Feb-01	*0.1* U	0.1	No
IR25MW18A	ORIG	16-Jan-01	0.69	0.5	**Yes**
IR25MW19A	ORIG	17-Jan-01	1.7	0.5	**Yes**
IR25MW22A	ORIG	16-Jan-01	1	0.5	**Yes**
IR25MW902B	ORIG	16-Jan-01	**0.66**	0.5	**Yes**
IR25MW902B	ORIG	01-Feb-01	*0.5* U	0.5	No
IR25MW904B	ORIG	16-Jan-01	**2.5**	0.5	**Yes**
IR25MW904B	ORIG	01-Feb-01	*0.5* U	0.5	No
IR25MW904B	ORIG	01-Feb-01	*0.5* U	0.5	No
IR25MW905B	ORIG	16-Jan-01	**4.6**	0.5	**Yes**
IR25MW905B	ORIG	01-Feb-01	*0.5* U	0.5	No
IR28MW124A	ORIG	20-May-94	0.52	0.1	No
IR28MW124A	DUP	20-May-94	0.57	0.1	No
IR28MW124A	ORIG	12-Jul-95	*0.1* U	0.1	No
IR28MW124A	ORIG	21-Nov-95	1.1	0.1	**Yes**
IR28MW124A	DUP	21-Nov-95	0.99	0.1	**Yes**
IR28MW124A	ORIG	28-Feb-01	**1.7**	0.1	**Yes**
IR28MW124A	ORIG	19-Jun-02	0.16 U	0.1	No
IR28MW126A	ORIG	20-May-94	0.11	0.1	No
IR28MW126A	ORIG	12-Jun-95	*0.1* U	0.1	No
IR28MW126A	DUP	12-Jun-95	*0.1* U	0.1	No
IR28MW126A	ORIG	04-Dec-95	0.14	0.1	No
IR28MW126A	DUP	04-Dec-95	**3**	0.1	**Yes**
IR28MW126A	ORIG	19-Mar-96	*0.1* U	0.1	No
IR28MW126A	ORIG	18-Jun-02	*0.1* U	0.1	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Mercury (HGAL = 0.6 µg/L) A-Aquifer (Continued)					
IR28MW127A	ORIG	23-May-94	0.11 U	0.11	No
IR28MW127A	DUP	23-May-94	*0.09 U*	0.09	No
IR28MW127A	ORIG	08-Jun-95	0.1 U	0.1	No
IR28MW127A	ORIG	27-Nov-95	0.16	0.1	No
IR28MW127A	DUP	27-Nov-95	**4.8**	0.1	**Yes**
IR28MW127A	ORIG	22-Aug-00	0.1 U	0.1	No
IR28MW127A	ORIG	21-Feb-01	0.1 U	0.1	No
IR28MW127A	ORIG	19-Jun-02	0.1 U	0.1	No
IR28MW211F	ORIG	07-Jul-94	0.1 U	0.1	No
IR28MW211F	DUP	07-Jul-94	0.1 U	0.1	No
IR28MW211F	ORIG	28-Jun-95	0.1 U	0.1	No
IR28MW211F	DUP	28-Jun-95	0.1 U	0.1	No
IR28MW211F	ORIG	12-Dec-95	0.1 U	0.1	No
IR28MW211F	ORIG	20-Mar-96	0.1 U	0.1	No
IR28MW211F	ORIG	07-Mar-01	**0.78**	0.5	**Yes**
IR28MW211F	ORIG	10-Apr-01	0.5 U	0.5	No
IR28MW211F	ORIG	10-Apr-01	0.5 U	0.5	No
IR28MW211F	ORIG	09-Sep-04	0.08 U	0.2	No
IR28MW211F	DUP	09-Sep-04	*0.044 U*	0.2	No
IR28MW211F	ORIG	01-Dec-04	0.13 U	0.2	No
IR28MW211F	DUP	01-Dec-04	0.2 U	0.2	No
IR28MW341F	ORIG	12-Mar-01	**0.77**	0.5	**Yes**
IR28MW341F	ORIG	10-Apr-01	*0.5 U*	0.5	No
IR28MW920A	ORIG	23-Jan-01	0.5 U	0.5	No
IR28MW920A	ORIG	08-Feb-01	0.5 U	0.5	No
IR28MW920A	ORIG	08-Feb-01	0.5 U	0.5	No
IR28MW920A	ORIG	28-Aug-01	**2.3**	0.2	**Yes**
IR28MW920A	ORIG	16-Jan-02	0.28 U	0.2	No
IR28MW920A	ORIG	10-Jul-02	*0.2 U*	0.2	No
IR28MW930A	ORIG	18-Jan-01	0.5 U	0.5	No
IR28MW930A	ORIG	08-Feb-01	0.5 U	0.5	No
IR28MW930A	ORIG	28-Aug-01	**1.9**	0.2	**Yes**
IR28MW930A	DUP	28-Aug-01	**1.9**	0.2	**Yes**
IR28MW930A	ORIG	16-Jan-02	*0.2 U*	0.2	No
IR28MW930A	ORIG	10-Jul-02	*0.2 U*	0.2	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Mercury (HGAL = 0.6 µg/L) A-Aquifer (Continued)					
IR28MW933F1	ORIG	07-Mar-01	**0.84**	0.5	**Yes**
IR28MW933F1	ORIG	10-Apr-01	*0.25*	0.5	No
IR28MW933F2	ORIG	07-Mar-01	*1.5*	0.5	**Yes**
IR28MW933F2	ORIG	10-Apr-01	**3.9**	0.5	**Yes**
IR28MW934F1	ORIG	07-Mar-01	**1.2**	0.5	**Yes**
IR28MW934F1	ORIG	10-Apr-01	*0.31*	0.5	No
Nickel (HGAL = 96.48 µg/L) A-Aquifer					
IR06MW44A	ORIG	31-Oct-91	**117**	17.8	**Yes**
IR06MW44A	ORIG	07-Jan-92	89.4	17.8	No
IR06MW44A	ORIG	17-Aug-00	41	2.1	No
IR06MW44A	ORIG	01-Feb-01	*16* J	1.7	No
IR06MW44A	ORIG	13-Jun-02	92.8	0.9	No
IR25MW11A	ORIG	28-Dec-93	9.5	7.2	No
IR25MW11A	DUP	28-Dec-93	7.2 U	7.2	No
IR25MW11A	ORIG	18-Aug-94	6.6 U	6.6	No
IR25MW11A	ORIG	07-Jun-95	*3.8*	1.3	No
IR25MW11A	ORIG	24-Aug-00	5	1.3	No
IR25MW11A	ORIG	24-Aug-00	**232**	1.3	**Yes**
IR25MW15A2	ORIG	10-Jun-94	33.4 J39	1.8	No
IR25MW15A2	DUP	10-Jun-94	*29.9* J3	1.8	No
IR25MW15A2	ORIG	11-Aug-94	61	2.5	No
IR25MW15A2	ORIG	26-May-95	**113**	1.3	**Yes**
IR25MW15A2	DUP	26-May-95	92.1	1.3	No
IR25MW15A2	ORIG	01-Feb-01	48.7	1.7	No
IR25MW15A2	ORIG	12-Jun-02	54.4	0.9	No
IR25MW16A	ORIG	02-Jun-94	**122 J4**	0.7	**Yes**
IR25MW16A	DUP	02-Jun-94	19.5 J4	0.7	No
IR25MW16A	ORIG	19-Aug-94	7.9 UJ3	7.9	No
IR25MW16A	ORIG	01-Jun-95	*7.4* UJ9	7.4	No
IR25MW16A	DUP	01-Jun-95	7.5 U	7.5	No
IR25MW16A	ORIG	12-Aug-02	14.8 U	0.9	No
IR25MW17A	ORIG	01-Jul-94	77.8 J9	2.5	No
IR25MW17A	ORIG	19-Aug-94	86.7 J3	2.5	No
IR25MW17A	ORIG	02-Jun-95	70.1 J4	1.3	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Nickel (HGAL = 96.48 µg/L) A-Aquifer (Continued)					
IR25MW17A	ORIG	07-Sep-99	15.3[J]	2.3	No
IR25MW17A	ORIG	14-Jan-00	80.6	1.7	No
IR25MW17A	ORIG	13-Oct-00	89.3	1	No
IR25MW17A	ORIG	20-Jul-01	**260**	*2*	**Yes**
IR25MW17A	ORIG	14-Jun-02	84	4.6	No
IR25MW17A	ORIG	13-Nov-02	68.2	0.79	No
IR25MW17A	ORIG	11-Mar-03	83.7[N]	40	No
IR25MW17A	ORIG	19-Aug-03	85.6	40	No
IR25MW17A	ORIG	29-Mar-04	70.8	40	No
IR25MW17A	ORIG	02-Sep-04	*12.4*	5	No
IR28MW126A	ORIG	20-May-94	13.8[U]	13.8	No
IR28MW126A	ORIG	12-Jun-95	*5 [U]*	5	No
IR28MW126A	DUP	12-Jun-95	5.1[U]	5.1	No
IR28MW126A	ORIG	04-Dec-95	6.3[UJ9]	6.3	No
IR28MW126A	DUP	04-Dec-95	**187**	1.3	**Yes**
IR28MW126A	ORIG	19-Mar-96	*5*	0.7	No
IR28MW126A	ORIG	18-Jun-02	6.5[U]	0.9	No
IR28MW127A	ORIG	23-May-94	5.9[U]	5.9	No
IR28MW127A	DUP	23-May-94	6.1[U]	6.1	No
IR28MW127A	ORIG	08-Jun-95	4.8	1.3	No
IR28MW127A	ORIG	27-Nov-95	5.6	1.3	No
IR28MW127A	DUP	27-Nov-95	**146**	1.3	**Yes**
IR28MW127A	ORIG	22-Aug-00	*3.1 [J]*	2.1	No
IR28MW127A	ORIG	21-Feb-01	3.5[U]	1.7	No
IR28MW127A	ORIG	19-Jun-02	8.2[U]	0.9	No
IR28MW129A	ORIG	31-May-94	*4.9 [UJ3]*	4.9	No
IR28MW129A	ORIG	27-Jun-95	5	3.3	No
IR28MW129A	ORIG	29-Nov-95	**117**	1.3	**Yes**
IR28MW294A	ORIG	17-Nov-95	**384**	1.3	**Yes**
IR28MW294A	ORIG	27-Feb-96	*5*	0.7	No
IR28MW294A	ORIG	07-May-96	7	0.9	No
IR28MW294A	ORIG	14-Jun-02	5.8[U]	0.9	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Silver (HGAL = 7.43 µg/L) A-Aquifer					
IR25MW17A	ORIG	01-Jul-94	0.6 U	0.6	No
IR25MW17A	ORIG	19-Aug-94	0.6 U	0.6	No
IR25MW17A	ORIG	02-Jun-95	0.5 U	0.5	No
IR25MW17A	ORIG	07-Sep-99	1.5 U	1.5	No
IR25MW17A	ORIG	14-Jan-00	1.3 U	1.3	No
IR25MW17A	ORIG	13-Oct-00	7.6 UJ3	1	**Yes**
IR25MW17A	ORIG	20-Jul-01	2 U	2	No
IR25MW17A	ORIG	14-Jun-02	0.9 U	0.9	No
IR25MW17A	ORIG	13-Nov-02	*0.42 U*	0.42	No
IR25MW17A	ORIG	11-Mar-03	1 UN	10	Limit > criteria
IR25MW17A	ORIG	19-Aug-03	0.6 UJ	10	Limit > criteria
IR25MW17A	ORIG	29-Mar-04	10 U	10	Limit > criteria
IR25MW17A	ORIG	02-Sep-04	1 U	1	No
Aroclor-1248 (Surface Water Screening Criteria = 0.03 µg/L) A-Aquifer					
IR29MW48A	ORIG	06-Jun-94	**2 J3**	1	**Yes**
IR29MW48A	ORIG	02-Aug-95	0.5 U	0.5	Limit > criteria
IR29MW48A	ORIG	27-Nov-95	0.5 U	0.5	Limit > criteria
IR29MW48A	ORIG	23-Jul-02	*0.19 U*	0.19	Limit > criteria
Aroclor-1260 (Surface Water Screening Criteria = 0.03 µg/L) A-Aquifer					
IR25MW15A1	ORIG	14-Jun-94	**2 J3**	1	**Yes**
IR25MW15A1	ORIG	11-Aug-94	0.5 U	0.5	Limit > criteria
IR25MW15A1	ORIG	26-May-95	0.5 U	0.5	Limit > criteria
IR25MW15A1	ORIG	17-Aug-00	*0.05 U*	0.05	Limit > criteria
IR25MW15A1	DUP	17-Aug-00	0.3	0.05	**Yes**
IR25MW15A1	ORIG	01-Feb-01	0.7	0.1	**Yes**
IR25MW15A1	ORIG	13-Aug-02	0.19 U	0.19	Limit > criteria
IR25MW15A2	ORIG	10-Jun-94	5 J3	1	**Yes**
IR25MW15A2	DUP	10-Jun-94	3	1	**Yes**
IR25MW15A2	ORIG	11-Aug-94	**11 J3**	1	**Yes**
IR25MW15A2	ORIG	26-May-95	4 J3	1	**Yes**
IR25MW15A2	DUP	26-May-95	9 J3	1	**Yes**
IR25MW15A2	ORIG	16-Aug-00	*0.06 J9*	0.05	**Yes**
IR25MW15A2	ORIG	01-Feb-01	0.7	0.1	**Yes**
IR25MW15A2	ORIG	12-Jun-02	0.38 U	0.38	Limit > criteria
IR25MW16A	ORIG	02-Jun-94	0.5 U	0.5	Limit > criteria
IR25MW16A	DUP	02-Jun-94	0.5 U	0.5	Limit > criteria
IR25MW16A	ORIG	19-Aug-94	0.5 U	0.5	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Aroclor-1260 (Surface Water Screening Criteria = 0.03 µg/L) A-Aquifer (Continued)					
IR25MW16A	ORIG	01-Jun-95	0.6 J	1	**Yes**
IR25MW16A	DUP	01-Jun-95	**1**	1	**Yes**
IR25MW16A	ORIG	17-Aug-00	**1 J5**	0.1	**Yes**
IR25MW16A	ORIG	26-Feb-01	*0.1 U*	0.1	Limit > criteria
IR25MW16A	ORIG	12-Aug-02	0.19 U	0.19	Limit > criteria
IR25MW16A	ORIG	08-Jun-04	0.5 U	0.5	Limit > criteria
IR25MW16A	ORIG	14-Sep-04	0.29 J	0.5	**Yes**
IR25MW16A	ORIG	03-Dec-04	0.5 U	0.5	Limit > criteria
IR25MW18A	ORIG	08-Aug-02	1.6	0.2	**Yes**
IR25MW60A1	ORIG	08-Jun-04	**1.5**	0.5	**Yes**
IR25MW60A1	DUP	08-Jun-04	1.5	0.5	**Yes**
IR25MW60A1	ORIG	10-Sep-04	0.36 J	0.5	**Yes**
IR25MW60A1	ORIG	01-Dec-04	*0.2 J*	0.5	**Yes**
IR28MW129A	ORIG	31-May-94	*0.5 UJ3*	0.5	Limit > criteria
IR28MW129A	ORIG	27-Jun-95	**23**	10	**Yes**
IR28MW129A	ORIG	29-Nov-95	*0.5 U*	0.5	Limit > criteria
IR28MW171A	ORIG	03-Jun-94	3 J3	1	**Yes**
IR28MW171A	ORIG	09-Jun-95	**0.9 J**	1	**Yes**
IR28MW171A	DUP	09-Jun-95	0.8 J	1	**Yes**
IR28MW171A	ORIG	20-Nov-95	0.4 J	0.5	**Yes**
IR28MW171A	ORIG	04-Aug-00	0.5 U	0.05	Limit > criteria
IR28MW171A	DUP	04-Aug-00	0.5 U	0.05	Limit > criteria
IR28MW171A	ORIG	27-Feb-01	*0.3*	0.1	**Yes**
IR28MW171A	ORIG	17-Jun-02	0.38 U	0.38	Limit > criteria
IR28MW171A	ORIG	02-Jun-04	0.5 U	0.5	Limit > criteria
IR28MW171A	ORIG	01-Sep-04	0.5 U	0.5	Limit > criteria
IR28MW171A	ORIG	19-Nov-04	0.43 J	0.5	**Yes**
IR50MW13F	ORIG	07-Sep-94	**1 J3**	1	**Yes**
IR50MW13F	ORIG	16-Jun-95	0.5 U	0.5	Limit > criteria
IR50MW13F	ORIG	06-Dec-95	0.5 U	0.5	Limit > criteria
IR50MW13F	ORIG	25-Jul-02	*0.19 U*	0.19	Limit > criteria
IR58MW31A	ORIG	01-Jul-94	0.5 U	0.5	Limit > criteria
IR58MW31A	ORIG	21-Jun-95	3	1	**Yes**
IR58MW31A	ORIG	29-Nov-95	4	0.5	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Aroclor-1260 (Surface Water Screening Criteria = 0.03 µg/L) A-Aquifer (Continued)					
IR58MW31A	ORIG	11-Aug-00	3	0.05	**Yes**
IR58MW31A	ORIG	22-Feb-01	**6**	1	**Yes**
IR58MW31A	ORIG	15-Aug-02	1.1	0.2	**Yes**
IR58MW31A	ORIG	07-Jun-04	2.3	0.5	**Yes**
IR58MW31A	ORIG	10-Sep-04	2.3	0.5	**Yes**
IR58MW31A	ORIG	22-Nov-04	*0.44* ^{J}	0.5	**Yes**
4,4'-DDT (Surface Water Screening Criteria = 0.001 µg/L) A-Aquifer					
IR06MW42A	ORIG	09-Sep-99	0.1^{UJ1}	0.1	Limit > criteria
IR06MW42A	ORIG	13-Jan-00	0.02^{UJ3}	0.02	Limit > criteria
IR06MW42A	ORIG	26-Apr-00	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	14-Jul-00	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	12-Oct-00	*0.004* ^{UJ3}	0.004	Limit > criteria
IR06MW42A	ORIG	16-Jan-01	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	01-May-01	0.1^{UJ9}	0.02	Limit > criteria
IR06MW42A	ORIG	18-Jul-01	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	14-Mar-02	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	04-Jun-02	0.02^{U}	0.02	Limit > criteria
IR06MW42A	DUP	04-Jun-02	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	28-Aug-02	0.02^{U}	0.02	Limit > criteria
IR06MW42A	DUP	28-Aug-02	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	13-Nov-02	0.01^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	05-Mar-03	**0.0094**^{J}	0.1	**Yes**
IR06MW42A	ORIG	20-May-03	0.1^{U}	0.1	Limit > criteria
IR06MW42A	ORIG	20-Aug-03	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	0.1^{U}	0.1	Limit > criteria
IR06MW42A	ORIG	23-Mar-04	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	03-Jun-04	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	31-Aug-04	0.02^{U}	0.02	Limit > criteria
IR06MW42A	ORIG	16-Nov-04	0.02^{U}	0.02	Limit > criteria
IR25MW15A1	ORIG	14-Jun-94	0.1^{U}	0.1	Limit > criteria
IR25MW15A1	ORIG	11-Aug-94	0.1^{U}	0.1	Limit > criteria
IR25MW15A1	ORIG	26-May-95	0.1^{U}	0.1	Limit > criteria
IR25MW15A1	ORIG	17-Aug-00	0.02^{J3}	0.01	**Yes**
IR25MW15A1	DUP	17-Aug-00	*0.01* ^{J9}	0.01	**Yes**
IR25MW15A1	ORIG	01-Feb-01	**0.05**^{J9}	0.02	**Yes**
IR25MW15A1	ORIG	13-Aug-02	0.19^{U}	0.19	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
4,4'-DDT (Surface Water Screening Criteria = 0.001 µg/L) A-Aquifer (Continued)					
IR25MW15A2	ORIG	10-Jun-94	0.1 UJ3	0.1	Limit > criteria
IR25MW15A2	DUP	10-Jun-94	0.1 U	0.1	Limit > criteria
IR25MW15A2	ORIG	11-Aug-94	0.1 UJ3	0.1	Limit > criteria
IR25MW15A2	ORIG	26-May-95	0.1 U	0.1	Limit > criteria
IR25MW15A2	DUP	26-May-95	0.1 U	0.1	Limit > criteria
IR25MW15A2	ORIG	16-Aug-00	*0.01* UJ9	0.01	Limit > criteria
IR25MW15A2	ORIG	01-Feb-01	**0.06 J9**	0.02	**Yes**
IR28MW171A	ORIG	03-Jun-94	0.1 U	0.1	Limit > criteria
IR28MW171A	ORIG	09-Jun-95	0.1 U	0.1	Limit > criteria
IR28MW171A	DUP	09-Jun-95	0.1 U	0.1	Limit > criteria
IR28MW171A	ORIG	20-Nov-95	0.1 U	0.1	Limit > criteria
IR28MW171A	ORIG	04-Aug-00	*0.01* U	0.01	Limit > criteria
IR28MW171A	DUP	04-Aug-00	*0.01* U	0.01	Limit > criteria
IR28MW171A	ORIG	27-Feb-01	**0.02**	0.01	**Yes**
IR28MW171A	ORIG	02-Jun-04	0.05 U	0.05	Limit > criteria
IR28MW171A	ORIG	01-Sep-04	0.05 U	0.05	Limit > criteria
IR28MW171A	ORIG	19-Nov-04	0.05 U	0.05	Limit > criteria
IR58MW31A	ORIG	01-Jul-94	0.1 U	0.1	Limit > criteria
IR58MW31A	ORIG	21-Jun-95	0.1 U	0.1	Limit > criteria
IR58MW31A	ORIG	29-Nov-95	0.1 U	0.1	Limit > criteria
IR58MW31A	ORIG	11-Aug-00	*0.01* U	0.01	Limit > criteria
IR58MW31A	ORIG	22-Feb-01	0.5	0.1	**Yes**
IR58MW31A	ORIG	07-Jun-04	**0.11**	0.05	**Yes**
IR58MW31A	ORIG	10-Sep-04	0.25 U	0.25	Limit > criteria
IR58MW31A	ORIG	22-Nov-04	0.05 UJ7	0.05	Limit > criteria
Alpha-Chlordane (Surface Water Screening Criteria = 0.004 µg/L) A-Aquifer					
IR06MW42A	ORIG	09-Sep-99	0.05 UJ1	0.05	Limit > criteria
IR06MW42A	ORIG	13-Jan-00	0.01 UJ3	0.01	Limit > criteria
IR06MW42A	ORIG	26-Apr-00	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	14-Jul-00	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	12-Oct-00	*0.002* UJ3	0.002	Limit > criteria
IR06MW42A	ORIG	16-Jan-01	**0.02**	0.01	**Yes**
IR06MW42A	ORIG	01-May-01	0.05 UJ9	0.01	Limit > criteria
IR06MW42A	ORIG	18-Jul-01	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	14-Mar-02	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	04-Jun-02	0.014	0.01	**Yes**
IR06MW42A	DUP	04-Jun-02	0.01 U	0.01	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Alpha-Chlordane (Surface Water Screening Criteria = 0.004 µg/L) A-Aquifer (Continued)					
IR06MW42A	ORIG	28-Aug-02	0.013 J9	0.01	**Yes**
IR06MW42A	DUP	28-Aug-02	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	13-Nov-02	0.005 U	0.005	Limit > criteria
IR06MW42A	ORIG	05-Mar-03	0.05 U	0.05	Limit > criteria
IR06MW42A	ORIG	20-May-03	0.05 U	0.05	Limit > criteria
IR06MW42A	ORIG	20-Aug-03	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	0.0079 J	0.05	**Yes**
IR06MW42A	ORIG	23-Mar-04	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	03-Jun-04	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	31-Aug-04	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	16-Nov-04	0.01 U	0.01	Limit > criteria
IR25MW15A1	ORIG	14-Jun-94	0.05 U	0.05	Limit > criteria
IR25MW15A1	ORIG	11-Aug-94	0.05 U	0.05	Limit > criteria
IR25MW15A1	ORIG	26-May-95	0.05 U	0.05	Limit > criteria
IR25MW15A1	ORIG	17-Aug-00	**0.01 J3**	0.005	**Yes**
IR25MW15A1	DUP	17-Aug-00	*0.006 J9*	0.005	**Yes**
IR25MW15A1	ORIG	01-Feb-01	**0.01**	0.01	**Yes**
IR25MW15A1	ORIG	13-Aug-02	0.094 U	0.094	Limit > criteria
IR29MW48A	ORIG	6/6/1994	**1 J3**	0.05	**Yes**
IR29MW48A	ORIG	8/2/1995	*0.05 U*	0.05	Limit > criteria
IR29MW48A	ORIG	11/27/1995	*0.05 U*	0.05	Limit > criteria
Endosulfan II (Surface Water Screening Criteria = 0.0087 µg/L) A-Aquifer					
IR06MW42A	ORIG	09-Sep-99	0.1 UJ1	0.1	Limit > criteria
IR06MW42A	ORIG	13-Jan-00	0.02 UJ3	0.02	Limit > criteria
IR06MW42A	ORIG	26-Apr-00	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	14-Jul-00	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	12-Oct-00	*0.004 UJ3*	0.004	Limit > criteria
IR06MW42A	ORIG	16-Jan-01	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	01-May-01	**0.02 J**	0.02	**Yes**
IR06MW42A	ORIG	18-Jul-01	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	14-Mar-02	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	04-Jun-02	0.02 U	0.02	Limit > criteria
IR06MW42A	DUP	04-Jun-02	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	28-Aug-02	0.02 U	0.02	Limit > criteria
IR06MW42A	DUP	28-Aug-02	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	13-Nov-02	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	05-Mar-03	0.1 U	0.1	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Endosulfan II (Surface Water Screening Criteria = 0.0087 µg/L) A-Aquifer (Continued)					
IR06MW42A	ORIG	20-May-03	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	20-Aug-03	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	23-Mar-04	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	03-Jun-04	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	31-Aug-04	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	16-Nov-04	0.02 U	0.02	Limit > criteria
IR29MW48A	ORIG	06-Jun-94	**0.07 J3**	0.1	**Yes**
IR29MW48A	ORIG	02-Aug-95	*0.1 U*	0.1	Limit > criteria
IR29MW48A	ORIG	27-Nov-95	*0.1 U*	0.1	Limit > criteria
Endrin (Surface Water Screening Criteria = 0.0023 µg/L) A-Aquifer					
IR06MW42A	ORIG	09-Sep-99	0.1 UJ1	0.1	Limit > criteria
IR06MW42A	ORIG	13-Jan-00	0.02 UJ3	0.02	Limit > criteria
IR06MW42A	ORIG	26-Apr-00	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	14-Jul-00	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	12-Oct-00	0.004 UJ3	0.004	Limit > criteria
IR06MW42A	ORIG	16-Jan-01	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	01-May-01	0.1 UJ9	0.02	Limit > criteria
IR06MW42A	ORIG	18-Jul-01	0.1 UJ9	0.02	Limit > criteria
IR06MW42A	ORIG	14-Mar-02	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	04-Jun-02	0.02 U	0.02	Limit > criteria
IR06MW42A	DUP	04-Jun-02	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	28-Aug-02	0.02 U	0.02	Limit > criteria
IR06MW42A	DUP	28-Aug-02	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	13-Nov-02	*0.01 U*	0.01	Limit > criteria
IR06MW42A	ORIG	05-Mar-03	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	20-May-03	**0.0041 J**	0.1	**Yes**
IR06MW42A	ORIG	20-Aug-03	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	23-Mar-04	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	03-Jun-04	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	31-Aug-04	0.02 U	0.02	Limit > criteria
IR06MW42A	ORIG	16-Nov-04	0.02 U	0.02	Limit > criteria
IR25MW15A1	ORIG	14-Jun-94	0.1 U	0.1	Limit > criteria
IR25MW15A1	ORIG	11-Aug-94	0.1 U	0.1	Limit > criteria
IR25MW15A1	ORIG	26-May-95	0.1 U	0.1	Limit > criteria
IR25MW15A1	ORIG	17-Aug-00	*0.01 U*	0.01	Limit > criteria
IR25MW15A1	DUP	17-Aug-00	*0.01 U*	0.01	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Endrin (Surface Water Screening Criteria = 0.0023 µg/L) A-Aquifer (Continued)					
IR25MW15A1	ORIG	01-Feb-01	**0.01^{J}**	0.02	**Yes**
IR25MW15A1	ORIG	13-Aug-02	0.19^{U}	0.19	Limit > criteria
IR25MW15A2	ORIG	10-Jun-94	0.1^{UJ3}	0.1	Limit > criteria
IR25MW15A2	DUP	10-Jun-94	0.1^{U}	0.1	Limit > criteria
IR25MW15A2	ORIG	11-Aug-94	0.1^{UJ3}	0.1	Limit > criteria
IR25MW15A2	ORIG	26-May-95	0.1^{U}	0.1	Limit > criteria
IR25MW15A2	DUP	26-May-95	0.1^{U}	0.1	Limit > criteria
IR25MW15A2	ORIG	16-Aug-00	*0.01 ^{U}*	0.01	Limit > criteria
IR25MW15A2	ORIG	01-Feb-01	**0.01^{J}**	0.02	**Yes**
IR58MW31A	ORIG	01-Jul-94	0.1^{U}	0.1	Limit > criteria
IR58MW31A	ORIG	21-Jun-95	0.1^{U}	0.1	Limit > criteria
IR58MW31A	ORIG	29-Nov-95	0.1^{U}	0.1	Limit > criteria
IR58MW31A	ORIG	11-Aug-00	*0.02 ^{J9}*	0.01	**Yes**
IR58MW31A	ORIG	22-Feb-01	**0.01^{J9}**	0.01	**Yes**
IR58MW31A	ORIG	07-Jun-04	0.05^{U}	0.05	Limit > criteria
IR58MW31A	ORIG	10-Sep-04	0.25^{U}	0.25	Limit > criteria
IR58MW31A	ORIG	22-Nov-04	*0.05 ^{U}*	0.05	Limit > criteria
Gamma-Chlordane (Surface Water Screening Criteria = 0.004 µg/L) A-Aquifer					
IR06MW42A	ORIG	09-Sep-99	0.02^{UJ9}	0.02	Limit > criteria
IR06MW42A	ORIG	13-Jan-00	0.01^{UJ3}	0.01	Limit > criteria
IR06MW42A	ORIG	26-Apr-00	0.01^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	14-Jul-00	0.01^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	12-Oct-00	*0.002 ^{UJ39}*	0.002	No
IR06MW42A	ORIG	16-Jan-01	0.01^{UJ3}	0.01	Limit > criteria
IR06MW42A	ORIG	01-May-01	0.01^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	18-Jul-01	0.018^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	14-Mar-02	0.01^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	04-Jun-02	0.01^{U}	0.01	Limit > criteria
IR06MW42A	DUP	04-Jun-02	**0.0062^{J}**	0.01	**Yes**
IR06MW42A	ORIG	28-Aug-02	0.016^{U}	0.01	Limit > criteria
IR06MW42A	DUP	28-Aug-02	0.012^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	13-Nov-02	0.005^{U}	0.005	Limit > criteria
IR06MW42A	ORIG	05-Mar-03	0.05^{U}	0.05	Limit > criteria
IR06MW42A	ORIG	20-May-03	0.05^{U}	0.05	Limit > criteria
IR06MW42A	ORIG	20-Aug-03	0.01^{U}	0.01	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	0.05^{U}	0.05	Limit > criteria
IR06MW42A	ORIG	23-Mar-04	0.01^{U}	0.01	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Gamma-Chlordane (Surface Water Screening Criteria = 0.004 µg/L) A-Aquifer (Continued)					
IR06MW42A	ORIG	03-Jun-04	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	31-Aug-04	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	16-Nov-04	0.01 U	0.01	Limit > criteria
IR25MW15A1	ORIG	14-Jun-94	0.05 U	0.05	Limit > criteria
IR25MW15A1	ORIG	11-Aug-94	0.05 U	0.05	Limit > criteria
IR25MW15A1	ORIG	26-May-95	0.05 U	0.05	Limit > criteria
IR25MW15A1	ORIG	17-Aug-00	0.006 J39	0.005	**Yes**
IR25MW15A1	DUP	17-Aug-00	*0.005 UJ9*	0.005	Limit > criteria
IR25MW15A1	ORIG	01-Feb-01	**0.01**	0.01	**Yes**
IR25MW15A1	ORIG	13-Aug-02	0.094 U	0.094	Limit > criteria
IR25MW18A	ORIG	08-Aug-02	**0.011**	0.0099	**Yes**
IR29MW48A	ORIG	06-Jun-94	**1 J3**	0.05	**Yes**
IR29MW48A	ORIG	02-Aug-95	*0.05 U*	0.05	Limit > criteria
IR29MW48A	ORIG	27-Nov-95	*0.05 U*	0.05	Limit > criteria
Heptachlor (Surface Water Screening Criteria = 0.0036 µg/L) A-Aquifer					
IR58MW31A	ORIG	01-Jul-94	0.05 U	0.05	Limit > criteria
IR58MW31A	ORIG	21-Jun-95	0.05 U	0.05	Limit > criteria
IR58MW31A	ORIG	29-Nov-95	0.05 U	0.05	Limit > criteria
IR58MW31A	ORIG	11-Aug-00	*0.003 J97*	0.001	No
IR58MW31A	ORIG	22-Feb-01	0.005 U	0.005	Limit > criteria
IR58MW31A	ORIG	07-Jun-04	0.05 U	0.05	Limit > criteria
IR58MW31A	ORIG	10-Sep-04	**0.0096 J**	0.05	**Yes**
IR58MW31A	ORIG	22-Nov-04	0.05 U	0.05	Limit > criteria
IR06MW42A	ORIG	09-Sep-99	0.05 UJ37	0.05	Limit > criteria
IR06MW42A	ORIG	13-Jan-00	*0.002 UJ3*	0.002	No
IR06MW42A	ORIG	26-Apr-00	*0.002 UJ7*	0.002	No
IR06MW42A	ORIG	14-Jul-00	*0.002 U*	0.002	No
IR06MW42A	ORIG	12-Oct-00	0.01 UJ3	0.002	Limit > criteria
IR06MW42A	ORIG	16-Jan-01	0.03 U	0.01	Limit > criteria
IR06MW42A	ORIG	01-May-01	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	18-Jul-01	0.022 U	0.01	Limit > criteria
IR06MW42A	ORIG	14-Mar-02	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	04-Jun-02	0.01 U	0.01	Limit > criteria
IR06MW42A	DUP	04-Jun-02	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	28-Aug-02	0.035 U	0.01	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Heptachlor (Surface Water Screening Criteria = 0.0036 µg/L) A-Aquifer (Continued)					
IR06MW42A	DUP	28-Aug-02	0.021 U	0.01	Limit > criteria
IR06MW42A	ORIG	13-Nov-02	0.005 U	0.005	Limit > criteria
IR06MW42A	ORIG	05-Mar-03	**0.013 J**	0.05	**Yes**
IR06MW42A	ORIG	20-May-03	0.0088 UJ7	0.05	Limit > criteria
IR06MW42A	ORIG	20-Aug-03	0.0087 UJ	0.01	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	0.01 U	0.05	Limit > criteria
IR06MW42A	ORIG	23-Mar-04	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	03-Jun-04	0.01 U	0.01	Limit > criteria
IR06MW42A	ORIG	31-Aug-04	0.01 U	0.01	Limit > criteria
Heptachlor Epoxide (Surface Water Screening Criteria = 0.0036 µg/L) A-Aquifer					
IR25MW15A1	ORIG	14-Jun-94	0.03 J3	0.05	**Yes**
IR25MW15A1	ORIG	11-Aug-94	*0.01 U*	0.01	Limit > criteria
IR25MW15A1	ORIG	26-May-95	*0.01 U*	0.01	Limit > criteria
IR25MW15A1	ORIG	17-Aug-00	*0.01 J37*	0.001	**Yes**
IR25MW15A1	DUP	17-Aug-00	**0.006 J79**	0.001	**Yes**
IR25MW15A1	ORIG	01-Feb-01	0.002 UJ7	0.002	No
IR58MW31A	ORIG	01-Jul-94	*0.01 U*	0.01	Limit > criteria
IR58MW31A	ORIG	21-Jun-95	*0.01 U*	0.01	Limit > criteria
IR58MW31A	ORIG	29-Nov-95	*0.01 U*	0.01	Limit > criteria
IR58MW31A	ORIG	11-Aug-00	**0.009 J97**	0.001	**Yes**
IR58MW31A	ORIG	22-Feb-01	**0.009 J9**	0.005	**Yes**
IR58MW31A	ORIG	07-Jun-04	0.05 U	0.05	Limit > criteria
IR58MW31A	ORIG	10-Sep-04	0.05 U	0.05	Limit > criteria
IR58MW31A	ORIG	22-Nov-04	0.05 U	0.05	Limit > criteria
Methoxychlor (Surface Water Screening Criteria = 0.003 µg/L) A-Aquifer					
IR06MW42A	ORIG	09-Sep-99	0.5 UJ1	0.5	Limit > criteria
IR06MW42A	ORIG	13-Jan-00	0.1 UJ3	0.1	Limit > criteria
IR06MW42A	ORIG	26-Apr-00	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	14-Jul-00	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	12-Oct-00	*0.02 UJ3*	0.02	Limit > criteria
IR06MW42A	ORIG	16-Jan-01	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	01-May-01	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	18-Jul-01	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	14-Mar-02	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	04-Jun-02	0.1 U	0.1	Limit > criteria
IR06MW42A	DUP	04-Jun-02	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	28-Aug-02	0.1 U	0.1	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Methoxychlor (Surface Water Screening Criteria = 0.003 µg/L) A-Aquifer (Continued)					
IR06MW42A	DUP	28-Aug-02	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	13-Nov-02	0.05 U	0.05	Limit > criteria
IR06MW42A	ORIG	05-Mar-03	0.5 U	0.5	Limit > criteria
IR06MW42A	ORIG	20-May-03	**0.0084 J**	0.1	**Yes**
IR06MW42A	ORIG	20-Aug-03	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	10-Nov-03	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	23-Mar-04	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	03-Jun-04	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	31-Aug-04	0.1 U	0.1	Limit > criteria
IR06MW42A	ORIG	16-Nov-04	0.1 U	0.1	Limit > criteria
2,4-Dinitrotoluene (Surface Water Screening Criteria = 118 µg/L) A-Aquifer					
IR25MW11A	ORIG	18-Aug-94	*1,000 U*	1,000	Limit > criteria
IR25MW11A	ORIG	07-Jun-95	**4,900 J03**	10	**Yes**
Chrysene (Surface Water Screening Criteria = 60 µg/L) A-Aquifer					
IR25MW11A	ORIG	18-Aug-94	1,000 U	1,000	Limit > criteria
IR25MW11A	ORIG	07-Jun-95	**200 J03**	10	**Yes**
IR25MW11A	ORIG	24-Aug-00	200 U	200	Limit > criteria
Fluoranthene (Surface Water Screening Criteria = 16 µg/L) A-Aquifer					
IR06MW42A	ORIG	13-Jun-90	21 J	40	**Yes**
IR06MW42A	ORIG	08-Jan-91	36 J	40	**Yes**
IR06MW42A	ORIG	16-Jul-91	13 J	20	Limit > criteria
IR06MW42A	ORIG	10-Jan-92	15 J	20	Limit > criteria
IR06MW42A	DUP	10-Jan-92	17 J	20	**Yes**
IR06MW42A	ORIG	08-Nov-93	17 J	50	**Yes**
IR06MW42A	ORIG	14-Feb-94	17 J	100	**Yes**
IR06MW42A	ORIG	16-May-94	10	10	No
IR06MW42A	ORIG	26-Aug-94	11	10	No
IR06MW42A	ORIG	09-Sep-99	*1 J*	11	No
IR06MW42A	ORIG	13-Jan-00	15	14	No
IR06MW42A	ORIG	26-Apr-00	14 J	31	Limit > criteria
IR06MW42A	ORIG	19-Jun-00	19 J	40	**Yes**
IR06MW42A	ORIG	14-Jul-00	17	10	**Yes**
IR06MW42A	ORIG	12-Oct-00	9 J	10	No
IR06MW42A	ORIG	16-Jan-01	14	10	No
IR06MW42A	ORIG	01-May-01	11	10	No
IR06MW42A	ORIG	18-Jul-01	12	10	No
IR06MW42A	ORIG	14-Mar-02	8 J	10	No
IR06MW42A	ORIG	04-Jun-02	12	10	No
IR06MW42A	DUP	04-Jun-02	10	10	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Fluoranthene (Surface Water Screening Criteria = 16 µg/L) A-Aquifer (Continued)					
IR06MW42A	ORIG	21-Aug-02	13	4.8	No
IR06MW42A	DUP	21-Aug-02	9.6	4.8	No
IR06MW42A	ORIG	28-Aug-02	10	10	No
IR06MW42A	DUP	28-Aug-02	4 J	10	No
IR06MW42A	ORIG	13-Nov-02	7 J	10	No
IR06MW42A	ORIG	05-Mar-03	15	10	No
IR06MW42A	ORIG	20-May-03	**19**	10	**Yes**
IR06MW42A	ORIG	20-Aug-03	12	10	No
IR06MW42A	ORIG	10-Nov-03	17	10	**Yes**
IR06MW42A	ORIG	23-Mar-04	12	10	No
IR06MW42A	ORIG	03-Jun-04	14	10	No
IR06MW42A	ORIG	31-Aug-04	12 J5	10	No
IR06MW42A	ORIG	16-Nov-04	4.8 J	10	No
Fluorene (Surface Water Screening Criteria = 60 µg/L) A-Aquifer					
IR06MW42A	ORIG	13-Jun-90	95	40	**Yes**
IR06MW42A	ORIG	08-Jan-91	130	40	**Yes**
IR06MW42A	ORIG	16-Jul-91	120	20	**Yes**
IR06MW42A	ORIG	10-Jan-92	**160**	20	**Yes**
IR06MW42A	DUP	10-Jan-92	**160**	20	**Yes**
IR06MW42A	ORIG	08-Nov-93	110	50	**Yes**
IR06MW42A	ORIG	14-Feb-94	61 J	100	**Yes**
IR06MW42A	ORIG	16-May-94	85	10	**Yes**
IR06MW42A	ORIG	26-Aug-94	54	10	No
IR06MW42A	ORIG	09-Sep-99	11 U	11	No
IR06MW42A	ORIG	13-Jan-00	12 J	14	No
IR06MW42A	ORIG	26-Apr-00	3 J	31	No
IR06MW42A	ORIG	19-Jun-00	41	40	No
IR06MW42A	ORIG	14-Jul-00	38	10	No
IR06MW42A	ORIG	12-Oct-00	4 J	10	No
IR06MW42A	ORIG	16-Jan-01	36	10	No
IR06MW42A	ORIG	01-May-01	23	10	No
IR06MW42A	ORIG	18-Jul-01	19	10	No
IR06MW42A	ORIG	14-Mar-02	16	10	No
IR06MW42A	ORIG	04-Jun-02	24	10	No
IR06MW42A	DUP	04-Jun-02	28	10	No
IR06MW42A	ORIG	21-Aug-02	4.1 J	4.8	No
IR06MW42A	DUP	21-Aug-02	5.4	4.8	No
IR06MW42A	ORIG	28-Aug-02	10	10	No
IR06MW42A	DUP	28-Aug-02	*2* J	10	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Fluorene (Surface Water Screening Criteria = 60 µg/L) A-Aquifer (Continued)					
IR06MW42A	ORIG	13-Nov-02	8 J	10	No
IR06MW42A	ORIG	05-Mar-03	30	10	No
IR06MW42A	ORIG	20-May-03	27	10	No
IR06MW42A	ORIG	20-Aug-03	*2 J*	10	No
IR06MW42A	ORIG	10-Nov-03	7 J	10	No
IR06MW42A	ORIG	23-Mar-04	30	10	No
IR06MW42A	ORIG	03-Jun-04	25	10	No
IR06MW42A	ORIG	31-Aug-04	10 UJ5	10	No
IR06MW42A	ORIG	16-Nov-04	27	10	No
IR25MW11A	DUP	28-Dec-93	**180 J3**	200	**Yes**
IR25MW11A	ORIG	18-Aug-94	1,000 U	1,000	Limit > criteria
IR25MW11A	ORIG	24-Aug-00	*130 J*	200	**Yes**
Pentachlorophenol (Surface Water Screening Criteria = 7.9 µg/L) A-Aquifer					
IR25MW11A	ORIG	18-Aug-94	*2,500 U*	2,500	Limit > criteria
IR25MW11A	ORIG	07-Jun-95	**6,100 J037**	25	**Yes**
Phenanthrene (Surface Water Screening Criteria = 60 µg/L) A-Aquifer					
IR06MW42A	ORIG	13-Jun-90	62	40	**Yes**
IR06MW42A	ORIG	08-Jan-91	**160**	40	**Yes**
IR06MW42A	ORIG	16-Jul-91	130	20	**Yes**
IR06MW42A	ORIG	10-Jan-92	130	20	**Yes**
IR06MW42A	DUP	10-Jan-92	120	20	**Yes**
IR06MW42A	ORIG	08-Nov-93	110	50	**Yes**
IR06MW42A	ORIG	14-Feb-94	74 J	100	**Yes**
IR06MW42A	ORIG	16-May-94	74	10	**Yes**
IR06MW42A	ORIG	26-Aug-94	5 J	10	No
IR06MW42A	ORIG	09-Sep-99	2 J	11	No
IR06MW42A	ORIG	13-Jan-00	2 J	14	No
IR06MW42A	ORIG	26-Apr-00	31 U	31	No
IR06MW42A	ORIG	19-Jun-00	17 J	40	No
IR06MW42A	ORIG	14-Jul-00	13	10	No
IR06MW42A	ORIG	12-Oct-00	10 U	10	No
IR06MW42A	ORIG	16-Jan-01	14	10	No
IR06MW42A	ORIG	01-May-01	10	10	No
IR06MW42A	ORIG	18-Jul-01	10	10	No
IR06MW42A	ORIG	14-Mar-02	11	10	No
IR06MW42A	ORIG	04-Jun-02	6 J	10	No
IR06MW42A	DUP	04-Jun-02	10	10	No
IR06MW42A	ORIG	21-Aug-02	0.84 J	4.8	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Phenanthrene (Surface Water Screening Criteria = 60 µg/L) A-Aquifer (Continued)					
IR06MW42A	DUP	21-Aug-02	*0.78 J*	4.8	No
IR06MW42A	ORIG	28-Aug-02	1 J	10	No
IR06MW42A	DUP	28-Aug-02	10 U	10	No
IR06MW42A	ORIG	13-Nov-02	10 U	10	No
IR06MW42A	ORIG	05-Mar-03	16	10	No
IR06MW42A	ORIG	20-May-03	10	10	No
IR06MW42A	ORIG	20-Aug-03	10 U	10	No
IR06MW42A	ORIG	10-Nov-03	1 J	10	No
IR06MW42A	ORIG	23-Mar-04	12	10	No
IR06MW42A	ORIG	03-Jun-04	10	10	No
IR06MW42A	ORIG	31-Aug-04	2.8 J5	10	No
IR06MW42A	ORIG	16-Nov-04	9.6 J	10	No
IR25MW11A	ORIG	28-Dec-93	190 J3	500	**Yes**
IR25MW11A	DUP	28-Dec-93	300 J3	200	**Yes**
IR25MW11A	ORIG	18-Aug-94	**590 J**	1,000	**Yes**
IR25MW11A	ORIG	24-Aug-00	*120 J*	200	**Yes**
Phenol (Surface Water Screening Criteria = 1,160 µg/L) A-Aquifer					
IR25MW15A1	ORIG	14-Jun-94	500 J0	1,000	No
IR25MW15A1	ORIG	11-Aug-94	**2,300**	200	**Yes**
IR25MW15A1	ORIG	26-May-95	680 J03	10	No
IR25MW15A1	ORIG	11-Jan-01	1,000 U	1,000	No
IR25MW15A1	ORIG	13-Aug-02	*97 J0*	4.8	No
1,2,4-Trichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer					
IR25MW19A	ORIG	29-Jan-98	**200 J03**	10	**Yes**
IR25MW19A	ORIG	22-Jan-01	160	100	**Yes**
IR25MW19A	ORIG	24-Jan-01	2,000 U	2,000	Limit > criteria
IR25MW19A	ORIG	05-Feb-01	500 U	500	Limit > criteria
IR25MW19A	ORIG	14-Mar-01	*52 J*	200	No
1,2-Dichloroethane (Surface Water Screening Criteria = 22,600 µg/L) A-Aquifer					
IR25MW15A1	ORIG	13-Jun-94	30,000	2,000	**Yes**
IR25MW15A1	ORIG	11-Aug-94	140,000	10,000	**Yes**
IR25MW15A1	ORIG	26-May-95	**150,000**	10,000	**Yes**
IR25MW15A1	ORIG	05-Oct-95	12,000	2,000	No
IR25MW15A1	ORIG	05-Oct-95	100,000	5,000	**Yes**
IR25MW15A1	DUP	05-Oct-95	11,000	2,000	No
IR25MW15A1	ORIG	05-Feb-98	13,000	500	No
IR25MW15A1	ORIG	17-Aug-00	12,000	1,200	No
IR25MW15A1	ORIG	11-Jan-01	2,600	10	No
IR25MW15A1	ORIG	31-Jan-01	3,800	1,000	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,2-Dichloroethane (Surface Water Screening Criteria = 22,600 µg/L) A-Aquifer (Continued)					
IR25MW15A1	ORIG	31-Jan-01	54,000	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	*1,500*	1,000	No
IR25MW15A1	ORIG	01-Feb-01	3,100	82	No
IR25MW15A1	ORIG	13-Aug-02	28,000	500	**Yes**
IR25MW18A	ORIG	29-Jan-98	**43,000**^{J3}	1,200	**Yes**
IR25MW18A	ORIG	18-Jan-01	14,000	500	No
IR25MW18A	ORIG	01-Feb-01	13,000	500	No
IR25MW18A	ORIG	13-Mar-01	15,000	370	No
IR25MW18A	ORIG	13-Jun-02	*9,200*	130	No
IR25MW19A	ORIG	29-Jan-98	**91,000**^{J3}	2,500	**Yes**
IR25MW19A	ORIG	22-Jan-01	50,000	100	**Yes**
IR25MW19A	ORIG	05-Feb-01	*14,000*	500	No
IR25MW19A	ORIG	14-Mar-01	32,000	1,000	**Yes**
IR25MW902B	ORIG	16-Jan-01	*11,000*	250	No
IR25MW902B	ORIG	31-Jan-01	33,000	500	**Yes**
IR25MW902B	ORIG	31-Jan-01	13,000	250	No
IR25MW902B	ORIG	31-Jan-01	33,000	500	**Yes**
IR25MW902B	ORIG	31-Jan-01	**36,000**	1,000	**Yes**
IR25MW902B	ORIG	01-Feb-01	15,000	500	No
1,2-Dichloroethene (Total) (Surface Water Screening Criteria = 44,800 µg/L) A-Aquifer					
IR25MW15A1	ORIG	11-Aug-94	**57,000**	10,000	**Yes**
IR25MW15A1	ORIG	26-May-95	*36,000*	10,000	No
IR25MW15A1	ORIG	05-Oct-95	40,000	5,000	No
IR25MW15A1	DUP	05-Oct-95	40,000	2,000	No
IR25MW15A1	ORIG	05-Oct-95	42,000	2,000	No
1,3-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer					
IR25MW15A1	ORIG	13-Jun-94	1,000^{U}	1,000	Limit > criteria
IR25MW15A1	ORIG	14-Jun-94	520^{UJ0}	520	Limit > criteria
IR25MW15A1	ORIG	11-Aug-94	**260**	200	**Yes**
IR25MW15A1	ORIG	26-May-95	210^{J03}	10	**Yes**
IR25MW15A1	ORIG	05-Feb-98	240^{J03}	100	**Yes**
IR25MW15A1	ORIG	17-Aug-00	250^{U}	250	Limit > criteria
IR25MW15A1	ORIG	11-Jan-01	*10* ^{U}	10	No
IR25MW15A1	ORIG	11-Jan-01	1,000^{U}	1,000	Limit > criteria
IR25MW15A1	ORIG	31-Jan-01	1,000^{U}	1,000	Limit > criteria
IR25MW15A1	ORIG	31-Jan-01	1,000^{U}	1,000	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,3-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer (Continued)					
IR25MW15A1	ORIG	01-Feb-01	1,000 U	1,000	Limit > criteria
IR25MW15A1	ORIG	01-Feb-01	160 U	160	Limit > criteria
IR25MW15A1	ORIG	13-Aug-02	190	50	**Yes**
IR25MW19A	ORIG	29-Jan-98	360 J3	200	**Yes**
IR25MW19A	ORIG	22-Jan-01	**630**	100	**Yes**
IR25MW19A	ORIG	24-Jan-01	2,000 U	2,000	Limit > criteria
IR25MW19A	ORIG	05-Feb-01	500 U	500	Limit > criteria
IR25MW19A	ORIG	14-Mar-01	*200 U*	200	Limit > criteria
IR28MW909A	ORIG	24-Jan-01	190	50	**Yes**
IR28MW909A	ORIG	08-Feb-01	60	100	No
IR28MW909A	ORIG	08-Feb-01	**380**	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	*59*	100	No
IR28MW909A	ORIG	12-Feb-01	170	50	**Yes**
Cis-1,2-Dichloroethene (Surface Water Screening Criteria = 44,800 µg/L) A-Aquifer					
IR25MW15A1	ORIG	13-Jun-94	*25,000*	2,000	No
IR25MW15A1	ORIG	05-Feb-98	**58,000**	5,000	**Yes**
IR25MW15A1	ORIG	17-Aug-00	46,000	2,500	**Yes**
IR25MW15A1	ORIG	11-Jan-01	40,000	10	No
IR25MW15A1	ORIG	31-Jan-01	33,000	1,000	No
IR25MW15A1	ORIG	31-Jan-01	33,000	1,000	No
IR25MW15A1	ORIG	01-Feb-01	27,000	1,000	No
IR25MW15A1	ORIG	01-Feb-01	33,000	1,600	No
IR25MW15A1	ORIG	13-Aug-02	36,000	500	No
Chlorobenzene (Surface Water Criteria = 129 µg/L) A-Aquifer					
IR25MW11A	ORIG	28-Dec-93	10,000 U	10,000	Limit > criteria
IR25MW11A	DUP	28-Dec-93	1,000 U	1,000	Limit > criteria
IR25MW11A	ORIG	07-Jun-95	*78*	10	No
IR25MW11A	ORIG	24-Aug-00	**150**	50	**Yes**
IR25MW15A1	ORIG	13-Jun-94	1,000 U	1,000	Limit > criteria
IR25MW15A1	ORIG	11-Aug-94	10,000 U	10,000	Limit > criteria
IR25MW15A1	ORIG	26-May-95	*420 J3*	10	**Yes**
IR25MW15A1	ORIG	05-Oct-95	5,000 U	5,000	Limit > criteria
IR25MW15A1	ORIG	05-Oct-95	2,200	2,000	**Yes**
IR25MW15A1	DUP	05-Oct-95	2,200	2,000	**Yes**
IR25MW15A1	ORIG	05-Feb-98	1,700 J3	100	**Yes**
IR25MW15A1	ORIG	17-Aug-00	1,900	250	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chlorobenzene (Surface Water Criteria = 129 µg/L) A-Aquifer (Continued)					
IR25MW15A1	ORIG	11-Jan-01	**2,300**	10	**Yes**
IR25MW15A1	ORIG	31-Jan-01	1,600	1,000	**Yes**
IR25MW15A1	ORIG	31-Jan-01	1,000^{U}	1,000	Limit > criteria
IR25MW15A1	ORIG	01-Feb-01	1,800	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	2,000	160	**Yes**
IR25MW15A1	ORIG	13-Aug-02	940	50	**Yes**
IR25MW19A	ORIG	29-Jan-98	**330^{J3}**	200	**Yes**
IR25MW19A	ORIG	22-Jan-01	320	100	**Yes**
IR25MW19A	ORIG	05-Feb-01	500^{U}	500	Limit > criteria
IR25MW19A	ORIG	14-Mar-01	*120 ^{J}*	200	Limit > criteria
IR25MW905B	ORIG	16-Jan-01	*100*	1	No
IR25MW905B	ORIG	31-Jan-01	**140**	5	**Yes**
IR25MW905B	ORIG	31-Jan-01	**140**	5	**Yes**
IR25MW905B	ORIG	31-Jan-01	120	5	No
IR25MW905B	ORIG	01-Feb-01	110	10	No
IR28MW909A	ORIG	24-Jan-01	3,200	50	**Yes**
IR28MW909A	ORIG	08-Feb-01	*2,000*	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	*2,000*	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	**9,900**	100	**Yes**
IR28MW909A	ORIG	12-Feb-01	2,700	50	**Yes**
IR28MW911A	ORIG	25-Jan-01	1,300	50	**Yes**
IR28MW911A	ORIG	08-Feb-01	*790*	50	**Yes**
IR28MW911A	ORIG	08-Feb-01	850	50	**Yes**
IR28MW911A	ORIG	12-Feb-01	**1,800**	50	**Yes**
IR58MW31A	ORIG	30-Jun-94	500^{U}	500	Limit > criteria
IR58MW31A	ORIG	20-Jun-95	*110*	10	No
IR58MW31A	ORIG	28-Nov-95	250	200	**Yes**
IR58MW31A	ORIG	23-Jan-98	230^{J3}	10	**Yes**
IR58MW31A	ORIG	11-Aug-00	920	53	**Yes**
IR58MW31A	DUP	11-Aug-00	890	140	**Yes**
IR58MW31A	ORIG	24-Jan-01	530	10	**Yes**
IR58MW31A	ORIG	15-Feb-01	650	50	**Yes**
IR58MW31A	ORIG	22-Feb-01	280	15	**Yes**
IR58MW31A	ORIG	15-Aug-02	1,200	25	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chlorobenzene (Surface Water Criteria = 129 µg/L) A-Aquifer (Continued)					
IR58MW31A	ORIG	07-Jun-04	1,000	12.5	**Yes**
IR58MW31A	ORIG	10-Sep-04	**3,700**	125	**Yes**
IR58MW31A	ORIG	22-Nov-04	1,400	12.5	**Yes**
1,2-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer					
IR25MW15A1	ORIG	13-Jun-94	37,000	2,000	**Yes**
IR25MW15A1	ORIG	14-Jun-94	**62,000**^{J0}	520	**Yes**
IR25MW15A1	ORIG	11-Aug-94	19,000	200	**Yes**
IR25MW15A1	ORIG	26-May-95	*2,700*^{J03}	10	**Yes**
IR25MW15A1	ORIG	05-Feb-98	39,000	5,000	**Yes**
IR25MW15A1	ORIG	17-Aug-00	37,000	2,500	**Yes**
IR25MW15A1	ORIG	11-Jan-01	10,000	1,000	**Yes**
IR25MW15A1	ORIG	11-Jan-01	32,000	10	**Yes**
IR25MW15A1	ORIG	31-Jan-01	2,900	1,000	**Yes**
IR25MW15A1	ORIG	31-Jan-01	13,000	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	14,000	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	22,000	1,600	**Yes**
IR25MW15A1	ORIG	13-Aug-02	24,000	500	**Yes**
IR25MW15A2	DUP	10-Jun-94	1,000	10	**Yes**
IR25MW15A2	ORIG	10-Jun-94	1,000	10	**Yes**
IR25MW15A2	ORIG	11-Aug-94	2,700	50	**Yes**
IR25MW15A2	DUP	26-May-95	1,100	10	**Yes**
IR25MW15A2	ORIG	26-May-95	810	10	**Yes**
IR25MW15A2	ORIG	05-Feb-98	2,800^{J3}	250	**Yes**
IR25MW15A2	ORIG	16-Aug-00	4,000	170	**Yes**
IR25MW15A2	ORIG	11-Jan-01	**4,300**	1	**Yes**
IR25MW15A2	ORIG	11-Jan-01	830	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	2,400	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	2,400	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	*710*	50	**Yes**
IR25MW15A2	ORIG	01-Feb-01	2,000	100	**Yes**
IR25MW15A2	ORIG	01-Feb-01	3,600	160	**Yes**
IR25MW15A2	ORIG	12-Jun-02	3,300	100	**Yes**
IR25MW18A	ORIG	29-Jan-98	**15,000**	2,500	**Yes**
IR25MW18A	ORIG	18-Jan-01	2,000	500	**Yes**
IR25MW18A	ORIG	18-Jan-01	2,400	10	**Yes**
IR25MW18A	ORIG	01-Feb-01	*310*	500	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,2-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer (Continued)					
IR25MW18A	ORIG	13-Mar-01	4,400	730	**Yes**
IR25MW18A	ORIG	13-Jun-02	1,400	25	**Yes**
IR25MW19A	ORIG	29-Jan-98	**59,000**	5,000	**Yes**
IR25MW19A	ORIG	22-Jan-01	**59,000**	100	**Yes**
IR25MW19A	ORIG	24-Jan-01	39,000	2,000	**Yes**
IR25MW19A	ORIG	05-Feb-01	*11,000*	500	**Yes**
IR25MW19A	ORIG	14-Mar-01	21,000	2,000	**Yes**
IR25MW900B	ORIG	11-Jan-01	*3,100*	400	**Yes**
IR25MW900B	ORIG	11-Jan-01	**6,800**	100	**Yes**
IR25MW900B	ORIG	01-Feb-01	4,000	200	**Yes**
IR25MW901B	ORIG	11-Jan-01	2,800	100	**Yes**
IR25MW901B	ORIG	11-Jan-01	*1,100*	200	**Yes**
IR25MW901B	ORIG	01-Feb-01	4,100	100	**Yes**
IR25MW901B	ORIG	31-Jul-02	**6,800**	50	**Yes**
IR25MW901B	ORIG	31-Jul-02	4,200	310	**Yes**
IR25MW901B	ORIG	01-Aug-02	5,800	50	**Yes**
IR25MW901B	ORIG	01-Aug-02	3,400	310	**Yes**
IR25MW901B	ORIG	01-Aug-02	6,500	40	**Yes**
IR25MW901B	ORIG	01-Aug-02	3,400	320	**Yes**
IR25MW901B	ORIG	02-Aug-02	2,900	240	**Yes**
IR25MW901B	ORIG	02-Aug-02	4,600	33	**Yes**
IR25MW902B	ORIG	16-Jan-01	17,000	250	**Yes**
IR25MW902B	ORIG	16-Jan-01	*8,100*	10	**Yes**
IR25MW902B	ORIG	31-Jan-01	20,000	500	**Yes**
IR25MW902B	ORIG	31-Jan-01	**35,000**	1,000	**Yes**
IR25MW902B	ORIG	31-Jan-01	13,000	250	**Yes**
IR25MW902B	ORIG	31-Jan-01	24,000	500	**Yes**
IR25MW902B	ORIG	01-Feb-01	12,000	500	**Yes**
IR25MW903B	ORIG	11-Jan-01	*690*	100	**Yes**
IR25MW903B	ORIG	11-Jan-01	**3,000**	1	**Yes**
IR25MW903B	ORIG	31-Jan-01	1,400	50	**Yes**
IR25MW903B	ORIG	31-Jan-01	1,800	50	**Yes**
IR25MW903B	ORIG	01-Feb-01	2,500	100	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,2-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer (Continued)					
IR28MW407	ORIG	04-Jun-04	190	5	**Yes**
IR28MW407	ORIG	07-Sep-04	**200**	2.5	**Yes**
IR28MW407	ORIG	02-Dec-04	*92*	0.5	No
IR28MW909A	ORIG	24-Jan-01	530	50	**Yes**
IR28MW909A	ORIG	08-Feb-01	*180*	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	**1,100**	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	190	100	**Yes**
IR28MW909A	ORIG	12-Feb-01	380	50	**Yes**
IR28MW911A	ORIG	25-Jan-01	170	50	**Yes**
IR28MW911A	ORIG	08-Feb-01	*92*	50	No
IR28MW911A	ORIG	08-Feb-01	93	50	No
IR28MW911A	ORIG	12-Feb-01	**190**	50	**Yes**
IR58MW31A	ORIG	01-Jul-94	1,700	10	**Yes**
IR58MW31A	ORIG	21-Jun-95	610	10	**Yes**
IR58MW31A	ORIG	29-Nov-95	540	50	**Yes**
IR58MW31A	ORIG	23-Jan-98	**3,300**	500	**Yes**
IR58MW31A	DUP	11-Aug-00	2,700	140	**Yes**
IR58MW31A	ORIG	11-Aug-00	920	53	**Yes**
IR58MW31A	ORIG	24-Jan-01	630	10	**Yes**
IR58MW31A	ORIG	15-Feb-01	1,300	50	**Yes**
IR58MW31A	ORIG	22-Feb-01	160	15	**Yes**
IR58MW31A	ORIG	15-Aug-02	450	25	**Yes**
IR58MW31A	ORIG	07-Jun-04	190	12.5	**Yes**
IR58MW31A	ORIG	10-Sep-04	270	125	**Yes**
IR58MW31A	ORIG	22-Nov-04	*140*	12.5	**Yes**
1,4-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer					
IR25MW15A1	ORIG	13-Jun-94	7,800	2,000	**Yes**
IR25MW15A1	ORIG	14-Jun-94	**14,000**^{J0}	520	**Yes**
IR25MW15A1	ORIG	11-Aug-94	5,900	200	**Yes**
IR25MW15A1	ORIG	26-May-95	8,100^{J03}	10	**Yes**
IR25MW15A1	ORIG	05-Feb-98	9,600	1,000	**Yes**
IR25MW15A1	ORIG	17-Aug-00	8,400	2,500	**Yes**
IR25MW15A1	ORIG	11-Jan-01	7,100	10	**Yes**
IR25MW15A1	ORIG	11-Jan-01	2,600	1,000	**Yes**
IR25MW15A1	ORIG	31-Jan-01	2,400	1,000	**Yes**
IR25MW15A1	ORIG	31-Jan-01	*470*	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	3,800	1,000	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,4-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer (Continued)					
IR25MW15A1	ORIG	01-Feb-01	5,300	1,600	**Yes**
IR25MW15A1	ORIG	13-Aug-02	5,700	50	**Yes**
IR25MW15A2	ORIG	10-Jun-94	340	10	**Yes**
IR25MW15A2	DUP	10-Jun-94	360	10	**Yes**
IR25MW15A2	ORIG	11-Aug-94	680	50	**Yes**
IR25MW15A2	ORIG	26-May-95	*200*	10	**Yes**
IR25MW15A2	DUP	26-May-95	270	10	**Yes**
IR25MW15A2	ORIG	05-Feb-98	280	25	**Yes**
IR25MW15A2	ORIG	16-Aug-00	880	170	**Yes**
IR25MW15A2	ORIG	11-Jan-01	**920**	1	**Yes**
IR25MW15A2	ORIG	11-Jan-01	*200*	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	460	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	480	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	*200*	50	**Yes**
IR25MW15A2	ORIG	01-Feb-01	410	100	**Yes**
IR25MW15A2	ORIG	01-Feb-01	730	160	**Yes**
IR25MW15A2	ORIG	12-Jun-02	790	10	**Yes**
IR25MW18A	ORIG	29-Jan-98	**3,300**	200	**Yes**
IR25MW18A	ORIG	18-Jan-01	430	10	**Yes**
IR25MW18A	ORIG	18-Jan-01	350	500	**Yes**
IR25MW18A	ORIG	01-Feb-01	500^{U}	500	**Yes**
IR25MW18A	ORIG	13-Mar-01	840	73	**Yes**
IR25MW18A	ORIG	13-Jun-02	*260*	25	**Yes**
IR25MW19A	ORIG	29-Jan-98	**15,000**	5,000	**Yes**
IR25MW19A	ORIG	22-Jan-01	13,000	100	**Yes**
IR25MW19A	ORIG	24-Jan-01	7,900	2,000	**Yes**
IR25MW19A	ORIG	05-Feb-01	*1,900*	500	**Yes**
IR25MW19A	ORIG	14-Mar-01	4,000	200	**Yes**
IR25MW900B	ORIG	11-Jan-01	*680*	400	**Yes**
IR25MW900B	ORIG	11-Jan-01	**1,300**	100	**Yes**
IR25MW900B	ORIG	01-Feb-01	840	200	**Yes**
IR25MW901B	ORIG	11-Jan-01	520	100	**Yes**
IR25MW901B	ORIG	11-Jan-01	*170*	200	**Yes**
IR25MW901B	ORIG	01-Feb-01	740	100	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,4-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer (Continued)					
IR25MW901B	ORIG	31-Jul-02	**1,700**	50	**Yes**
IR25MW901B	ORIG	31-Jul-02	1,000	310	**Yes**
IR25MW901B	ORIG	01-Aug-02	1,400	50	**Yes**
IR25MW901B	ORIG	01-Aug-02	810	310	**Yes**
IR25MW901B	ORIG	01-Aug-02	1,400	40	**Yes**
IR25MW901B	ORIG	01-Aug-02	850	190	**Yes**
IR25MW901B	ORIG	02-Aug-02	700	240	**Yes**
IR25MW901B	ORIG	02-Aug-02	1,100	33	**Yes**
IR25MW902B	ORIG	16-Jan-01	3,300	250	**Yes**
IR25MW902B	ORIG	16-Jan-01	*1,800*	10	**Yes**
IR25MW902B	ORIG	31-Jan-01	3,800	500	**Yes**
IR25MW902B	ORIG	31-Jan-01	**6,300**	1,000	**Yes**
IR25MW902B	ORIG	31-Jan-01	2,300	250	**Yes**
IR25MW902B	ORIG	31-Jan-01	4,200	500	**Yes**
IR25MW902B	ORIG	01-Feb-01	2,400	500	**Yes**
IR25MW903B	ORIG	11-Jan-01	*160*	100	**Yes**
IR25MW903B	ORIG	11-Jan-01	**580**	1	**Yes**
IR25MW903B	ORIG	31-Jan-01	190	50	**Yes**
IR25MW903B	ORIG	31-Jan-01	250	50	**Yes**
IR25MW903B	ORIG	01-Feb-01	490	100	**Yes**
IR28MW909A	ORIG	24-Jan-01	460	50	**Yes**
IR28MW909A	ORIG	08-Feb-01	*150*	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	**940**	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	*150*	100	**Yes**
IR28MW909A	ORIG	12-Feb-01	370	50	**Yes**
IR28MW911A	ORIG	25-Jan-01	190	50	**Yes**
IR28MW911A	ORIG	08-Feb-01	75	50	No
IR28MW911A	ORIG	08-Feb-01	*70*	50	No
IR28MW911A	ORIG	12-Feb-01	**250**	50	**Yes**
IR58MW31A	ORIG	01-Jul-94	320	10	**Yes**
IR58MW31A	ORIG	21-Jun-95	170	10	**Yes**
IR58MW31A	ORIG	29-Nov-95	160	50	**Yes**
IR58MW31A	ORIG	23-Jan-98	**760**	500	**Yes**
IR58MW31A	ORIG	11-Aug-00	270	53	**Yes**
IR58MW31A	DUP	11-Aug-00	630	140	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,4-Dichlorobenzene (Surface Water Screening Criteria = 129 µg/L) A-Aquifer (Continued)					
IR58MW31A	ORIG	24-Jan-01	170	10	**Yes**
IR58MW31A	ORIG	15-Feb-01	360	50	**Yes**
IR58MW31A	ORIG	22-Feb-01	*51*	15	No
IR58MW31A	ORIG	15-Aug-02	210	2.5	**Yes**
IR58MW31A	ORIG	07-Jun-04	150	12.5	**Yes**
IR58MW31A	ORIG	10-Sep-04	360	125	**Yes**
IR58MW31A	ORIG	22-Nov-04	200	12.5	**Yes**
Naphthalene (Surface Water Screening Criteria = 470 µg/L) A-Aquifer					
IR06MW42A	ORIG	13-Jun-90	690	40	**Yes**
IR06MW42A	ORIG	08-Jan-91	810	40	**Yes**
IR06MW42A	ORIG	16-Jul-91	1,200	80	**Yes**
IR06MW42A	ORIG	10-Jan-92	**1,800**	80	**Yes**
IR06MW42A	DUP	10-Jan-92	1,600	80	**Yes**
IR06MW42A	ORIG	08-Nov-93	380	50	No
IR06MW42A	ORIG	14-Feb-94	280	100	No
IR06MW42A	ORIG	16-May-94	360	10	No
IR06MW42A	ORIG	26-Aug-94	30	10	No
IR06MW42A	ORIG	09-Sep-99	*11* U	11	No
IR06MW42A	ORIG	13-Jan-00	97	14	No
IR06MW42A	ORIG	26-Apr-00	31 U	31	No
IR06MW42A	ORIG	19-Jun-00	290	40	No
IR06MW42A	ORIG	14-Jul-00	340	50	No
IR06MW42A	ORIG	12-Oct-00	82	10	No
IR06MW42A	ORIG	16-Jan-01	150	40	No
IR06MW42A	ORIG	01-May-01	180	50	No
IR06MW42A	ORIG	18-Jul-01	120	20	No
IR06MW42A	ORIG	14-Mar-02	23	10	No
IR06MW42A	ORIG	04-Jun-02	240	50	No
IR06MW42A	DUP	04-Jun-02	310	50	No
IR06MW42A	ORIG	21-Aug-02	65	4.8	No
IR06MW42A	DUP	21-Aug-02	100	4.8	No
IR06MW42A	ORIG	28-Aug-02	*11*	10	No
IR06MW42A	DUP	28-Aug-02	*11*	10	No
IR06MW42A	ORIG	13-Nov-02	*11*	10	No
IR06MW42A	ORIG	05-Mar-03	130 E	10	No
IR06MW42A	ORIG	20-May-03	120	10	No
IR06MW42A	ORIG	20-Aug-03	71	10	No
IR06MW42A	ORIG	10-Nov-03	120	20	No
IR06MW42A	ORIG	23-Mar-04	270	100	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Naphthalene (Surface Water Screening Criteria = 470 µg/L) A-Aquifer (Continued)					
IR06MW42A	ORIG	03-Jun-04	160	40	No
IR06MW42A	ORIG	31-Aug-04	15 J5	10	No
IR06MW42A	ORIG	16-Nov-04	53	10	No
PCE (Surface Water Criteria = 450 µg/L) A-Aquifer					
IR25MW15A1	ORIG	13-Jun-94	30,000	2,000	**Yes**
IR25MW15A1	ORIG	11-Aug-94	50,000	10,000	**Yes**
IR25MW15A1	ORIG	26-May-95	54,000	10,000	**Yes**
IR25MW15A1	ORIG	05-Oct-95	**56,000**	5,000	**Yes**
IR25MW15A1	ORIG	05-Oct-95	30,000	2,000	**Yes**
IR25MW15A1	DUP	05-Oct-95	28,000	2,000	**Yes**
IR25MW15A1	ORIG	05-Feb-98	18,000	1,000	**Yes**
IR25MW15A1	ORIG	17-Aug-00	15,000	2,500	**Yes**
IR25MW15A1	ORIG	11-Jan-01	9,500	10	**Yes**
IR25MW15A1	ORIG	31-Jan-01	*2,200*	1,000	**Yes**
IR25MW15A1	ORIG	31-Jan-01	3,900	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	5,100	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	7,200	1,600	**Yes**
IR25MW15A1	ORIG	13-Aug-02	20,000	500	**Yes**
IR25MW15A2	ORIG	10-Jun-94	4,000	100	**Yes**
IR25MW15A2	DUP	10-Jun-94	3,700	100	**Yes**
IR25MW15A2	ORIG	11-Aug-94	**5,200**	500	**Yes**
IR25MW15A2	ORIG	26-May-95	600	50	**Yes**
IR25MW15A2	DUP	26-May-95	580	50	**Yes**
IR25MW15A2	ORIG	05-Oct-95	720	500	**Yes**
IR25MW15A2	ORIG	05-Oct-95	220	20	No
IR25MW15A2	ORIG	05-Feb-98	*130*	25	No
IR25MW15A2	ORIG	16-Aug-00	1,800	170	**Yes**
IR25MW15A2	ORIG	11-Jan-01	1,600	1	**Yes**
IR25MW15A2	ORIG	31-Jan-01	470	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	510	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	540	50	**Yes**
IR25MW15A2	ORIG	01-Feb-01	710	100	**Yes**
IR25MW15A2	ORIG	01-Feb-01	1,200	160	**Yes**
IR25MW15A2	ORIG	12-Jun-02	760	10	**Yes**
IR25MW18A	ORIG	29-Jan-98	**7,300** J3	2,500	Limit > criteria
IR25MW18A	ORIG	18-Jan-01	760	500	Limit > criteria
IR25MW18A	ORIG	01-Feb-01	*160*	500	Limit > criteria

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
PCE (Surface Water Criteria = 450 µg/L) A-Aquifer (Continued)					
IR25MW18A	ORIG	13-Mar-01	1,400	73	**Yes**
IR25MW18A	ORIG	13-Jun-02	540	25	**Yes**
IR25MW19A	ORIG	29-Jan-98	**72,000**[J3]	5,000	**Yes**
IR25MW19A	ORIG	22-Jan-01	**72,000**	100	**Yes**
IR25MW19A	ORIG	05-Feb-01	*5,000*	500	**Yes**
IR25MW19A	ORIG	14-Mar-01	17,000	2,000	**Yes**
IR25MW900B	ORIG	11-Jan-01	**6,300**	100	**Yes**
IR25MW900B	ORIG	01-Feb-01	*5,300*	200	**Yes**
IR25MW901B	ORIG	11-Jan-01	*2,400*	100	**Yes**
IR25MW901B	ORIG	01-Feb-01	3,400	100	**Yes**
IR25MW901B	ORIG	31-Jul-02	**5,400**	50	**Yes**
IR25MW901B	ORIG	01-Aug-02	4,800	50	**Yes**
IR25MW901B	ORIG	01-Aug-02	4,200	40	**Yes**
IR25MW901B	ORIG	02-Aug-02	3,500	33	**Yes**
IR25MW902B	ORIG	16-Jan-01	15,000	250	**Yes**
IR25MW902B	ORIG	31-Jan-01	14,000	250	**Yes**
IR25MW902B	ORIG	31-Jan-01	32,000	500	**Yes**
IR25MW902B	ORIG	31-Jan-01	**36,000**	1,000	**Yes**
IR25MW902B	ORIG	31-Jan-01	28,000	500	**Yes**
IR25MW902B	ORIG	01-Feb-01	*13,000*	500	**Yes**
IR25MW903B	ORIG	11-Jan-01	**2,300**	1	**Yes**
IR25MW903B	ORIG	31-Jan-01	*540*	50	**Yes**
IR25MW903B	ORIG	31-Jan-01	600	50	**Yes**
IR25MW903B	ORIG	01-Feb-01	1,400	100	**Yes**
TCE (Surface Water Criteria = 400 µg/L) A-Aquifer/F-WBZ					
IR25MW15A1	ORIG	13-Jun-94	4,200	2,000	**Yes**
IR25MW15A1	ORIG	11-Aug-94	4,100[J]	10,000	**Yes**
IR25MW15A1	ORIG	26-May-95	6,400[J]	10,000	**Yes**
IR25MW15A1	ORIG	05-Oct-95	7,200	5,000	**Yes**
IR25MW15A1	ORIG	05-Oct-95	**10,000**	2,000	**Yes**
IR25MW15A1	DUP	05-Oct-95	9,800	2,000	**Yes**
IR25MW15A1	ORIG	05-Feb-98	**10,000**	1,000	**Yes**
IR25MW15A1	ORIG	17-Aug-00	4,200	250	**Yes**
IR25MW15A1	ORIG	11-Jan-01	5,300	10	**Yes**
IR25MW15A1	ORIG	31-Jan-01	*1,200*	1,000	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TCE (Surface Water Criteria = 400 µg/L) A-Aquifer/F-WBZ (Continued)					
IR25MW15A1	ORIG	31-Jan-01	3,700	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	3,700	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	5,000	1,600	**Yes**
IR25MW15A1	ORIG	13-Aug-02	2,700	50	**Yes**
IR25MW15A2	ORIG	10-Jun-94	71	100	No
IR25MW15A2	DUP	10-Jun-94	*67*	100	No
IR25MW15A2	ORIG	11-Aug-94	350[J]	500	Limit > criteria
IR25MW15A2	ORIG	26-May-95	170	50	No
IR25MW15A2	DUP	26-May-95	160	50	No
IR25MW15A2	ORIG	05-Oct-95	98	20	No
IR25MW15A2	ORIG	05-Oct-95	1,200	500	**Yes**
IR25MW15A2	ORIG	05-Feb-98	220	25	No
IR25MW15A2	ORIG	16-Aug-00	920	170	**Yes**
IR25MW15A2	ORIG	11-Jan-01	850	1	**Yes**
IR25MW15A2	ORIG	31-Jan-01	**1,600**	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	1,500	100	**Yes**
IR25MW15A2	ORIG	31-Jan-01	670	50	**Yes**
IR25MW15A2	ORIG	01-Feb-01	750	100	**Yes**
IR25MW15A2	ORIG	01-Feb-01	1,100	160	**Yes**
IR25MW15A2	ORIG	12-Jun-02	710	10	**Yes**
IR25MW16A	ORIG	01-Jun-94	*6*	1	No
IR25MW16A	DUP	01-Jun-94	*6*	1	No
IR25MW16A	ORIG	18-Aug-94	86	10	No
IR25MW16A	ORIG	01-Jun-95	63	10	No
IR25MW16A	DUP	01-Jun-95	66	10	No
IR25MW16A	ORIG	17-Aug-00	20	1	No
IR25MW16A	DUP	17-Aug-00	14	1	No
IR25MW16A	ORIG	26-Feb-01	*6*	1	No
IR25MW16A	ORIG	12-Aug-02	150	2.5	No
IR25MW16A	ORIG	08-Jun-04	**510[J3]**	5	**Yes**
IR25MW16A	ORIG	14-Sep-04	11	0.5	No
IR25MW16A	ORIG	03-Dec-04	120[J3]	2.5	No
IR25MW18A	ORIG	29-Jan-98	**9,000**	2,500	**Yes**
IR25MW18A	ORIG	18-Jan-01	1,900	500	**Yes**
IR25MW18A	ORIG	01-Feb-01	*890*	500	**Yes**
IR25MW18A	ORIG	13-Mar-01	2,600	730	Limit > criteria
IR25MW18A	ORIG	13-Jun-02	1,500	25	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TCE (Surface Water Criteria = 400 µg/L) A-Aquifer/F-WBZ (Continued)					
IR25MW19A	ORIG	29-Jan-98	8,900	5,000	**Yes**
IR25MW19A	ORIG	22-Jan-01	**18,000**	100	**Yes**
IR25MW19A	ORIG	05-Feb-01	*1,600*	500	**Yes**
IR25MW19A	ORIG	14-Mar-01	5,700	2,000	**Yes**
IR25MW900B	ORIG	11-Jan-01	*480*	100	**Yes**
IR25MW900B	ORIG	01-Feb-01	**1,100**	200	**Yes**
IR25MW901B	ORIG	11-Jan-01	*300*	100	No
IR25MW901B	ORIG	01-Feb-01	1,200	100	**Yes**
IR25MW901B	ORIG	31-Jul-02	**1,300**	50	**Yes**
IR25MW901B	ORIG	01-Aug-02	810	50	**Yes**
IR25MW901B	ORIG	01-Aug-02	430	40	**Yes**
IR25MW901B	ORIG	02-Aug-02	520	33	**Yes**
IR25MW902B	ORIG	16-Jan-01	*1,400*	250	**Yes**
IR25MW902B	ORIG	31-Jan-01	4,900	500	**Yes**
IR25MW902B	ORIG	31-Jan-01	3,000	250	**Yes**
IR25MW902B	ORIG	31-Jan-01	**5,100**	500	**Yes**
IR25MW902B	ORIG	31-Jan-01	**5,100**	1,000	**Yes**
IR25MW902B	ORIG	01-Feb-01	1,600	500	**Yes**
IR28MW151A	ORIG	22-Jun-94	500	50	**Yes**
IR28MW151A	DUP	22-Jun-94	490	50	**Yes**
IR28MW151A	ORIG	29-Jun-95	42	10	No
IR28MW151A	ORIG	12-Dec-95	700	50	**Yes**
IR28MW151A	ORIG	11-Aug-00	160	14	No
IR28MW151A	ORIG	18-Jan-01	740	50	**Yes**
IR28MW151A	ORIG	18-Jan-01	730	50	**Yes**
IR28MW151A	ORIG	06-Feb-01	41	2	No
IR28MW151A	ORIG	06-Feb-01	470	100	**Yes**
IR28MW151A	ORIG	06-Feb-01	140	10	No
IR28MW151A	ORIG	06-Feb-01	240	25	No
IR28MW151A	ORIG	06-Feb-01	98	10	No
IR28MW151A	ORIG	08-Feb-01	470	20	**Yes**
IR28MW151A	ORIG	08-Feb-01	310	44	No
IR28MW151A	ORIG	27-Aug-01	*13*	1	No
IR28MW151A	ORIG	17-Jan-02	**1,400**	14	**Yes**
IR28MW151A	ORIG	19-Jun-02	360	25	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TCE (Surface Water Criteria = 400 µg/L) A-Aquifer/F-WBZ (Continued)					
IR28MW151A	DUP	19-Jun-02	360	25	No
IR28MW151A	ORIG	15-Sep-04	24	0.5	No
IR28MW151A	ORIG	06-Dec-04	55 J3	25	No
IR28MW211F	ORIG	06-Jul-94	19,000	1,000	**Yes**
IR28MW211F	DUP	06-Jul-94	19,000	1,000	**Yes**
IR28MW211F	ORIG	27-Jun-95	40,000	2,500	**Yes**
IR28MW211F	DUP	27-Jun-95	39,000	2,500	**Yes**
IR28MW211F	ORIG	27-Oct-95	30,000	2,500	**Yes**
IR28MW211F	ORIG	27-Oct-95	61,000	5,000	**Yes**
IR28MW211F	DUP	27-Oct-95	30,000	2,500	**Yes**
IR28MW211F	DUP	27-Oct-95	40,000	2,500	**Yes**
IR28MW211F	ORIG	11-Dec-95	18,000	2,000	**Yes**
IR28MW211F	ORIG	20-Mar-96	10,000	250	**Yes**
IR28MW211F	ORIG	03-Feb-98	15,000	1,000	**Yes**
IR28MW211F	ORIG	22-Aug-00	62,000	4,400	**Yes**
IR28MW211F	ORIG	06-Mar-01	39,000	3,100	**Yes**
IR28MW211F	ORIG	07-Mar-01	36,000	20	**Yes**
IR28MW211F	ORIG	02-Apr-01	30,000	250	**Yes**
IR28MW211F	ORIG	02-Apr-01	29,000	250	**Yes**
IR28MW211F	ORIG	10-Apr-01	48,000	5	**Yes**
IR28MW211F	ORIG	10-Apr-01	44,000	5	**Yes**
IR28MW211F	ORIG	09-Jul-02	42,000	250	**Yes**
IR28MW211F	ORIG	13-Nov-02	**76,000**	10,000	**Yes**
IR28MW211F	ORIG	09-Jan-03	420	40	**Yes**
IR28MW211F	ORIG	07-Feb-03	730	20	**Yes**
IR28MW211F	ORIG	21-Mar-03	850	50	**Yes**
IR28MW211F	ORIG	04-Sep-03	1,700	--	**Yes**
IR28MW211F	ORIG	01-Jun-04	69	0.5	No
IR28MW211F	ORIG	09-Sep-04	150	5	No
IR28MW211F	DUP	09-Sep-04	150	5	No
IR28MW211F	ORIG	01-Dec-04	*6.7*	0.5	No
IR28MW211F	DUP	01-Dec-04	7.7	0.5	No
IR28MW341F	ORIG	03-Feb-98	2,900 J3	500	**Yes**
IR28MW341F	ORIG	12-Mar-01	**41,000**	1	**Yes**
IR28MW341F	ORIG	02-Apr-01	16,000	250	**Yes**
IR28MW341F	ORIG	02-Apr-01	20,000	250	**Yes**
IR28MW341F	ORIG	10-Apr-01	40,000	5	**Yes**
IR28MW341F	ORIG	13-Nov-02	**41,000 J3**	2,000	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TCE (Surface Water Criteria = 400 µg/L) A-Aquifer/F-WBZ (Continued)					
IR28MW341F	ORIG	09-Jan-03	*100*	5	No
IR28MW341F	ORIG	06-Feb-03	160[J3]	8	No
IR28MW341F	ORIG	19-Mar-03	160	10	No
IR28MW341F	ORIG	04-Sep-03	220	--	No
IR28MW342F	ORIG	03-Feb-98	860[J3]	100	**Yes**
IR28MW342F	DUP	03-Feb-98	930	100	**Yes**
IR28MW342F	ORIG	02-Apr-01	1,700	20	**Yes**
IR28MW342F	ORIG	02-Apr-01	1,500	20	**Yes**
IR28MW342F	ORIG	12-Nov-02	**5,100[J3]**	500	**Yes**
IR28MW342F	ORIG	09-Jan-03	47	2	No
IR28MW342F	ORIG	05-Feb-03	79	5	No
IR28MW342F	ORIG	18-Mar-03	180	10	No
IR28MW342F	ORIG	04-Sep-03	*20*	--	No
IR28MW360F	ORIG	04-Dec-02	**7,400**	250	**Yes**
IR28MW360F	DUP	04-Dec-02	6,300	500	**Yes**
IR28MW360F	ORIG	08-Jan-03	690	25	**Yes**
IR28MW360F	ORIG	07-Feb-03	610	20	**Yes**
IR28MW360F	ORIG	21-Mar-03	630	40	**Yes**
IR28MW360F	ORIG	04-Sep-03	*380*	--	No
IR28MW407	ORIG	02-Sep-03	**4,300**	--	**Yes**
IR28MW407	ORIG	04-Jun-04	110	5	No
IR28MW407	ORIG	07-Sep-04	77	0.5	No
IR28MW407	ORIG	02-Dec-04	*23*	0.5	No
IR28MW408	ORIG	04-Sep-03	570	--	**Yes**
IR28MW409	ORIG	04-Sep-03	1,000	--	**Yes**
IR28MW933F1	ORIG	07-Mar-01	1,800	20	**Yes**
IR28MW933F1	ORIG	10-Apr-01	**2,100**	5	**Yes**
IR28MW933F1	ORIG	04-Sep-03	*120*	--	No
IR28MW934F2	ORIG	06-Mar-01	*630*	5	**Yes**
IR28MW934F2	ORIG	09-Apr-01	**730**	5	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TCE (Surface Water Criteria = 400 µg/L) A-Aquifer/F-WBZ (Continued)					
IR28MW934F3	ORIG	06-Mar-01	450	5	**Yes**
IR28MW934F3	ORIG	09-Apr-01	450	5	**Yes**
IR28MW936F	ORIG	12-Mar-01	*15,000*	1	**Yes**
IR28MW936F	ORIG	02-Apr-01	22,000	250	**Yes**
IR28MW936F	ORIG	02-Apr-01	17,000	250	**Yes**
IR28MW936F	ORIG	02-Apr-01	17,000	250	**Yes**
IR28MW936F	ORIG	02-Apr-01	19,000	250	**Yes**
IR28MW936F	ORIG	05-Apr-01	**27,000**	250	**Yes**
IR28MW937F	ORIG	12-Mar-01	*1,300*	10	**Yes**
IR28MW937F	ORIG	12-Mar-01	1,500	1	**Yes**
IR28MW937F	ORIG	02-Apr-01	2,300	20	**Yes**
IR28MW937F	ORIG	02-Apr-01	**30,000**	250	**Yes**
IR28MW937F	ORIG	02-Apr-01	2,000	20	**Yes**
IR28MW937F	ORIG	05-Apr-01	2,300	25	**Yes**
IR28MW937F	ORIG	05-Apr-01	2,200	25	**Yes**
IR28MW310F	ORIG	22-Apr-96	*34*	0.5	No
IR28MW310F	ORIG	28-May-96	64	1	No
IR28MW310F	ORIG	02-Jul-96	58	1	No
IR28MW310F	ORIG	10-Aug-00	500	37	**Yes**
IR28MW310F	DUP	10-Aug-00	500	37	**Yes**
IR28MW310F	ORIG	01-Mar-01	420	29	**Yes**
IR28MW310F	ORIG	07-Mar-01	350	10	No
IR28MW310F	ORIG	02-Apr-01	390	5	No
IR28MW310F	ORIG	02-Apr-01	280	5	No
IR28MW310F	ORIG	02-Apr-01	380	5	No
IR28MW310F	ORIG	05-Apr-01	**660**	10	**Yes**
IR28MW310F	ORIG	26-Jun-02	420	5	**Yes**
IR28MW932F	ORIG	12-Mar-01	**8,700**	1	**Yes**
IR28MW932F	ORIG	09-Apr-01	8,600	5	**Yes**
IR28MW932F	ORIG	12-Nov-02	5,300	500	**Yes**
IR28MW932F	ORIG	09-Jan-03	120	5	No
IR28MW932F	ORIG	07-Feb-03	110	10	No
IR28MW932F	ORIG	21-Mar-03	*84*	8	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TCE (Surface Water Criteria = 400 µg/L) A-Aquifer/F-WBZ (Continued)					
IR28MW934F4	ORIG	06-Mar-01	*350*	5	No
IR28MW934F4	ORIG	09-Apr-01	**420**	5	**Yes**
IR28MW934F5	ORIG	06-Mar-01	*200* U	200	No
IR28MW934F5	ORIG	09-Apr-01	540	5	**Yes**
IR28MW934F5	ORIG	13-Nov-02	**1,100**	50	**Yes**
IR28MW934F5	ORIG	08-Jan-03	400	20	No
IR28MW934F5	ORIG	06-Feb-03	490	20	**Yes**
IR28MW934F5	ORIG	21-Mar-03	480	40	**Yes**
TPH (Surface Water Criteria = 1,400 µg/L) A-Aquifer					
IR25MW11A	ORIG	28-Dec-93	1,500	500	**Yes**
IR25MW11A	DUP	28-Dec-93	**1,300,000**	120,000	**Yes**
IR25MW11A	ORIG	18-Aug-94	25,000 U	25,000	**Yes**
IR25MW11A	ORIG	07-Jun-95	13,000 U	13,000	**Yes**
IR25MW11A	ORIG	27-Apr-99	400 YJ7	50	No
IR25MW11A	ORIG	24-Aug-00	*80*	50	No
IR25MW15A1	ORIG	13-Jun-94	90,000	12,000	**Yes**
IR25MW15A1	ORIG	11-Aug-94	**180,000**	12,000	**Yes**
IR25MW15A1	ORIG	26-May-95	150,000	12,000	**Yes**
IR25MW15A1	ORIG	06-May-99	33,000 Y	25,000	**Yes**
IR25MW15A1	ORIG	17-Aug-00	30,000 Z	2,000	**Yes**
IR25MW15A1	ORIG	11-Jan-01	13,000	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	*7,100*	250	**Yes**
IR25MW15A1	ORIG	01-Feb-01	120,000 Z	5,000	**Yes**
IR25MW15A2	ORIG	10-Jun-94	8,600 Z	1,200	**Yes**
IR25MW15A2	DUP	10-Jun-94	7,300 Z	1,200	**Yes**
IR25MW15A2	ORIG	11-Aug-94	**11,000**	1,200	**Yes**
IR25MW15A2	ORIG	26-May-95	3,100	250	**Yes**
IR25MW15A2	DUP	26-May-95	3,200	250	**Yes**
IR25MW15A2	DUP	27-Apr-99	*1,000* YJ7	50	No
IR25MW15A2	ORIG	27-Apr-99	*1,000* YJ7	50	No
IR25MW15A2	ORIG	16-Aug-00	4,000 Z	200	**Yes**
IR25MW15A2	ORIG	11-Jan-01	2,100	50	**Yes**
IR25MW15A2	ORIG	01-Feb-01	2,100	50	**Yes**
IR25MW15A2	ORIG	01-Feb-01	3,000 Z	200	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TPH (Surface Water Criteria = 1,400 µg/L) A-Aquifer (Continued)					
IR25MW18A	ORIG	18-Jan-01	**12,000**	500	**Yes**
IR25MW18A	ORIG	01-Feb-01	**12,000**	500	**Yes**
IR25MW18A	ORIG	13-Mar-01	*5,000* Z	500	**Yes**
IR25MW900B	ORIG	11-Jan-01	**4,100**	250	**Yes**
IR25MW900B	ORIG	01-Feb-01	*3,900*	250	**Yes**
IR25MW19A	ORIG	22-Jan-01	**84,000**	5,000	**Yes**
IR25MW19A	ORIG	05-Feb-01	45,000	2,500	**Yes**
IR25MW19A	ORIG	14-Mar-01	*24,000* Z	2,000	**Yes**
IR25MW901B	ORIG	11-Jan-01	*3,600*	250	**Yes**
IR25MW901B	ORIG	01-Feb-01	6,100	250	**Yes**
IR25MW901B	ORIG	31-Jul-02	**13,000** GZ	500	**Yes**
IR25MW901B	ORIG	01-Aug-02	11,000 GZ	500	**Yes**
IR25MW901B	ORIG	01-Aug-02	8,100 Z	250	**Yes**
IR25MW901B	ORIG	02-Aug-02	7,200 Z	250	**Yes**
IR25MW902B	ORIG	16-Jan-01	23,000	500	**Yes**
IR25MW902B	ORIG	01-Feb-01	23,000	500	**Yes**
IR28MW211F	ORIG	06-Jul-94	550	50	No
IR28MW211F	DUP	06-Jul-94	5,100	500	**Yes**
IR28MW211F	DUP	27-Jun-95	14,000 Z	2,500	**Yes**
IR28MW211F	ORIG	27-Jun-95	**16,000** Z	2,500	**Yes**
IR28MW211F	ORIG	11-Dec-95	8,800 Z	500	**Yes**
IR28MW211F	ORIG	20-Mar-96	6,200 Z	500	**Yes**
IR28MW211F	ORIG	07-Mar-01	*180*	50	No
IR28MW211F	ORIG	10-Apr-01	190	50	No
IR28MW211F	ORIG	10-Apr-01	200	50	No
IR28MW936F	ORIG	12-Mar-01	*5,000*	50	**Yes**
IR28MW936F	ORIG	05-Apr-01	**5,800**	250	**Yes**
IR58MW31A	ORIG	30-Jun-94	**12,000** J3	1,200	**Yes**
IR58MW31A	ORIG	20-Jun-95	7,000 Z	500	**Yes**
IR58MW31A	ORIG	28-Nov-95	5,400 Z	500	**Yes**
IR58MW31A	ORIG	28-Apr-99	900 YJ7	50	No
IR58MW31A	ORIG	11-Aug-00	2,000 DZ	200	**Yes**

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
TPH (Surface Water Criteria = 1,400 µg/L) A-Aquifer (Continued)					
IR58MW31A	DUP	11-Aug-00	5,000 DZ	500	**Yes**
IR58MW31A	ORIG	24-Jan-01	*130*	50	No
IR58MW31A	ORIG	15-Feb-01	430	50	No
IR58MW31A	ORIG	22-Feb-01	400 Z	50	No
IR58MW31A	ORIG	07-Jun-04	1,200	200	No
IR58MW31A	ORIG	10-Sep-04	4,500	100	**Yes**
IR58MW31A	ORIG	22-Nov-04	1,800	100	**Yes**
Chlorobenzene (Surface Water Criteria = 129 µg/L) A-Aquifer					
IR25MW11A	ORIG	28-Dec-93	10,000 U	10,000	Limit > criteria
IR25MW11A	DUP	28-Dec-93	1,000 U	1,000	Limit > criteria
IR25MW11A	ORIG	07-Jun-95	*78*	10	No
IR25MW11A	ORIG	24-Aug-00	**150**	50	**Yes**
IR25MW15A1	ORIG	13-Jun-94	1,000 U	1,000	Limit > criteria
IR25MW15A1	ORIG	11-Aug-94	10,000 U	10,000	Limit > criteria
IR25MW15A1	ORIG	26-May-95	*420 J3*	10	**Yes**
IR25MW15A1	ORIG	05-Oct-95	5,000 U	5,000	Limit > criteria
IR25MW15A1	ORIG	05-Oct-95	2,200	2,000	**Yes**
IR25MW15A1	DUP	05-Oct-95	2,200	2,000	**Yes**
IR25MW15A1	ORIG	05-Feb-98	1,700 J3	100	**Yes**
IR25MW15A1	ORIG	17-Aug-00	1,900	250	**Yes**
IR25MW15A1	ORIG	11-Jan-01	**2,300**	10	**Yes**
IR25MW15A1	ORIG	31-Jan-01	1,600	1,000	**Yes**
IR25MW15A1	ORIG	31-Jan-01	1,000 U	1,000	Limit > criteria
IR25MW15A1	ORIG	01-Feb-01	1,800	1,000	**Yes**
IR25MW15A1	ORIG	01-Feb-01	2,000	160	**Yes**
IR25MW15A1	ORIG	13-Aug-02	940	50	**Yes**
IR25MW19A	ORIG	29-Jan-98	**330 J3**	200	**Yes**
IR25MW19A	ORIG	22-Jan-01	320	100	**Yes**
IR25MW19A	ORIG	05-Feb-01	500 U	500	Limit > criteria
IR25MW19A	ORIG	14-Mar-01	*120 J*	200	Limit > criteria
IR25MW905B	ORIG	16-Jan-01	*100*	1	No
IR25MW905B	ORIG	31-Jan-01	**140**	5	**Yes**
IR25MW905B	ORIG	31-Jan-01	**140**	5	**Yes**
IR25MW905B	ORIG	31-Jan-01	120	5	No
IR25MW905B	ORIG	01-Feb-01	110	10	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chlorobenzene (Surface Water Criteria = 129 µg/L) A-Aquifer (Continued)					
IR28MW909A	ORIG	24-Jan-01	3,200	50	**Yes**
IR28MW909A	ORIG	08-Feb-01	*2,000*	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	*2,000*	100	**Yes**
IR28MW909A	ORIG	08-Feb-01	**9,900**	100	**Yes**
IR28MW909A	ORIG	12-Feb-01	2,700	50	**Yes**
IR28MW911A	ORIG	25-Jan-01	1,300	50	**Yes**
IR28MW911A	ORIG	08-Feb-01	*790*	50	**Yes**
IR28MW911A	ORIG	08-Feb-01	850	50	**Yes**
IR28MW911A	ORIG	12-Feb-01	**1,800**	50	**Yes**
IR58MW31A	ORIG	30-Jun-94	500[U]	500	Limit > criteria
IR58MW31A	ORIG	20-Jun-95	*110*	10	No
IR58MW31A	ORIG	28-Nov-95	250	200	**Yes**
IR58MW31A	ORIG	23-Jan-98	230[J3]	10	**Yes**
IR58MW31A	ORIG	11-Aug-00	920	53	**Yes**
IR58MW31A	DUP	11-Aug-00	890	140	**Yes**
IR58MW31A	ORIG	24-Jan-01	530	10	**Yes**
IR58MW31A	ORIG	15-Feb-01	650	50	**Yes**
IR58MW31A	ORIG	22-Feb-01	280	15	**Yes**
IR58MW31A	ORIG	15-Aug-02	1,200	25	**Yes**
IR58MW31A	ORIG	07-Jun-04	1,000	12.5	**Yes**
IR58MW31A	ORIG	10-Sep-04	**3,700**	125	**Yes**
IR58MW31A	ORIG	22-Nov-04	1,400	12.5	**Yes**
Cyanide (Surface Water Criteria = 1 µg/L) A-Aquifer					
PA50MW03A	ORIG	17-Mar-93	10[U]	10	Limit > criteria
PA50MW03A	DUP	17-Mar-93	10[U]	10	Limit > criteria
PA50MW03A	ORIG	25-Mar-96	*1.2*	1	**Yes**
PA50MW03A	ORIG	08-Jul-02	10[U]	10	Limit > criteria
PA50MW03A	DUP	08-Jul-02	10[U]	10	Limit > criteria
PA50MW03A	ORIG	08-Jun-04	10[U]	10	Limit > criteria
PA50MW03A	ORIG	01-Sep-04	10[U]	10	Limit > criteria
PA50MW03A	ORIG	19-Nov-04	10[U]	10	Limit > criteria
PA50MW03A	DUP	19-Nov-04	10[U]	10	Limit > criteria
1,4-Dichlorobenzene (Surface Water Criteria = 129 µg/L) B-Aquifer					
IR28MW914A	ORIG	1/25/2001	170	50	**Yes**
IR28MW914A	ORIG	2/8/2001	72	50	No
IR28MW914A	ORIG	2/8/2001	71	50	No
IR28MW914A	ORIG	2/8/2001	66	50	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
1,4-Dichlorobenzene (Surface Water Criteria = 129 µg/L) B-Aquifer (Continued)					
IR28MW914A	ORIG	2/15/2001	180	50	**Yes**
IR28MW914A	ORIG	2/15/2001	170	50	**Yes**
Chromium (Surface Water Screening Criteria = 50 µg/L) F-WBZ					
IR06MW54F	ORIG	15-Dec-93	51.6	2.5	**Yes**
IR06MW54F	DUP	15-Dec-93	51.9	2.5	**Yes**
IR06MW54F	ORIG	16-Aug-94	55	0.7	**Yes**
IR06MW54F	ORIG	25-May-95	62.1	1	**Yes**
IR06MW54F	ORIG	07-Jun-02	*45.1* [U]	0.05	No
IR06MW54F	ORIG	08-Jun-04	73.7	5	**Yes**
IR06MW54F	ORIG	02-Sep-04	69.7	5	**Yes**
IR06MW54F	ORIG	09-Sep-04	66.7	5	**Yes**
IR06MW54F	ORIG	22-Nov-04	**76.2**	5	**Yes**
IR58MW25F	ORIG	12-Jul-94	60.6 [J2]	0.7	**Yes**
IR58MW25F	ORIG	21-Jun-95	60.8	1.8	**Yes**
IR58MW25F	ORIG	05-Dec-95	63.1	0.5	**Yes**
IR58MW25F	ORIG	16-Aug-00	**68.5**	1.7	**Yes**
IR58MW25F	ORIG	05-Mar-01	64	0.7	**Yes**
IR58MW25F	ORIG	26-Jun-02	*36.1*	3	No
IR58MW25F	ORIG	08-Jun-04	58.2	5	**Yes**
IR58MW25F	ORIG	02-Sep-04	59.1	5	**Yes**
IR58MW25F	DUP	02-Sep-04	55.4	5	**Yes**
IR58MW25F	ORIG	09-Sep-04	55.5	5	**Yes**
IR58MW25F	DUP	09-Sep-04	54.8	5	**Yes**
IR58MW25F	ORIG	23-Nov-04	61.2	5	**Yes**
Chromium VI (Surface Water Screening Criteria = 50 µg/L) F-WBZ					
IR06MW54F	ORIG	07-Jun-02	60	10	**Yes**
IR06MW54F	ORIG	08-Jun-04	63	20	**Yes**
IR06MW54F	ORIG	02-Sep-04	*50*	20	No
IR06MW54F	ORIG	09-Sep-04	60	20	**Yes**
IR06MW54F	ORIG	22-Nov-04	**70**	20	**Yes**
IR58MW25F	ORIG	16-Aug-00	**60**	10	**Yes**
IR58MW25F	ORIG	05-Mar-01	50	10	No
IR58MW25F	ORIG	26-Jun-02	*30*	10	No
IR58MW25F	ORIG	08-Jun-04	54	20	**Yes**
IR58MW25F	ORIG	02-Sep-04	50	20	No
IR58MW25F	DUP	02-Sep-04	50	20	No
IR58MW25F	ORIG	09-Sep-04	50	20	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Sampling Location	Sample Type	Sample Date	Result (µg/L)	Reporting Limit (µg/L)	Exceeded Criteria
Chromium VI (Surface Water Screening Criteria = 50 µg/L) F-WBZ (Continued)					
IR58MW25F	DUP	09-Sep-04	50	20	No
IR58MW25F	ORIG	23-Nov-04	50	20	No
Zinc (Surface Water Criteria = 81 µg/L) F-WBZ					
IR28MW173B	ORIG	30-Nov-94	24.5 UJ4	24.5	No
IR28MW173B	DUP	30-Nov-94	14.1 UJ4	14.1	No
IR28MW173B	ORIG	23-Jun-95	**143 J9**	0.3	**Yes**
IR28MW173B	DUP	23-Jun-95	53.1 U	53.1	No
IR28MW173B	ORIG	07-Dec-95	57.5	1.2	No
IR28MW173B	ORIG	29-Aug-01	20 U	20	No
IR28MW173B	ORIG	16-Jan-02	28	20	No
IR28MW173B	ORIG	11-Jul-02	13 J3	20	No
IR28MW173B	ORIG	08-Aug-02	*11.3*	2	No
TPH (Surface Water Criteria = 1,400 µg/L) F-WBZ					
IR28MW932F	ORIG	12-Mar-01	**3,300**	50	**Yes**
IR28MW932F	ORIG	09-Apr-01	*2,600*	50	**Yes**
Benzene (Surface Water Criteria = 700 µg/L) F-WBZ					
IR28MW934F5	ORIG	06-Mar-01	**8,100**	200	**Yes**
IR28MW934F5	ORIG	09-Apr-01	5 U	5	No
IR28MW934F5	ORIG	13-Nov-02	5 U	5	No
IR28MW934F5	ORIG	08-Jan-03	*1 U*	1	No
IR28MW934F5	ORIG	06-Feb-03	*1 U*	1	No
IR28MW934F5	ORIG	21-Mar-03	*1 U*	1	No
Chlorobenzene (Surface Water Criteria = 129 µg/L) F-WBZ					
IR28MW914A	ORIG	25-Jan-01	990	50	**Yes**
IR28MW914A	ORIG	08-Feb-01	320	50	**Yes**
IR28MW914A	ORIG	08-Feb-01	310	50	**Yes**
IR28MW914A	ORIG	08-Feb-01	*300*	50	**Yes**
IR28MW914A	ORIG	15-Feb-01	**1,000**	50	**Yes**
IR28MW914A	ORIG	15-Feb-01	**1,000**	50	**Yes**
Ethylbenzene (Surface Water Criteria = 86 µg/L) F-WBZ					
IR28MW934F5	ORIG	06-Mar-01	**200**	200	**Yes**
IR28MW934F5	ORIG	09-Apr-01	5 U	5	No
IR28MW934F5	ORIG	13-Nov-02	5 U	5	No
IR28MW934F5	ORIG	08-Jan-03	*1 U*	1	No
IR28MW934F5	ORIG	06-Feb-03	*1 U*	1	No
IR28MW934F5	ORIG	21-Mar-03	*1 U*	1	No

TABLE G-6: COPEC SURFACE WATER CRITERIA EXCEEDANCE EVALUATION (CONTINUED)

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

Notes:

Bold results indicate the maximum detected concentration for each well.

Italicized results indicate the lowest concentration identified for each well.

Surface water criteria derivation discussed in Section G2.0 of this appendix, and listed in Table G-1.

The listed detection limit for cyanide reflects the maximum sensitivity of current, routinely used analytical methods. The listed detection limit will be used as the project screening criterion unless reasonable grounds are established for pursuing non-routine methods.

--	Not applicable
µg/L	Microgram gram per liter
G	Pattern resembles gasoline
HGAL	Hunters Point groundwater ambient level
J	Estimated value
U	Nondetected concentration
PCB	Polychlorinated biphenyl
TPH	Total petroleum hydrocarbons

Qualifier Comment Code:

J1	Instrument/system performance
J2	Matrix duplicate
J3	Accuracy - blank spike, surrogate spike, matrix spike
J4	Serial dilution
J5	Holding time
J6	Results estimated due to field duplicate precision violations
J7	Initial and continuing calibration
J8	Exceeds calibration range
J9	Metals - interference check sample/Organics - percent different between columns
J0	Internal standards
Y	Chromatogram indicates the presence of petroleum fuel
Z	Other peak(s); chromatogram does not suggest the presence of a fuel

TABLE G-7: CHEMICALS ELIMINATED AS CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Chemical	Frequency Exceeding Screening Criteria	Location of Chemical (Aquifer/Remedial Unit)	Table Reference	Date of Most Recent Exceedance[b]
Metals				
Cadmium	1/337	A-Aquifer/C5	G-2	11-Aug-94
Chromium	16/49	F-WBZ	G-3	23-Nov-04
Chromium VI	6/26	F-WBZ	G-3	22-Nov-04
Copper	14/337	A-Aquifer/C1,C4,C5	G-2	11-Jul-02
Cyanide	1/9	A-Aquifer/(C1)[a]	G-2	25-Mar-96
Lead	3/331	A-Aquifer/C1,C5	G-2	11-Jan-00
Mercury	21/417	A-Aquifer/C1,C4,C5	G-2	28-Aug-01
	1/51	F-WBZ	G-3	7-Mar-2001
Nickel	9/341	A-Aquifer/C1,C4,C5	G-2	20-Jul-01
Silver	1/331	A-Aquifer/C5	G-2	13-Oct-00
Zinc	1/13	B-Aquifer	G-6	23-Jun-95
Volatile Organic Compounds				
1,2,4-Trichlorobenzene	2/1051	A-Aquifer/C5	G-2	22-Jan-01
1,2-Dichlorobenzene	80/1065	A-Aquifer/ C2, C5	G-2	22-Nov-04
1,3-Dichlorobenzene	9/1064	A-Aquifer/C2, C5	G-2	13-Aug-02
1,4-Dichlorobenzene	69/1064	A-Aquifer/ C2, C4, C5	G-2	22-Nov-04
	3/77	B-Aquifer	G-3	15-Feb-01
1,2-Dichloroethane	13/1083	A-Aquifer/C5	G-2	13-Aug-02
1,2-Dichloroethene (Total)	1/287	A-Aquifer/C5	G-2	11-Aug-94
Chlorobenzene	38/1067	A-Aquifer/C2, C5	G-2	22-Nov-04
	6/77	B-Aquifer	G-3	15-Feb-01
cis-1,2-Dichloroethene	2/796	A-Aquifer/C5	G-2	17-Aug-00
Benzene	1/130	F-WBZ	G-3	6-Mar-01
Ethylbenzene	1/130	F-WBZ	G-3	6-Mar-01
Tetrachloroethene	51/1083	A-Aquifer/C2, C5	G-2	13-Aug-02
Trichloroethene	108/1082	A-Aquifer/C2, C5	G-2	2-Sept-03
Semivolatile Organic Compounds				
2,4-Dinitrotoluene	1/403	A-Aquifer/C5	G-2	7-Jun-95
Chrysene	1/418	A-Aquifer/C5	G-2	7-Jun-95
Fluoranthene	9/417	A-Aquifer/C5	G-2	10-Nov-03
Fluorene	9/418	A-Aquifer/C5	G-2	24-Aug-00
Naphthalene	4/603	A-Aquifer/C5	G-2	10-Jan-92

TABLE G-7: CHEMICALS ELIMINATED AS CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN (CONTINUED)

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

Chemical	Frequency Exceeding Screening Criteria	Location of Chemical (Aquifer/Remedial Unit)	Table Reference	Date of Most Recent Exceedance[b]
Semivolatile Organic Compounds (Continued)				
Pentachlorophenol	1/393	A-Aquifer/C5	G-2	7-Jun-95
Phenanthrene	10/418	A-Aquifer/C5	G-2	24-Aug-00
Phenol	1/393	A-Aquifer/C5	G-2	11-Aug-94
Pesticides and Polychlorinated Biphenyls				
4,4'-DDT	7/247	A-Aquifer/C1,C2,C5,(C4)[a]	G-2	7-Jun-04
alpha-Chlordane	7/247	A-Aquifer/C5,(C4)[a]	G-2	10-Nov-03
Aroclor-1248	1/291	A-Aquifer/(C4)[a]	G-2	6-Jun-94
Aroclor-1260	31/291	A-Aquifer/C1,C2,C5,(C4)[a]	G-2	1-Dec-04
Endosulfan II	2/247	A-Aquifer/C5,(C4)[a]	G-2	1-May-01
Endrin	5/247	A-Aquifer/C2, C5	G-2	20-May-03
Gamma-Chlordane	5/247	A-Aquifer/C5,(C4)[a]	G-2	8-Aug-02
Heptachlor	2/247	A-Aquifer/C2,C5	G-2	10-Sep-04
Heptachlor Epoxide	5/243	A-Aquifer/C2, C5	G-2	22-Feb-01
Heptachlor Epoxide	1/40	F-WBZ	G-3	25-May-95
Methoxychlor	1/247	A-Aquifer/C5	G-2	20-May-03
Total Petroleum Hydrocarbons				
TPH	2/53	F-WBZ	G-3	9-Apr-01

Notes:

a Well not located in area classified as a remedial unit. Closest remedial unit is in parentheses.

b See Table G-6 for exceedances of criteria. This is the most recent exceedance through 2004.

DDT Dichlorodiphenyltrichloroethane

F-WBZ Bedrock water-bearing zone

TPH Total petroleum hydrocarbons

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
28	Trigger levels	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix H.

APPENDIX H
TRIGGER LEVELS FOR GROUNDWATER EFFECTS TO THE SAN FRANCISCO BAY

TABLE OF CONTENTS

ATTACHMENT

FIGURE

TABLE

ACRONYMS AND ABBREVIATIONS

µg/L	Microgram per liter
AF	Attenuation factor
ARAR	Applicable or relevant and appropriate requirement
ARD	Assessment and Restoration Division
Bay	San Francisco Bay
CTR	California Toxics Rule
COEC	Chemical of ecological concern
CPRD	Coastal Protection and Restoration Division
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
F-WBZ	Bedrock water-bearing zone
HPS	Hunters Point Shipyard
NOAA	National Oceanic and Atmospheric Administration
RCRA	Resource Conservation and Recovery Act
RU	Remedial Unit
Water Board	San Francisco Bay Regional Water Quality Control Board

H1.0 INTRODUCTION

This appendix summarizes the development of trigger levels for Parcel C groundwater. Trigger levels were developed because chemicals in groundwater at Hunters Point Shipyard (HPS) have the potential to affect surface waters if they migrate and discharge to San Francisco Bay (Bay) at sufficiently high concentrations. No surface water bodies are present on Parcel C; however, the Navy evaluated federal and state surface water quality criteria as potential applicable or relevant and appropriate requirements (ARAR) for Parcel C because groundwater discharges to the Bay. For the groundwater at Parcel C, the Navy has determined that the state standards promulgated in Table 3-3 of the Water Quality Control Plan for the San Francisco Bay Basin (San Francisco Bay Regional Water Quality Control Board [Water Board] 1995) and the federal standards promulgated in the California Toxics Rule (CTR) are potential ARARs for Parcel C to be met at the interface of A- and B-aquifers groundwater and the Bay.

Conversely, the Navy has determined that the guidelines in the National Recommended Water Quality Criteria (U.S. Environmental Protection Agency [EPA] 2006c) and National Ambient Water Quality Criteria are not ARARs for the interface of the A- and B-aquifer groundwater and the Bay because there are other standards (such as Table 3-3 and CTR) better suited to Parcel C. (Refer to Appendix D for a detailed discussion of ARARs for surface water.) All of these standards apply to surface water; none of them apply to groundwater. Therefore, these potential surface water ARARs would be applied to surface water at the interface of A- and B-aquifer groundwater and would not be used to set cleanup standards for in situ A- or B-aquifer groundwater at Parcel C.

No water quality criteria exist for groundwater to protect marine organisms in nearby surface water. Therefore, alternative water quality criteria for groundwater must be developed to evaluate the potential for chemicals in groundwater to result in impacts to the Bay. Various processes occur in the subsurface that reduce chemical concentrations in groundwater as groundwater migrates toward a discharge point such as the Bay. These processes include hydrodynamic dispersion, sorption, chemical and biological transformation, dilution in the tidal mixing zone, and dilution on discharge to a surface water body. Therefore, it is not appropriate to apply surface water quality criteria directly to groundwater; rather, surface water quality criteria apply only to surface waters. Remediation goals for surface water would apply to surface water at the interface of the aquifer system with the Bay. For groundwater, trigger levels are developed in this appendix to address the need for relevant criteria. These trigger levels are groundwater concentrations at which further evaluation is necessary to protect the Bay from potential migration of chemicals from Parcel C should groundwater enter the Bay.

The purposes of this appendix are as follows:

1. Discuss the applicable toxicological and physicochemical factors relevant to developing trigger levels for Parcel C groundwater that would result in meeting the remediation goals at the point of discharge to the Bay.

2. Review a variety of lines of evidence that indicate the magnitude of the reduction in chemical concentrations when groundwater discharges to and mixes with the water in the Bay.

3. Based on items 1 and 2, develop appropriate trigger levels at appropriate inland locations for groundwater that will ensure surface water quality criteria are not exceeded if groundwater at Parcel C discharges to the Bay.

Surface water quality criteria can be considered ARARs for surface water, and remediation goals can be derived for surface water at the interface of groundwater and the Bay from the ARARs. Appropriate surface water quality criteria for the Bay near Parcel C were developed (see Appendix G). Once that was accomplished, the surface water quality criteria were screened against chemical concentrations in groundwater to determine which chemicals are chemicals of ecological concern (COEC). Then, trigger levels were calculated, as outlined in this appendix, for those COECs at the locations or areas where they occur at Parcel C.

The trigger levels described in this appendix are intended to serve as comparison values for groundwater to identify when additional evaluation may be necessary. The additional evaluations that may occur following an exceedance include:

- Increasing the frequency of monitoring in the well where the trigger level was exceeded to evaluate whether the exceedance is persistent;

- Monitoring groundwater at a location farther downgradient to evaluate whether the attenuation estimated in establishing the trigger level has occurred;

- Using site-specific detailed information to more accurately estimate attenuation (including processes such as adsorption and degradation); or

- Implementing a selected remedial alternative for treatment of groundwater.

Appendix G of this Final Feasibility Study (FS) Report screened the analytical results of all detected chemicals in the A- and B-aquifer, as well as the bedrock water-bearing zone (F-WBZ), against applicable surface water quality criteria. Results of the screening evaluation identified chromium VI and zinc as COECs in groundwater that pose potential risk to marine organisms in the Bay. Both of these chemicals were identified as COECs in the A-aquifer, and no chemicals were identified as COECs in the B-aquifer or in the F-WBZ. These COECs apply to the following remedial units (RU):

- RU-C1: Chromium VI and zinc

- RU-C5: Chromium VI

The remainder of this appendix is organized as follows:

- Section H2.0 of this appendix presents a review of the lines of evidence that indicate the magnitude of the reduction in chemical concentrations that can be expected as groundwater migrates toward a surface water body and when the groundwater discharges to the surface water body.

- Section H3.0 proposes trigger levels for groundwater based on the lines of evidence presented in Section H2.0 for each of the areas at Parcel C where COEC concentrations in groundwater frequently exceeded surface water quality criteria.

- Section H4.0 lists the documents used to prepare this appendix.

Figures and tables are provided following Section H4.0.

H2.0 LINES OF EVIDENCE FOR ATTENUATION OF CHEMICAL CONCENTRATIONS IN GROUNDWATER

At HPS, attenuation of chemical and metal concentrations occurs in groundwater as it migrates through three different zones: (1) the area of groundwater transport to the tidal mixing zone, (2) the tidal mixing zone, and (3) the Bay discharge zone.

As chemicals migrate from the source area through soil and groundwater, they are subjected to physical, chemical, and biological processes that tend to reduce their concentrations. These processes include sorption of chemicals to soil particles, volatilization, hydrodynamic dispersion and molecular diffusion, and chemical and biological transformations.

Additional reduction in chemical concentrations takes place in the tidal mixing zone near the shoreline. The tidal mixing zone is where Bay surface waters move inland through the aquifer mixing with the groundwater. The net discharge of groundwater may not be changed by tidal influence, but rising tides introduce surface water into the aquifer so that the concentrations of chemicals in groundwater that discharges during low tide are reduced by mixing of Bay water and groundwater in the aquifer in this zone.

Finally, concentrations of chemicals entering the Bay with discharging groundwater will be further reduced because groundwater will be diluted with Bay water at the interface of the groundwater and the Bay.

The following sections describe attenuation of chemical concentrations in groundwater as it migrates through three different zones: from the source areas, through the tidal mixing zone, and on to the bay discharge points. As described below, the attenuation factors (AF) for the tidal mixing zone and for discharge to the surface water body are set to 1 (no attenuation) to provide a highly conservative approach, based on agreements with the regulatory agencies.

H2.1 ATTENUATION DURING GROUNDWATER TRANSPORT TO TIDAL MIXING ZONE

Groundwater modeling was performed to estimate peak concentrations of chemicals that may discharge to the Bay for a variety of plume widths and distances to the Bay. The methodology and results for the groundwater modeling are presented in Appendix G of the Revised FS Report for Parcel D (SulTech 2007) and are presented in this appendix as Attachment H1. Based on the maximum detected concentration in the source area and the predicted peak concentration at the point of discharge to the Bay, an AF (AF = maximum source area concentration divided by predicted peak concentration at receptor location) was calculated for the various hypothetical groundwater plumes. An AF nomograph has been developed site-wide for HPS (see Figure H-1).

The analytical solute transport model BIOSCREEN (EPA 1997b) was used to predict maximum concentrations at the point of discharge and then to calculate AFs. The sediment-to-bay interface was used as the point of discharge in the model. BIOSCREEN can simulate adsorption and degradation processes during advective transport of the solute; however, adsorption and degradation parameters were set to zero in this model to ensure that hydrodynamic dispersion was the only mechanism acting to reduce chemical concentrations in groundwater. By modeling hydrodynamic dispersion as the only attenuation mechanism, the results can be applied to any chemical and the calculated AFs are not chemical-specific; however, the AFs are plume-specific based on the width of the plume and the distance from the source of the plume to the nearest receptor location. Considering only hydrodynamic dispersion for attenuation adds conservatism to the assessment, as agreed to with the regulatory agencies.

The intent of this modeling approach was to provide conservative estimates of the maximum concentrations in groundwater expected at the points of discharge. Hydraulic parameters in the model were based on aquifer test results and groundwater flow measurements for the A-aquifer. AF curves (see Figure H-1), for various source widths, were calculated by dividing maximum source area concentrations by modeled or predicted peak concentrations at the point of discharge. Based on model sensitivity analyses, the values for input parameters were chosen to result in realistic, yet conservatively high, estimates of the maximum concentrations in groundwater at the points of discharge, providing an added layer of conservatism to the calculations (see Attachment H1).

The resultant AF curves are not chemical-specific because the model did not include chemical-specific parameters such as biodegradation rates. Therefore, the results of the modeling can be applied to metals or organic chemicals found in the groundwater at all HPS parcels. However, the AFs are plume-specific based on the source width and distance from the source area to the nearest receptor point. The model results were used to generate the nomograph (see Figure H-1), which can be used to calculate conservative AFs for groundwater plumes throughout HPS to develop trigger levels.

Results of groundwater modeling indicate that the amount of attenuation caused by hydrodynamic dispersion during groundwater transport can be significant, and the longer the travel distance (distance to receptor) the greater the AF. The nomograph is used by selecting source width and distance to potential receptors in the Bay and reading the AF to be used for trigger level calculation.

H2.2 ATTENUATION IN THE TIDAL MIXING ZONE

The tidal mixing zone is defined as the area in the shallow groundwater aquifer near and inland of the shoreline where groundwater and seawater mix as a result of tidal fluctuations. Groundwater flow in the tidal mixing zone can be complex because of the daily fluctuation (rise and fall) of tides. At high tide, the flow direction will generally be from the shore inland, in response to the hydraulic gradient created by the high tide. Conversely, at low tide, flow direction will be from land to shore, in response to the hydraulic gradient created by low tide. However, the overall shallow groundwater movement is toward the Bay, as driven by the gradient and mass of groundwater flow from upgradient areas to the area of discharge at the Bay. If Bay water has lower chemical concentrations than groundwater, chemical attenuation will occur in groundwater within the aquifer because of dilution by mixing with infiltrated Bay water and forced dispersion from the tidal fluctuations.

Several studies have been performed in the vicinity of HPS that estimate the amount of attenuation that occurs in the tidal mixing zone. These studies are discussed in the subsections below.

H2.2.1 Modeling Conducted at Mission Bay, San Francisco

A one-dimensional mathematical model (ENVIRON International Corporation 1998) was developed (Mission Bay model) for the area within a 50-foot distance from the Bay fringe. This model simulated tidal influence on groundwater chemical concentrations as groundwater flows toward the Bay. The Mission Bay model incorporated the effects of dilution, hydrodynamic dispersion, and sorption within the groundwater system (Yim and Mohsen 1992). No dilution within the Bay was considered. Sixty-three model runs were carried out, allowing for reasonable dispersivity characteristics, sorption parameters, and initial concentration distribution. Within the last 50 feet to the Bay discharge point, the model predicted a minimum AF of 6.5, a maximum AF of 12.8, and an average AF of 9.7. As additional support for the model results, site specific data for one case was used where the tidal influences reduced the highest observed chemical concentration inland of 600 micrograms per liter (µg/L) to about 15 µg/L near the tidal river, which translates to an AF of 40.

H2.2.2 Modeling Conducted Near Pier 64, San Francisco

Clayton Group Services (2001), in association with S.S. Papadopulos & Associates, Inc., developed a flow and transport model using MODFLOW and MT3D to evaluate attenuation of chemical concentrations in groundwater caused by dilution associated with tidal mixing in the fill close to the Bay. The base case model showed a 65 percent reduction (approximately a factor of 3) in the average chemical concentration in groundwater prior to Bay discharge. This reduction is a more conservative outcome than Mission Bay model results. Moreover, the Pier 64 model estimated the inland extent of mixing was 30 feet into the aquifer from the Bay, as opposed to the 50 feet used for the Mission Bay model. Additionally, this Pier 64 model used a much higher hydraulic conductivity value (75 feet per day) than the Mission Bay model

(2.8 feet per day). Data from HPS studies indicate that the tidal mixing zone is longer than 50 feet, and that hydraulic conductivities are generally on the order of 1 to 20 feet per day (Tetra Tech EM Inc. 2004). Therefore, it appears the results from the Mission Bay model would be more representative of the conditions at HPS than those from the Pier 64 model.

H2.2.3 Tidal Mixing Study at Hunters Point Shipyard

The Navy studied the extent of tidal mixing within the A-aquifer at Parcel E at HPS in 2002 (Tetra Tech EM Inc. 2004). Specific conductance, a temperature-independent surrogate for salinity, was used to evaluate the relationship between salinity fluctuations and tidal fluctuations. Fluctuations in specific conductance related to tidal fluctuations in water levels were observed along the Parcel E shoreline in a near-shore well (IR02MW206A1 located 70 feet from the Bay in the area east of IR-03), but not in an inland well (IR15MW06A located 335 feet from the Bay at IR-15). These data indicate that the tidal mixing zone in Parcel E extends at least 70 feet inland from the shoreline.

H2.3 ATTENUATION UPON DISCHARGE TO THE BAY

When groundwater discharges to the Bay, chemical concentrations in groundwater likely are diluted because of the relatively small volume of groundwater discharging into a large surface water body. However, measuring groundwater discharge is a difficult task and is seldom attempted at hazardous waste sites. It is also difficult to measure chemical concentrations in the surface water body because of uncertainty about locations and depths for collecting samples and potential temporal variations in concentrations. As discussed below, several agencies have assumed a 10 times dilution factor as a "rule of thumb" to account for dilution in chemical concentrations that occurs when groundwater discharges to a surface water body. The following subsections describe the approaches specific regulatory agencies have taken.

H2.3.1 National Oceanic and Atmospheric Administration Approach

The Assessment and Restoration Division (ARD), formerly the Coastal Protection and Restoration Division (CPRD), of National Oceanic and Atmospheric Administration (NOAA) is charged with protecting and restoring coastal habitats and resources affected by hazardous materials releases. ARD works closely with EPA, Department of Defense, states, and other natural resource trustees throughout the Comprehensive Environmental Response, Compensation, and Liability Act remedial process to ensure that selected remedies are protective and that appropriate measures are implemented to restore NOAA trust resources (NOAA 2007).

ARD developed Screening Quick Reference Tables that present screening concentrations for inorganic and organic chemicals in various environmental media (NOAA 1999). The ARD of NOAA discusses the comparison of screening of groundwater data with EPA's National Ambient Water Quality Criteria on the Frequently Asked Questions webpage, as follows (NOAA 2006):

"Groundwater concentrations are also screened against AWQC (ambient water quality criteria). However, given the dilution expected during migration and upon discharge of groundwater to surface water, CPRD uses 10 times the applicable AWQC for screening."

Why does NOAA apply a default dilution factor of only 10x for the discharge of groundwater to surface water?

"We prefer to use site-specific information whenever it is available. But because such data have not been derived, we acknowledge that some level of dilution would occur. We chose to use a conservative, order of magnitude dilution factor for screening purposes to ensure a high degree of confidence that any contaminant source eliminated from further consideration is not likely to pose substantial risk. Conversely, this is not meant to imply that contaminant sources that do not pass this screening do pose risk."

The information presented on NOAA's website indicates that NOAA considers a 10 times dilution of groundwater concentrations during transport and discharge to surface water to be an appropriate, conservative estimate of the amount of attenuation in chemical concentrations that can be expected when groundwater discharges to a surface water body.

H2.3.2 U.S. Environmental Protection Agency Approach

The Resource Conservation and Recovery Act (RCRA) grants EPA and authorized states the authority to regulate hazardous waste management facilities that treat, store, or dispose of hazardous waste. The RCRA Corrective Action Program uses environmental indicators to assess progress at RCRA sites. The environmental indicators are a means of evaluating and reporting on the acceptability of current site conditions (that is, they are interim milestones and not final remedy or site closure goals). They are used to summarize and report on the site-wide environmental conditions at the RCRA Corrective Action Program's highest priority sites. One of the environmental indicators is "Migration of Contaminated Groundwater Under Control" (the "groundwater environmental indicator").

On the "EPA RCRA Corrective Action Environmental Indicators Frequently Asked Questions" webpage (EPA 2006a), the following information is provided:

For the purpose of making a Groundwater Environmental Indicator determination, how do I address groundwater-to-surface-water interaction?

"In cases where groundwater is being discharged to surface water, you should, as a general matter, focus your groundwater environmental indicator evaluation on the question of whether or not contaminated groundwater is significantly impairing the quality of the surface water body. A positive environmental indicator determination would generally be appropriate where the groundwater is not significantly affecting the surface water body in a way that leads it to fail basic water-quality criteria."

Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant?"

"In some cases, overseeing agencies are likely to be able to conclude that a release from groundwater into surface water will be "insignificant" – and therefore "under control" – based on the levels of contaminants in the groundwater, without consideration of the volume or flow of the surface water body. As a rule of thumb, we have found that, if the groundwater concentrations for all constituents are less than 10 times the appropriate surface water quality criteria for both human health and aquatic life, the current groundwater discharge should be "insignificant" for environmental indicator purposes. In this case, the regulator would conclude that the groundwater environmental indicator had been met (at least with respect to the discharge to surface water)."

The information provided in the interim final guidance and on the RCRA Corrective Action Program's webpages clearly indicate that for RCRA sites it is appropriate to assume a 10 times dilution factor for estimating concentrations of chemicals in groundwater discharging into surface water bodies (EPA 1997a, 2006a, 2006b).

H2.3.3 San Francisco Bay Regional Water Quality Control Board Approach

The Water Board has allowed a 10 times dilution factor in at least one instance, for the proposed Eastshore Park Property in Berkeley, Albany, and Richmond, California. In Site Cleanup Requirements Order No. 98-072 for Catellus Development Corporation and SF Pacific Property, Inc., the Water Board states the following:

"Action levels for groundwater are based on water quality objectives for saltwater species. In uplands above the 50-foot shoreline buffer, groundwater action levels are ten times the water quality objectives. This multiplier reflects predicted attenuation of groundwater constituents at the site, as discussed in the Remediation and Risk Management Plan, given chemical-specific characteristics, site-specific hydrogeological conditions, and the Board's prior experience with groundwater at various shoreline sites."

The Water Board's position related to the Eastshore Park Property is that the 10 times dilution was a site-specific determination and is not directly applicable to HPS. The Water Board does not allow modeling to incorporate dilution of groundwater chemicals in surface water. The Water Board's position on attenuation of groundwater discharge to the Bay at HPS is further discussed in a letter to the Navy dated March 16, 2006 (Water Board 2006).

H2.4 SUMMARY OF ATTENUATION MECHANISMS FOR CHEMICALS IN GROUNDWATER

There are three discrete zones where chemical concentrations in groundwater are reduced during groundwater transport from a source zone to the Bay. These zones are (1) the area of groundwater

transport to the tidal mixing zone, (2) the tidal mixing zone, and (3) the zone of groundwater discharge to the Bay. The mechanisms of attenuation and amount of attenuation in each of these three zones are different. As described below, in this evaluation the AFs for the tidal mixing zone and for discharge to the surface water body are set to 1 (no attenuation) to provide a highly conservative approach, based on agreements with the regulatory agencies.

During groundwater transport, mechanisms such as sorption, biological and chemical transformation, and hydrodynamic dispersion are at work. Groundwater flow modeling conducted for Parcel D evaluated the amount of attenuation that would be expected only by hydrodynamic dispersion in the groundwater transport zone (see Attachment H1), Under conservative assumptions, the amount of attenuation due to dispersion that occurs in the HPS groundwater migration pathways through the A-aquifer ranges from a factor of 1 to 58, depending upon the width of the source area and the distance to the receptor. This distance from source to receptor does not account for the last 50 feet upgradient from the seawall which is the tidal mixing zone. For small plume widths (40 feet), and distances of 500 feet and greater, AFs were greater than 6. For relatively large plume widths (170 feet) and distances of 500 feet and greater, AFs were greater than 2, and at distances of 1,000 feet, AFs were greater than 6, even with plume widths up to 340 feet. The chemical plumes identified at Parcel C range from 40 to 235 feet wide and are 10 to 850 feet from the Bay.

Within the tidal mixing zone, at least two studies have been performed in the Bay area that indicated dilution of chemical concentrations occurs in this zone. The Mission Bay model indicates AFs of 6.5 to 12.8, with an average value of 9.7 within a 50-foot tidal mixing zone. The Pier 64 model indicates a 65 percent reduction in chemical concentrations within a 30-foot tidal mixing zone. Tidal mixing studies conducted at HPS have indicated a tidal mixing zone of at least 70 feet (Tetra Tech EM Inc. 2004). The hydraulic conductivities used for the Mission Bay model (2.8 feet per day) and Pier 64 model (75 feet per day) indicate that the Mission Bay model more closely reflects conditions at HPS, where hydraulic conductivities at Parcel C were calculated from pump test results to range from approximately 0.1 to 3.6 feet per day (Tetra Tech EM Inc. 2004).

When groundwater discharges into a surface water body, it is expected that dilution of chemical concentrations in groundwater will occur because of the much larger volume of water in the surface water body as compared with the volume of groundwater discharge. However, measuring the actual amount of dilution that occurs upon groundwater discharge is difficult. NOAA, EPA, and the Water Board have all indicated that a 10 times dilution “rule of thumb” is appropriate to evaluate groundwater concentrations upland of the point of discharge, and the potential for this groundwater to negatively impact the surface water body. All three agencies have indicated that they consider the 10 times rule to be a conservative assessment of the amount of dilution that can be expected.

The amount of attenuation that occurs in each of these zones is not additive—it is multiplicative. However, in this evaluation, the AFs for the tidal mixing zone and for discharge to the surface water body are set to 1 (no attenuation) to provide a highly conservative approach, based on agreements with the regulatory agencies.

H3.0 DEVELOPMENT OF PARCEL C TRIGGER LEVELS

This section presents proposed trigger levels developed for each of the COECs identified in Appendix G. Development of the trigger levels takes an extremely conservative approach because it does not account for attenuation in the tidal mixing zone or attenuation from discharge to the surface water body, and instead relies exclusively on the hydrodynamic dispersion calculated for the groundwater transport zone. Considering only hydrodynamic dispersion for attenuation adds conservatism to the assessment, as agreed to with the regulatory agencies. The resulting trigger levels likely overestimate the potential impacts of the groundwater plumes on the Bay.

Nomograph-generated AFs were used to develop plume-specific trigger levels in support of the ongoing monitoring and evaluation of groundwater remedial alternatives for the A-aquifer at Parcel C (see Figure H-1).

Within Parcel C, trigger levels were developed in the following four areas (see Figures G-1 and G-2):

- IR28MW125A (chromium VI)
- Building 253 (chromium VI and zinc)
- Building 211 (zinc)
- IR06MW50F (chromium VI)

The groundwater modeling indicated that chemical concentrations in these source areas would attenuate as the groundwater migrates toward discharge points to the Bay. The magnitude of the attenuation is a function of the distance of migration and the width of the source area.

Trigger levels were derived for these source areas in Parcel C by multiplying the AF for the source area by the appropriate surface water quality criterion for the COEC. The modeling approach and resultant AFs are described in detail in Attachment H1 and summarized in Section H2.1. Table H-1 summarizes the proposed trigger levels for Parcel C source areas and associated COECs.

The proposed trigger levels are extremely conservative because (1) they rely on conservative AFs originally calculated from groundwater flow modeling and (2) they only account for attenuation due to hydrodynamic dispersion and do not include attenuation in the tidal mixing zone or attenuation when groundwater discharges to the surface water body. Considering only hydrodynamic dispersion for attenuation adds conservatism to the assessment and provides maximum protectiveness for the Bay, as agreed to with the regulatory agencies. Nevertheless, four areas where the concentration has exceeded the proposed trigger level will be included in the proposed groundwater monitoring plan discussed in Appendix E.

As discussed in Appendix E of the Final FS Report, the details of the groundwater monitoring program will be identified during the remedial design. Inclusion of the areas listed above in the groundwater monitoring program will be based on the concentrations observed in groundwater at these wells at the time the design is prepared. The groundwater data used for some of these wells were collected several years ago and may no longer represent current conditions in groundwater. Evaluations in the remedial design will consider current data and will not be limited to the data set ending in November 2004 that was used for the trigger level analysis. These newer data collected since November 2004 may indicate that monitoring is no longer necessary (for example, if the data show concentrations are consistently below the trigger level). Complete discussions of these evaluations will be contained in the remedial design for review by the regulatory agencies.

For cases where the current data indicate concentrations consistently exceed a trigger level, the following additional evaluations may occur:

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

Chemicals that are identified in the remedial design as requiring monitoring based on the trigger levels will follow a process similar to the process envisioned for other chemicals of concern (such as volatile organic compounds), which is described in Appendix E of the Final FS Report. This process will include regular monitoring followed by a "proof period" to demonstrate that concentrations are below the trigger level. Details of the groundwater monitoring plan will be developed during the remedial design, but are expected to include criteria (perhaps as a decision-tree matrix) to guide decisions for active treatment of groundwater in a case where a chemical concentration consistently exceeds a trigger level.

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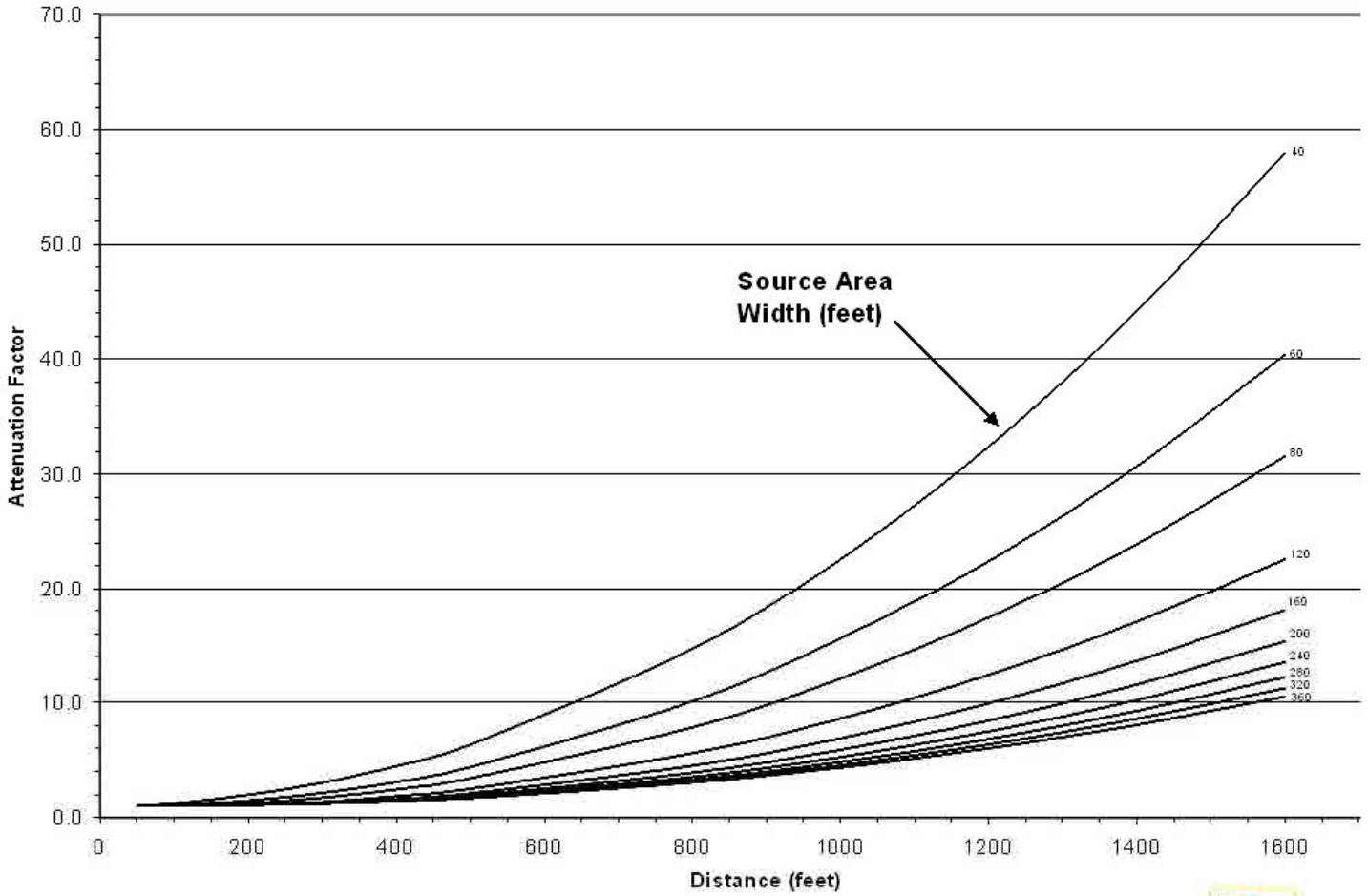
FIGURE



SulTech

Hunters Point Shipyard
U.S. Navy, BRAC PMO West, San Diego, California

FIGURE H-1

HUNTERS POINT SHIPYARD
SITE-WIDE NOMOGRAPH

...FS Report for Parcel C

TABLE

TABLE H-1: DEVELOPMENT OF TRIGGER LEVELS FOR PARCEL C

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

Chemical	Area	Remedial Unit / Aquifer	Source Area Width[1] (feet)	Distance from Source to Receptor[2] (feet)	Attenuation Factor	HGAL (µg/L)	Surface Water Quality Criteria[3] (µg/L)	Proposed Trigger Level at Source Well (µg/L)	Maximum[4] Concentration at Source Area (µg/L)	Maximum Concentration Exceeds Proposed Trigger Level?
Chromium VI	IR28MW125A (1 well)	C1 / A	40	10	1	N/A	**50**	50	**260**	**Yes**
Chromium VI	Building 253 (3 wells)	C1 / A	80	400	3	N/A	**50**	150	**210**	**Yes**
Zinc	Building 253 (3 wells)	C1 / A	80	400	3	75.68	**81**	243	**350**	**Yes**
Chromium VI	IR06MW50F (2 wells)	C5 / A	85	650	2	N/A	**50**	100	**120**	**Yes**
Zinc	IR28MW170A/ Building 211 (2 wells)	C1 / A	40	350	3	75.68	**81**	243	**1,300**	**Yes**

Notes:

1 Source area width measured from plume median and perpendicular to groundwater flow

2 Distance measured is closest distance to receptor, irrespective of groundwater flow direction.

3 The selected surface water quality criteria in Table G-1 of Appendix G to this Final FS Report for Parcel C. The published sources are provided in the footnotes to Table G-1.

4 Maximum concentration recorded at any single well in defined source area through 2004.

µg/L Microgram per liter

HGAL Hunters Point groundwater ambient level

N/A Not available

Source:

Kleinfelder. 2005. "Draft October to December 2004 Twentieth Quarterly/Fifth Annual Groundwater Sampling Report, Parcel B, Hunters Point Shipyard, San Francisco, California." December 2.

ATTACHMENT H1
APPENDIX G FROM REVISED FS REPORT FOR PARCEL D

APPENDIX G
GROUNDWATER MODELING AND CALCULATION OF ATTENUATION FACTORS

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ACRONYMS AND ABBREVIATIONS

α_x	Longitudinal dispersivity
α_y	Transverse dispersivity
α_z	Vertical dispersivity
µg/L	Microgram per liter
AF	Attenuation factor
Bay	San Francisco Bay
COC	Chemical of concern
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
ft/day	Feet per day
ft/ft	Foot per foot
HPS	Hunters Point Shipyard
IR	Installation Restoration
mg/kg	Milligram per kilogram
NAPL	Nonaqueous-phase liquid
S	Relative sensitivity

G1.0 INTRODUCTION

This appendix summarizes the results of groundwater monitoring data for several areas at Parcel D of Hunters Point Shipyard (HPS) that show concentrations of metals that were identified as chemicals of concern (COC) because they were found in the A-aquifer groundwater at concentrations above the applicable surface water criteria. These areas and the metals that exceed these criteria are as follows:

- Installation Restoration (IR) Site 09 northern area: chromium VI
- IR-09 southern area: chromium VI and nickel
- IR-33 area: chromium VI

These areas are discussed in more detail in Section 2.5.2 of the Revised Feasibility Study (FS) Report.

The surface water criteria apply to water in San Francisco Bay (Bay). The areas where nickel and chromium VI exceeded applicable criteria are located approximately 1,000 feet from the nearest discharge point to the Bay. Various factors will tend to reduce the concentrations of these metals in groundwater as the groundwater migrates toward the Bay. These factors include dispersion, chemical transformation reactions, adsorption, and dilution in the tidal mixing zone. By the time contaminated groundwater reaches its discharge point to the Bay, it is likely that the metals concentrations will be significantly reduced by natural processes. Groundwater modeling was used to estimate the concentrations of metals that may be discharging to the Bay.

This appendix describes the groundwater modeling performed to estimate peak concentrations of metals that may discharge to the Bay for each of the areas where elevated metals concentrations were found at Parcel D. Based on the initial source concentration and the predicted peak concentration at the receptor location, an attenuation factor (AF) was calculated for each area.

The initial source concentration is defined as the maximum concentration historically observed in the source area. The analytical solute transport model BIOSCREEN was used to predict maximum concentrations at the point of exposure (also referred to as the point of discharge) and then to calculate AFs (U.S. Environmental Protection Agency [EPA] 1996). Although BIOSCREEN can simulate adsorption and degradation processes during advective transport of the solute, adsorption and degradation parameters were set to zero to ensure that dispersion was the only mechanism causing a reduction in chemical concentrations in groundwater. The intent of this approach is to provide conservative estimates of the maximum groundwater concentrations expected at the points of exposure. Based on model sensitivity analysis, the values for input parameters were chosen to result in realistic, yet conservatively high estimates of the maximum groundwater concentrations at the points of exposure, providing an added layer of conservatism to the calculations.

AFs are numeric values indicating the degree to which concentrations of specific chemicals in groundwater would be reduced as groundwater migrates over a specific distance. Once peak concentrations are predicted by the groundwater model, AFs are calculated as the ratio of the initial source concentration to the peak concentration predicted at the discharge point. For example, an AF of 5 indicates that the concentration of a particular chemical at the point of discharge would be one-fifth of the source concentration, because of natural attenuation processes as the chemical migrated from the source area to a discharge point.

G2.0 MODELING APPROACH

The overall modeling approach used to estimate AFs consisted of the following steps:

- Establish a set of parameter values that serves as the "base case" for subsequent modeling.
- Perform sensitivity analysis by sequentially varying each input parameter, and running model simulations using the new input parameter value. Three different values representing a typical range were used for each parameter in the sensitivity analysis.
- Calculate the relative influence of each input parameter on the output of the model (the peak concentration estimated at the point of groundwater discharge), and use the relative sensitivity coefficient to identify the input parameters that have the greatest impact on the output of the model.
- Perform a series of model runs, varying just the parameters that have the greatest impact (sensitivity) on the model output.

Under the assumptions of no biodegradation or adsorption, the following input parameters are required for BIOSCREEN:

- Source Thickness in Saturated Zone
- Source Width
- Initial Source Concentration
- Soluble Mass
- Hydraulic Conductivity
- Hydraulic Gradient
- Effective Porosity
- Plume Length or Distance to Receptor
- Longitudinal Dispersivity
- Transverse Dispersivity
- Vertical Dispersivity

Each of these parameters (except initial source concentration) was varied over a reasonable range, to evaluate the effect of the parameter on the model's output (peak concentration predicted at the receptor location). Table G-1 summarizes each of these model runs, including the input parameter values, the predicted peak concentration at the receptor location, and the relative sensitivity of the model output to the parameter change. The results of the sensitivity analysis runs are discussed in the following section.

G3.0 SENSITIVITY ANALYSIS

A sensitivity coefficient, or relative sensitivity S, was defined (Shih and Rong 2001; EPA 2002) as follows:

$$S = \left| \frac{dC}{C} \frac{P}{dP} \right|$$

where

C	=	baseline (base case) output peak concentration
P	=	baseline value of the input parameter
dC	=	model output range
dP	=	input parameter range

The sensitivity coefficient normalizes the results of model runs so that the effects of different input parameters can be compared quantitatively. A sensitivity coefficient S measures the relative change in the predicted variable (peak concentration at the shoreline) per fractional change in the input parameter. Any non-zero S value indicates that a parameter affects the model output. However, the larger S value indicates the greater influence of a parameter. The absolute value of S is less important because various parameters have different ranges of variability. For this evaluation, an S value of 0.100 or more was considered to constitute a relatively significant effect on the model output.

The relative sensitivity values were calculated for each of the BIOSCREEN model input parameters (see Table G-1). The S values can be numerically ranked from the highest value (0.395) to lowest value (0.000) to identify the input parameters to which the model is most sensitive. The following table of the ranked S values illustrates the process of selecting the parameters that affect the model output most significantly:

Parameter	Factor for Parameter Range	Relative Sensitivity Coefficient (S)
Source Width	9	0.395
Source Thickness in Saturated Zone	4	0.171
Distance to Receptor	10	0.170
Dispersivity (Transverse, Vertical, and Longitudinal)	20, >100, 40	0.132, 0.055, 0.021
Effective Porosity	40	0.068
Soluble Mass	100	0.033
Hydraulic Conductivity	100	0.000
Hydraulic Gradient	100	0.000

Note: Factor for parameter range is equal to the largest value of the parameter divided by the smallest value of the parameter. Because the smallest value of the vertical dispersivity is zero, the factor for parameter range becomes infinite, but for illustration purposes is defined as greater than 100.

Although the S value for a given parameter may change slightly if the range of values for that parameter is changed, this does not have a significant effect on the relative sensitivity of that parameter compared with other parameters. As shown in the table above, the first three parameters are relatively most influential, especially considering their narrow ranges of variability. The fourth most important parameter is the transverse dispersivity. All other parameters are relatively less important. Each of the parameters evaluated in the course of the model sensitivity analysis is discussed below.

Initial Source Concentration. The initial source concentration is defined as the maximum concentration historically observed in the source area. This parameter was not varied in the sensitivity analysis because it does not affect the calculation of AFs. Although the model output is very sensitive to this parameter (a higher initial concentration results in a higher peak concentration at the receptor location), the AF is equal to the ratio of the initial concentration to the peak concentration, thus it is unaffected by this parameter. For purposes of the modeling effort, the initial source concentration was set equal to 492 micrograms per liter (µg/L). This concentration is the zinc value detected in groundwater at IR-22 that was used during the initial sensitivity analysis of this model in the draft revised version of this Revised FS Report in March 2002.

Source Width. The source width is defined as the horizontal extent of the source area perpendicular to the groundwater flow direction. For purposes of the groundwater modeling, the source width was assumed to be the maximum width of the areas of elevated concentrations of chemicals. The groundwater model assumes a vertical plane source of constant concentration, and the size of the vertical plane is equal to the source thickness in the saturated zone times the source width. For purposes of the sensitivity analysis, the source width was assumed to be 40, 170, and 340 feet for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location tends to increase with an increase in source width. The model output is relatively sensitive to this parameter (S = 0.395); therefore, this parameter was varied in the next phase of modeling.

The source width approximates the plume width at shorter distances from the source area. However, the plume width may increase with the distance from the source area because of contaminant dispersion in transverse direction (perpendicular to groundwater flow). For a homogenous aquifer, constant direction of groundwater flow, and parameters used in current modeling, the plume width will be approximately 1 foot greater than the source width at a distance of 100 feet downgradient from the source area and approximately 10 feet greater at 1,000 feet from the source. This illustration implies that outer edges of the source area and the plume are defined by the detection limit. Because the groundwater plumes at Parcel D and HPS are generally shorter than 500 feet, plume width can be considered approximately equal to the width of the source area.

Source Thickness in Saturated Zone. Conceptually, the source thickness represents the contaminated portion of the aquifer where chemicals are slowly dissolving into groundwater. The A-aquifer at Parcel D, and generally at HPS, varies between approximately 10 and 40 feet thick. As a result a value of 40 feet for the source thickness in the saturated zone was used for the base case scenario. Thus it was assumed that the source is in the saturated zone and vertically extends across the whole aquifer thickness. For purposes of the sensitivity analysis, the saturated thickness was assumed to be 20, 40, 60, and 80 feet for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location tends to increase with an increase in saturated thickness. The model output is relatively sensitive to this parameter (S = 0.171); however, the value for this parameter should not exceed the actual thickness of the A-aquifer. In order to provide a conservative estimate of peak concentration at the discharge point, this parameter was set equal to the maximum thickness of the A-aquifer, 40 feet, for the next phase of modeling.

Distance to Receptor. This parameter is also known as the model area length, and should extend to the downgradient point of concern, which for Parcel D is the point of discharge to the Bay. For purposes of this modeling exercise, the distance to receptor was based on the shortest distance from the source area to the Bay, without consideration of the direction of groundwater flow. A base case value of 200 feet was selected for distance to receptor, and for purposes of the sensitivity analysis, values of 100, 200, 300, and 1,000 feet were selected for sequential model runs. Results of these model runs indicated that the predicted peak concentration decreases with increasing distance from the receptor location. The model output is relatively sensitive to this parameter (S = 0.170); therefore, this parameter was varied in the next phase of modeling.

Dispersivity (Transverse, Vertical, and Longitudinal). The process by which dissolved substances are transported by the bulk motion of flowing groundwater is known as advection. Owing to advection, nonreactive solutes are carried at an average rate equal to the average linear velocity of the water (Freeze and Cherry 1979). However, the solutes are subjected to hydrodynamic dispersion, which is the process of irregular spreading of solutes longitudinally (along the direction of groundwater flow), transversely (perpendicular to groundwater flow), and vertically (downward) because of mechanical mixing and chemical diffusion in the aquifer. Mechanical mixing is the primary mechanism for hydrodynamic dispersion in zones of active groundwater flow, and it occurs as a result of macroscopic and microscopic variations in the aquifer materials. As a result of hydrodynamic dispersion, contaminant mass becomes

distributed over a greater volume of the aquifer at a lower concentration than it would under the influence of advection alone. Under the assumptions used for this modeling of no biodegradation, sorption, or chemical transformation of contaminants, hydrodynamic dispersion is the only process that reduces contaminant concentrations during groundwater transport.

An empirical aquifer property controlling the magnitude of dispersion is called dispersivity (Spitz and Moreno 1996). The BIOSCREEN model requires the input of longitudinal, transverse, and vertical dispersivity values. Selection of dispersivity values for modeling applications is a difficult process, given the impracticability of measuring dispersion in the field (EPA 1996). In modeling applications the longitudinal (α_x), transverse (α_y), and vertical (α_z) dispersivities are estimated based on some commonly used relationships that have been determined by several researchers over time. The α_x is typically defined based on distance from the source, while α_y and α_z are usually derived as some ratios of α_x.

Because of the uncertainty related to selecting dispersivity values for modeling applications, various equations for estimating individual dispersivity values were evaluated. Gelhar and others (1992) have compiled dispersivity data from over 50 sites, and the empirical data indicate that longitudinal dispersivity, in units of length, is related to scale (distance between source and measurement point). One commonly used approach to estimate longitudinal dispersivity is to assume that α_x is 10 percent of the estimated plume length or distance from the source to the receptor location (Pickens and Grisak 1981). Another approach calculates the longitudinal dispersivity using its correlation with scale as described by Xu and Eckstein (1995) (see Xu and Eckstein's equation below). Transverse dispersivity is usually defined as $\alpha_y = 0.1\alpha_x$ (based on high reliability points from Gelhar and others 1992). Another commonly used ratio is $\alpha_y = 0.33\alpha_x$ (ASTM International 1995; EPA 1986). A commonly used ratio for vertical dispersivity is $\alpha_z = 0.05\alpha_x$ (ASTM International 1995). Other commonly used ratios are $\alpha_z = 0.025\alpha_x$ to $0.1\alpha_x$ (EPA 1986).

For purposes of the base case, the following equation was used to estimate the different dispersivity values:

$$\alpha_x = 0.1\ L;\ \alpha_y = 0.33\alpha_x;\ \alpha_z = 0.05\alpha_x$$

where

L = distance from source to the Bay.

Individual dispersivities were then varied for sequential model runs, similar to the way the other parameter values were varied. Results of these model runs indicated that the predicted peak concentration at the receptor location decreased with increasing dispersivity. The model runs also indicated that transverse dispersivity (α_y) had the highest relative sensitivity (0.132) of the three different dispersivity parameters.

A second phase of sensitivity analysis was conducted for dispersivity, which varied the relationship between the three dispersivity values, to evaluate the most appropriate relationship to use for subsequent modeling. Based on the dispersivity research described above, we selected the following dispersivity relationships to calculate dispersivity values for input into the BIOSCREEN model:

1. $\alpha_x = 0.1\ L$; $\alpha_y = 0.33\alpha_x$; $\alpha_z = 0.05\alpha_x$

2. $\alpha_x = 0.1\ L$; $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0.025\alpha_x$

3. $\alpha_x = 3.28 \cdot 0.82 \left[\log_{10}\left(\frac{L}{3.28}\right)\right]^{2.446}$ (modified Xu and Eckstein (1995) relationship for scale in feet [EPA 1996]); $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0$

where

L = distance from source to the Bay.

The results of this second phase of sensitivity analysis are provided in Table G-2. The results are presented for three different sets of dispersivities (intermediate, high, and low) and three source widths of 40, 170, and 340 feet. As shown in Table G-2, very little attenuation occurs when (1) the vertical dispersivity is set to zero (low dispersivity case), especially for source widths 170 and 340 feet; or (2) when the distance to receptor is relatively small (50 feet), while significant dispersion (AF greater than 2) occurs under most other scenarios. The assumption that the vertical dispersivity is zero is extremely conservative, given the aquifer was assumed to be 40 feet thick and the significant heterogeneity of the A-aquifer material. It is likely that some vertical dispersion will occur over the travel distances that are being modeled. Based on the results of the second phase of sensitivity analysis, the dispersivity relationship selected for evaluation of AF is the intermediate relationship, $\alpha_x = 0.1\ L$; $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0.025\alpha_x$, as further discussed in Section G4.0.

Effective Porosity. Effective porosity is the ratio of the volume of interconnected voids to the bulk volume of the aquifer matrix. It is typically smaller than the porosity of the material because of the presence of nonconnected voids, which are included in total porosity but not in effective porosity. This parameter is effectively the pore space in the aquifer matrix through which water flows. This value is typically estimated for purposes of modeling and groundwater flow calculations, and an effective porosity of 0.25 is commonly used for silts and sands (EPA 1996). A base case value of 0.28 was selected for effective porosity, and for purposes of the sensitivity analysis, values of 0.01, 0.28, and 0.4 were selected for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location decreased slightly, with increasing effective porosity values. The model output is relatively insensitive to this parameter (S = 0.068); therefore, this parameter was not varied in the next phase of modeling.

Soluble Mass. The soluble mass represents the mass of dissolvable chemical in the source zone. The BIOSCREEN manual indicates that the best estimate of dissolvable chemicals is obtained by adding the mass of dissolvable contaminants on soil, free-phase nonaqueous-phase liquid (NAPL) and residual NAPL together (EPA 1996). Metals are the only chemicals being addressed in this modeling effort, and there is no NAPL phase for these chemicals. In order to provide a conservative estimate of the soluble mass for this modeling effort, the groundwater plume at Parcel D with the greatest source width and the highest initial concentration was selected to calculate the base case soluble mass. The selected plume was the chromium VI plume in IR-09. The soluble mass for this plume was calculated in several different ways, as follows:

- Analysis of soil data to determine the area of contaminated soil. Once that area was determined, the maximum concentration (4.9 milligrams per kilogram [mg/kg]) detected in soil in the area was applied to the entire soil area, assuming the entire area was 15 feet thick. This approach resulted in an area of contaminated soil of 280 by 105 feet, to a depth of 15 feet, and a resulting soluble mass of 104 kilograms.

- Application of the average concentration (approximately 0.7 mg/kg) over the entire soil area, which resulted in a soluble mass of approximately 14 kilograms.

- Analysis of groundwater data to determine the area of contaminated groundwater. Once that area was determined, the maximum concentration (0.493 µg/L]) detected in groundwater in this area was applied to the entire contaminated groundwater area, assuming the entire area was 40-feet thick. The resulting contaminant mass calculated for groundwater was 33 kilograms.

To provide a more conservative estimate of soluble mass in the groundwater model, a value of 140 kilograms was used for the base case for soluble mass. For purposes of the sensitivity analysis, the soluble mass was assumed to be 14, 140, and 1,400 kilograms for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location tends to increase slightly with a large increase in soluble mass. The model output is relatively insensitive to this parameter (S = 0.033); therefore, this parameter was not varied in the next phase of modeling.

Hydraulic Conductivity. Hydraulic conductivity is a function of both the porous medium and the fluid. Generally speaking, hydraulic conductivity is a parameter related to the ability of a porous medium to transmit fluids, and the higher the hydraulic conductivity, the more rapidly fluid will flow through the porous medium. Hydraulic conductivity values for the A-aquifer in Parcel D were calculated from constant rate discharge pumping test data, and these data were originally presented in the Parcel D Remedial Investigation Report (PRC Environmental Management, Inc., Levine-Fricke-Recon, and Uribe & Associates 1996). Hydraulic conductivity values ranged from 2.7 feet per day (ft/day) to 24 ft/day. A base case value of 7.2 ft/day was selected for hydraulic conductivity, and for purposes of the sensitivity analysis, values of 0.1, 7.2, and 10 ft/day were selected for sequential model runs. In metric units, these values convert to 3.5×10^{-5}, 2.5×10^{-3} and 3.5×10^{-3} centimeters per second, respectively. Results of these model runs indicated that the predicted peak concentration at the receptor location did not change

with changing hydraulic conductivity values. The model output (peak concentration at the receptor) is not sensitive to this parameter (S = 0.00); therefore, this parameter was not varied in the next phase of modeling.

Hydraulic Gradient. Hydraulic gradient is the change in the groundwater elevation over a certain distance, divided by the distance. Hydraulic gradients can be vertical or horizontal gradients; for purposes of this appendix, only the horizontal hydraulic gradient for the A-aquifer was evaluated. For an unconfined aquifer, it is equivalent to the slope of the water table. Generally speaking, hydraulic gradient is the force that drives groundwater flow, with a higher hydraulic gradient causing greater flow than a lower hydraulic gradient. Groundwater elevation contours for the A-aquifer are presented on Figure 2-9 of this Revised FS Report for Parcel D. This figure indicates that the hydraulic gradient across Parcel D typically ranges between approximately 0.001 foot per foot (ft/ft) and 0.004 ft/ft. The higher value (0.004 ft/ft) was selected as a base case value for hydraulic gradient. For purposes of the sensitivity analysis, values of 0.001, 0.004 and 0.1 were selected for sequential model runs. Results of these model runs indicated that the predicted peak concentration at the receptor location did not change with changing hydraulic gradient values. The model output is not sensitive to this parameter (S = 0.00); therefore, this parameter was not varied in the next phase of modeling.

G4.0 MODEL APPLICATION

The BIOSCREEN model was run using varying source widths and distance to receptor values to estimate AFs applicable for the various groundwater plumes present at Parcel D and HPS in general. The resulting AFs were plotted graphically against the distance to receptor to generate AF curves (nomographs) for plumes of different source width. A discussion of these model runs is presented in Section G4.1, and the nomographs are presented on Figure G-1. The model was also run using plume-specific parameters for the four Parcel D plumes to generate plume-specific AFs. These model runs are discussed in Section G4.2. Section G4.3 describes the use of the nomographs on Figure G-1 by estimating AFs for the four Parcel D plumes and comparing these results with the plume-specific modeling results.

G4.1 MODEL RUNS FOR VARIOUS SOURCE WIDTHS AND DISTANCES

Based on the sensitivity analysis described in the previous section, the model output (peak concentration at the receptor) is most sensitive to source thickness in saturated zone, dispersivity (primarily transverse dispersivity), source width, and distance to receptor.

The source thickness in saturated zone cannot exceed the thickness of the aquifer. To minimize the number of parameters that were varied in this phase of modeling, the source thickness was set to the maximum thickness of the A-aquifer, 40 feet. This conservative value for saturated thickness likely results in an over-prediction of the peak concentration at the discharge point, which adds a layer of conservatism to the estimate of AFs.

The relationships used to estimate dispersivities represent standard relationships that are typically used in modeling applications (see Section G2.0). However, dispersivity is a property of the aquifer, and is related to the physical characteristics of the aquifer. Highly heterogeneous material, such as the A-aquifer material found at HPS, has a higher dispersivity than more homogeneous material. Of the three different sets of dispersivity relationships evaluated in the sensitivity analysis (see Section G3.0 and Table G-2), the most conservative relationship considered was based on (1) the longitudinal dispersivity determined from the equation of Xu and Eckstein 1995; (2) the transverse dispersivity set as 0.1 of longitudinal; and (3) a vertical dispersivity of zero. Given the heterogeneous nature of the A-aquifer, the assumed saturated thickness of the aquifer of 40 feet, and the change in water table elevation over the course of a year, it is unlikely that the vertical dispersivity for the A-aquifer would be zero. Therefore, the intermediate dispersivity relationship, $\alpha_x = 0.1$ L; $\alpha_y = 0.1\alpha_x$; $\alpha_z = 0.025\alpha_x$, was selected for this next phase of modeling.

Both the source width and the distance to receptor are characteristics of the plumes that are being modeled. In order to calculate AFs that may be applicable for the various plumes present at Parcel D and more generally to all of HPS, these parameters were varied over the range of values typically seen at HPS. The source width was varied from 40 to 360 feet, while the distance to receptor was varied over distances ranging from 50 to 1,600 feet. In total, 110 model runs were performed to determine the relationship between source width, distance to receptor, and the AF.

Results of these model runs are presented in Table G-3 and on Figure G-1. Figure G-1 presents the nomographs of AF versus distance for various source widths. The nomographs allow approximate graphical computation of an AF.

As presented in Table G-3, the AFs ranged from 1 to 58, depending on the source width and the distance to receptor. The smaller AFs are associated with larger plumes and the plumes that are closer to the Bay (discharge point). Results of these model runs indicated that for distances less than 200 feet, the AF was equal to or below 2 for any source width, while for a distance of 1,000 feet, the AF increased from 4.4 to 22.6 with the source width decreasing from 360 to 40 feet (see also Figure G-1).

A discussion of the use of the nomographs on Figure G-1 to calculate the AFs for the nickel or chromium VI groundwater plumes at Parcel D is presented in Section G4.3. Section G4.2 presents plume-specific modeling for these plumes at Parcel D.

G4.2 PLUME-SPECIFIC MODELING

Chromium VI and nickel in groundwater at Parcel D were identified as COCs based on the surface water criteria screening. Figure 2-28 in this Revised FS Report shows the extent of the chromium VI groundwater contamination based on the June 2004 data, and the extent of the nickel contamination based on the February 2001 data.

The BIOSCREEN model was run to evaluate the potential migration of chromium VI and nickel from four separate plumes at Parcel D (see Figure 2-28 in the Revised FS Report), and the results of this modeling are presented in Table G-4 and are discussed below. Attachment G-1 provides model input and output screens for each plume simulated.

G4.2.1 IR-09 North

The chromium VI plume at IR-09 North is defined by five wells (see Figure 2-28 in this Revised FS Report). Four of these wells were sampled in June 2004, and the other well in this plume (IR09PPY1) was most recently sampled in February 2001. All of the wells within this plume have a history of consistent detectable concentrations of chromium VI.

The historical maximum concentration of chromium VI was measured in well IR09PPY1 in 1994 at 493 µg/L; in the most recent samples from this well, collected in February 2001, chromium VI was detected at 260 µg/L. The measured plume width near the suspected source area is 232 feet. The soil data in the vicinity of IR09PPY1 (see Figure 2-18 in this Revised FS Report) suggest that the source area can be up to 240 feet wide.

The distance from well IR09PPY1 nearest the source area, to the Bay is approximately 1,516 feet. Although Dry Dock 4 appears to be the closest potential receptor to this well, the groundwater does not appear to discharge to the bay at this dock because of the dock's concrete walls that kept the water away from the dock. The groundwater elevation maps in the quarterly groundwater monitoring reports show elevation contours of the top of the A-aquifer perpendicular to the Dry Dock 4 barrier walls. Therefore, for this plume, and other Parcel D plumes, the distances were measured to the nearest discharge points at Berth 14 along the shoreline between Berths 13 and 15 (see Figure 2-26 in this Revised FS Report).

Table G-4 summarizes the model input parameters and predicted peak concentration of chromium VI at a receptor location. Based on the model runs, chromium VI concentrations would be reduced by a factor of 12.4 as contaminated groundwater migrates from the source area toward the Bay.

G4.2.2 IR-09 South

Chromium VI

The chromium VI plume at IR-09 South is defined by well IR09MW35A (see Figure 2-28 in this Revised FS Report). Chromium VI was detected in groundwater samples from this well at a maximum concentration of 130 µg/L in 1991. In June 2004, chromium VI was detected in a sample from this well at 73 µg/L.

The measured plume width near this suspected source area is 63 feet. The soil data in the vicinity of IR09MW35A (see Figure 2-18 in this Revised FS Report) suggest that source area can be up to 80 feet wide. This well is approximately 1,242 feet away from the Bay at Berth 14.

Table G-4 summarizes the model input parameters and predicted peak concentration of chromium VI at a receptor location. Based on the model runs, chromium VI concentrations would be reduced by a factor of 21.0 as contaminated groundwater migrates from the source area towards the Bay.

Nickel

Nickel is a naturally occurring metal in the groundwater at HPS. However, concentrations of nickel exceeding the HGAL (96.48 µg/L) have been consistently detected in samples collected from well IR09P043A, indicating a potential release that has affected the groundwater. The nickel plume defined by this single well is presented on Figure 2-28 of this Revised FS Report. The historical maximum concentration of nickel measured in well IR09P043A was 185 µg/L. The measured plume width is 63 feet. Because the soil data for nickel in the vicinity of IR09P043A are not available, the actual source width cannot be reliably estimated. However, the plume size suggests that the source width is likely less than 100 feet. The distance from IR09P043A to the Bay at Berth 14 is approximately 1,158 feet.

Table G-4 summarizes the model input parameters and predicted peak concentration of nickel at a receptor location. Based on the model runs, nickel concentrations would be reduced by a factor of 18.6 as contaminated groundwater migrates from the source area towards the Bay.

G4.2.3 IR-33

Chromium VI plume at IR-33 is defined by well IR33MW61A (see Figure 2-28 in this Revised FS Report). Chromium VI was consistently detected in samples from this well at concentrations up to 90 µg/L in 2001. In June 2004, chromium VI was detected in a sample from this well at 54 µg/L. However, the most recent chromium VI detection at 250 µg/L was in November 2004. The reason behind the observed increase in chromium VI concentration is unknown. The subsequent sampling rounds are necessary to determine if the high chromium VI detection is an anomaly.

The measured plume width near the suspected source area is 63 feet. The soil data in the vicinity of IR33MW61A (see Figure 2-18 in the Revised FS Report) are insufficient to provide additional support for the source width estimate. The well is approximately 1,105 feet away from the Bay at Berth 14.

Table G-4 summarizes the model input parameters and predicted peak concentration of chromium VI at a receptor location. Based on the model runs, chromium VI concentrations would be reduced by a factor of 17.4 as contaminated groundwater migrates from the source area toward the Bay.

G4.3 USE OF NOMOGRAPH AND COMPARISON OF RESULTING ATTENUATION FACTORS

To illustrate the application of the AF nomographs for determining AFs for groundwater plumes located anywhere at HPS, the nomographs were used to determine AFs for the Parcel D plumes. The following graphical procedure was used to obtain the AFs from the nomographs:

1. Select the source width curve on the graph by choosing the curve with the next highest width from the known source width for a plume,

2. Intercept the y-axis with a horizontal line from the point on the selected curve at the appropriate distance from the receptor to the source area,

3. Determine the AF where the horizontal line intercepts the y-axis, and

4. Round the determined AF down to the nearest whole number for a conservative usable AF.

Following this procedure and using Figure G-1, AFs were derived for each of the Parcel D plumes. Table G-5 presents a comparison of the AFs determined from the nomographs vs. the AFs determined from the plume-specific modeling for the Parcel D plumes presented in Table G-4. This table indicates that the nomograph-derived AFs are smaller than the plume-specific derived AFs, suggesting that the nomographs can be used to derive conservative AFs for plumes in general at HPS.

G5.0 CONCLUSIONS AND RECOMMENDATIONS

This appendix summarizes the results of groundwater modeling that was performed (1) to estimate peak concentrations of metals that may discharge to the Bay for each of the areas of elevated metals concentrations at Parcel D (see Table G-4); and (2) to derive a method for obtaining conservative AFs that can be applied to various groundwater plumes at HPS, including those areas of elevated metals concentrations at Parcel D. These AFs will be used in this Revised FS Report to calculate chemical-specific trigger levels using the surface water criteria (see Appendix I).

Results of plume-specific modeling at Parcel D suggest that peak concentrations of chromium VI and nickel that may discharge to the Bay with groundwater are well below the applicable surface water criteria. The model only considered hydrodynamic dispersion as a mechanism for attenuation of chemical concentrations in groundwater, and used conservative assumptions regarding the thickness of the aquifer and the soluble mass of contamination available for dissolution into groundwater.

The model was also run to generate AFs for a variety of source widths and distances from the source area to receptor locations, resulting in AFs ranging from 1 to 58. The AFs were plotted graphically against distance to receptor, to generate nomographs for the different source widths.

The nomographs were used to estimate AFs for the Parcel D metals plumes, and the resulting graphically derived AFs showed good agreement with the modeling derived AFs. The nomograph-generated AFs ranged from 12 to 18, and the AFs from the modeling ranged from 12.4 to 21. In all cases, the nomograph-generated AFs were lower than the modeling AFs.

Because the modeling did not include chemical-specific parameters such as biodegradation rates, results of the current Parcel D modeling can be applied to metals or organic chemicals found in groundwater at other parcels at HPS. The excellent agreement between the plume-specific modeling AFs and the nomograph-generated AFs indicate the AF nomographs presented on Figure G-1 can be used to calculate conservative AFs for groundwater plumes throughout HPS and to develop chemical-specific trigger levels from the surface water criteria as a conservative method for determining plume-specific potential impacts to the Bay (see Appendix I of this Revised FS Report).

G6.0 REFERENCES

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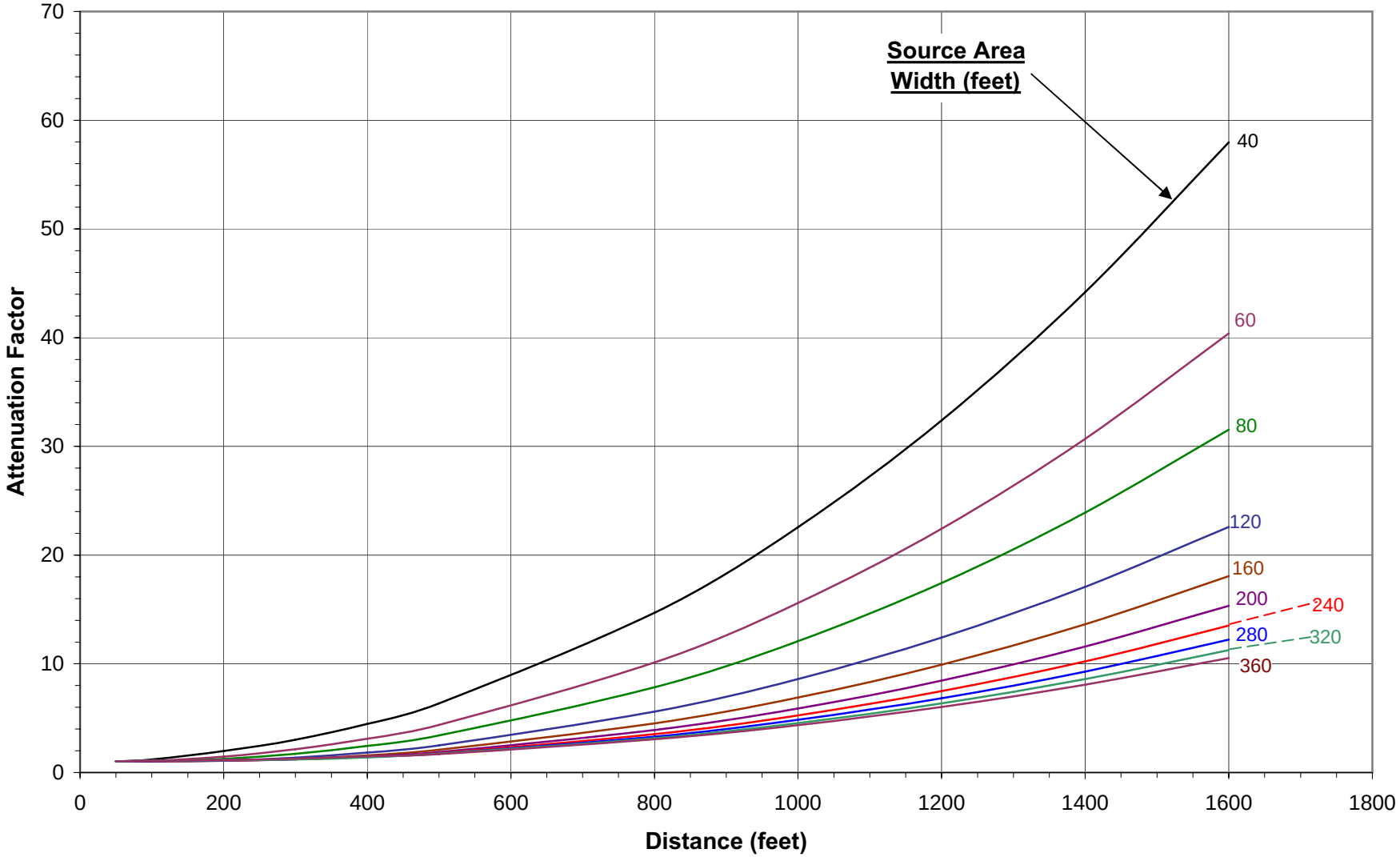
FIGURES

Figure G-1. Attenuation Factor vs. Distance from Source Area to Receptor Location



TABLES

TABLE G-1: MODEL SENSITIVITY TO INPUT PARAMETERS

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

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	Saturated Thickness (feet)	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity (feet)	Transverse Dispersivity (feet)	Vertical Dispersivity (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Factor for Parameter Range	Relative Sensitivity Coefficient
Saturated Thickness														**4**	**0.171**
1	**20**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.29		
2	**40**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	**60**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.4		
4	**80**	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.391		
Source Width														**9**	**0.395**
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.139		
2	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.413		
Soluble Mass														**100**	**0.033**
1	40	170	0.492	**14**	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.289		
2	40	170	0.492	**140**	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	40	170	0.492	**1400**	7.2	2.54E-03	0.004	0.28	20	6.6	1	200	0.419		
Hydraulic Conductivity														**100**	**0.000**
1	40	170	0.492	140	**0.1**	3.53E-05	0.004	0.28	20	6.6	1	200	0.393		
2	40	170	0.492	140	**7.2**	2.54E-03	0.004	0.28	20	6.6	1	200	0.393		
3	40	170	0.492	140	**10**	3.53E-03	0.004	0.28	20	6.6	1	200	0.393		
Hydraulic Gradient														**100**	**0.000**
1	40	170	0.492	140	7.2	2.54E-03	**0.001**	0.28	20	6.6	1	200	0.393		
2	40	170	0.492	140	7.2	2.54E-03	**0.004**	0.28	20	6.6	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	**0.1**	0.28	20	6.6	1	200	0.393		
Effective Porosity														**40**	**0.068**
1	40	170	0.492	140	7.2	2.54E-03	0.004	**0.01**	20	6.6	1	200	0.421		
2	40	170	0.492	140	7.2	2.54E-03	0.004	**0.28**	20	6.6	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	**0.4**	20	6.6	1	200	0.384		
Longitudinal Dispersivity														**40**	**0.021**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	**5**	6.6	1	200	0.409		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	**20**	6.6	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	**200**	6.6	1	200	0.327		
Transverse Dispersivity														**20**	**0.132**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	**1**	1	200	0.436		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	**6.6**	1	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	**20**	1	200	0.287		
Vertical Dispersivity														**NA**	**0.055**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	**0**	200	0.412		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	**1**	200	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	**10**	200	0.195		
Distance to Receptor														**10**	**0.170**
1	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**100**	0.45		
2	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**200**	0.393		
3	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**300**	0.335		
4	40	170	0.492	140	7.2	2.54E-03	0.004	0.28	20	6.6	1	**1,000**	0.149		

Notes: Bolded parameter values indicate the paremeter that was varied during the sensitivity analysis run

Distance to receptor is the shortest distance from the source area to San Francisco Bay, without consideration of the direction of groundwater flow

Factor for parameter range is equal to the largest value of the parameter divided by the smallest value of the parameter.

Relative sensitivity coefficient quantifies the relative change in an output (peak concentration) corresponding to a specific relative change in one input parameter.

[1] Based on historical maximum concentration of zinc in groundwater at site IR-22; a value used in the original sensitivity analysis for the previous modeling presented in the draft revised version of this feasibility study for Parcel D in March 8, 2002.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-2: SENSITIVITY ANALYSIS OF DISPERSIVITIES
Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

Model Run	Source Variables				Hydrogeologic Variables				Dispersivities			Distance to Receptor, L (ft)	Output		Attenuation Factor
	Saturated Thickness (ft)	Source Width (ft)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity (ft)	Transverse Dispersivity (ft)	Vertical Dispersivity (ft)		Peak Concentration (mg/L)	Arrival Time (years)	
Intermediate Dispersivities: Longitudinal Dispersivity, ax = 0.1L; Transverse Dispersivity, ay = 0.1ax; Vertical Dispersivity, az = 0.025ax															
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.5	0.125	**50**	0.486	4.9	1.01
2	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	80	8	2	**800**	0.033	54.8	14.7
3	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	160	16	4	**1600**	0.008	98	58.0
4	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.5	0.125	**50**	0.480	4.2	1.02
5	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	80	8	2	**800**	0.114	42	4.3
6	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	160	16	4	**1600**	0.029	72	17.3
7	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.5	0.125	**50**	0.472	3.8	1.04
8	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	80	8	2	**800**	0.159	36	3.1
9	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	160	16	4	**1600**	0.045	60	10.9
High Dispersivities: Longitudinal Dispersivity, ax = 0.1L; Transverse Dispersivity, ay = 0.33ax; Vertical Dispersivity, az = 0.005ax															
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	5	1.67	0.25	**50**	0.429	4.9	1.15
2	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	80	26.67	4.00	**800**	0.014	55	36.3
3	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	160	53.33	8.00	**1600**	0.003	98	148.0
4	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	5	1.67	0.25	**50**	0.480	4.2	1.02
5	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	80	26.67	4.00	**800**	0.049	42	10.1
6	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	160	53.33	8.00	**1600**	0.011	72	43.4
7	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	5	1.67	0.25	**50**	0.472	3.8	1.04
8	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	80	26.67	4.00	**800**	0.080	36	6.2
9	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	160	53.33	8.00	**1600**	0.019	60	26.1
Low Dispersivities: Longitudinal Dispersivity, ax (Xu and Eckstein 1995); Transverse Dispersivity, ay = 0.1ax; Vertical Dispersivity, az = 0															
1	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	4.1	0.41	0	**50**	0.488	4.5	1.01
2	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	22.6	2.26	0	**800**	0.124	39	4.0
3	40	**40**	0.492	140	7.2	2.54E-03	0.004	0.28	30.21	3.02	0	**1600**	0.075	68	6.5
4	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	4.1	0.41	0	**50**	0.482	3.8	1.02
5	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	22.6	2.26	0	**800**	0.370	34.3	1.3
6	40	**170**	0.492	140	7.2	2.54E-03	0.004	0.28	30.21	3.02	0	**1600**	0.256	60.3	1.9
7	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	4.1	0.41	0	**50**	0.474	3.5	1.04
8	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	22.6	2.26	0	**800**	0.403	31	1.2
9	40	**340**	0.492	140	7.2	2.54E-03	0.004	0.28	30.21	3.02	0	**1600**	0.343	56.4	1.4

Notes: Bolded parameter values indicate the paremeter that was varied during the sensitivity analysis run

Distance to receptor L is the shortest distance from the source area to San Francisco Bay, without consideration of the direction of groundwater flow

[1] Based on historical maximum concentration of zinc in groundwater at site IR-22; a value used in the original sensitivity analysis for the previous modeling presented in the draft revised version of this feasibility study for Parcel D in March 8, 2002.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-3: ATTENUATION FACTORS FOR VARIOUS SOURCE WIDTHS AND DISTANCES

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

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	g	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, a_x = 0.1L (feet)	Transverse Dispersivity, a_y = 0.1a_x (feet)	Vertical Dispersivity, a_z = 0.025a_x (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
Source Width = 40 feet															
1	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.486	5	1.0
2	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.409	9	1.2
3	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.249	17	2.0
4	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.163	24	3.0
5	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.110	31	4.5
6	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.077	37	6.3
7	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.033	55	14.7
8	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.022	67	22.6
9	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.015	79	32.4
10	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.011	90	44.2
11	40	40	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.008	98	58.0
Source Width = 60 feet															
1	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.487	5	1.0
2	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.467	9	1.1
3	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.337	16	1.5
4	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.230	22	2.1
5	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.158	29	3.1
6	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.112	35	4.4
7	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.049	51	10.1
8	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.032	63	15.6
9	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.022	72	22.4
10	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.016	81	30.7
11	40	60	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.012	90	40.4
Source Width = 80 feet															
1	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.486	5	1.0
2	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.479	9	1.0
3	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.396	15	1.2
4	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.286	21	1.7
5	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.201	28	2.4
6	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.144	33	3.4
7	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.063	49	7.8
8	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.041	59	12.1
9	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.028	68	17.4
10	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.021	76	23.9
11	40	80	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.016	85	31.5
Source Width = 120 feet															
1	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.483	4.5	1.0
2	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.477	8	1.0
3	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.447	15	1.1
4	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.361	20	1.4
5	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.268	26	1.8
6	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.197	31	2.5
7	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.088	45	5.6
8	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.057	54	8.6

TABLE G-3: ATTENUATION FACTORS FOR VARIOUS SOURCE WIDTHS AND DISTANCES (CONTINUED)
Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	g	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, a_x = 0.1L (feet)	Transverse Dispersivity, a_y = 0.1a_x (feet)	Vertical Dispersivity, a_z = 0.025a_x (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
Source Width = 120 feet (Continued)															
9	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.040	62	12.4
10	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.029	71	17.1
11	40	120	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.022	79	22.6
Source Width = 160 feet															
1	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.481	4	1.0
2	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.473	8	1.0
3	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.454	14	1.1
4	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.395	19	1.2
5	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.310	25	1.6
6	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.235	29	2.1
7	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.109	43	4.5
8	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.071	51	6.9
9	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.050	59	9.9
10	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.036	66	13.6
11	40	160	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.027	73	18.1
Source Width = 200 feet															
1	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.479	4	1.0
2	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.469	7	1.0
3	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.450	13	1.1
4	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.405	18	1.2
5	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.332	23	1.5
6	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.260	28	1.9
7	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.126	41	3.9
8	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.083	48	5.9
9	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.058	56	8.4
10	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.042	63	11.6
11	40	200	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.032	70	15.3
Source Width = 240 feet															
1	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.477	4	1.0
2	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.464	8	1.1
3	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.444	13	1.1
4	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.404	18	1.2
5	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.340	23	1.4
6	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.274	27	1.8
7	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.140	39	3.5
8	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.093	47	5.3
9	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.066	53	7.5
10	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.048	60	10.2
11	40	240	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.036	66	13.5
Source Width = 280 feet															
1	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.475	4	1.0
2	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.462	7	1.1

TABLE G-3: ATTENUATION FACTORS FOR VARIOUS SOURCE WIDTHS AND DISTANCES (CONTINUED)
Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

	Source Variables				Hydrogeologic Variables				Dispersivities				Output		
Model Run	g	Source Width (feet)	Initial Concentration[1] (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, a_x = 0.1L (feet)	Transverse Dispersivity, a_y = 0.1a_x (feet)	Vertical Dispersivity, a_z = 0.025a_x (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
Source Width = 280 feet (Continued)															
3	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.439	12	1.1
4	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.399	18	1.2
5	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.341	22	1.4
6	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.281	26	1.8
7	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.149	38	3.3
8	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.102	45	4.8
9	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.072	51	6.8
10	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.053	57	9.3
11	40	280	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.040	64	12.2
Source Width = 320 feet															
1	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.472	4	1.0
2	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.459	7	1.1
3	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.434	12	1.1
4	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.393	17	1.2
5	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.337	21	1.4
6	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.282	25	1.7
7	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.156	37	3.1
8	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.108	44	4.6
9	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.077	50	6.4
10	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.057	56	8.6
11	40	320	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.044	61	11.3
Source Width = 360 feet															
1	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	5	0.50	0.125	**50**	0.470	4	1.0
2	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	10	1.00	0.25	**100**	0.455	7	1.1
3	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	20	2.00	0.5	**200**	0.429	12	1.1
4	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	30	3.00	0.75	**300**	0.387	17	1.3
5	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	40	4.00	1	**400**	0.333	21	1.5
6	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	50	5.00	1.25	**500**	0.280	25	1.7
7	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	80	8.00	2	**800**	0.161	36	3.1
8	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	100	10.00	2.5	**1,000**	0.113	42	4.4
9	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	120	12.00	3	**1,200**	0.082	48	6.0
10	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	140	14.00	3.5	**1,400**	0.061	54	8.1
11	40	360	0.492	140	7.2	2.54E-03	0.004	0.28	160	16.00	4	**1,600**	0.047	59	10.5

Notes:

[1] Based on historical maximum concentration of zinc in groundwater at site IR-22; a value used in the original sensitivity analysis for the previous modeling presented in the draft revised version of this feasibility study for Parcel D in March 8, 2002.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-4: SUMMARY OF MODEL RUNS FOR CHROMIUM VI AND NICKEL PLUMES

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

Saturated Thickness (feet)	Source Width (feet)	Initial Concentration (mg/L)	Soluble Mass (kg)	Hydraulic Conductivity (ft/day)[1]	Hydraulic Gradient (ft/ft)	Effective Porosity	Longitudinal Dispersivity, $a_x = 0.1L$ (feet)	Transverse Dispersivity, $a_y = 0.1a_x$ (feet)	Vertical Dispersivity, $a_z = 0.025a_x$ (feet)	Distance to Receptor, L (feet)	Peak Concentration (mg/L)	Arrival Time (years)	Attenuation Factor
IR-09 North, Hexavalent Chromium													
40	232	0.493	140	7.2	0.004	0.28	151.6	15.2	3.8	1,516	0.040	64	12.4
IR-09 South, Hexavalent Chromium													
40	63	0.130	140	7.2	0.004	0.28	124.2	12.4	3.1	1,242	0.006	91	21.0
IR-09 South, Nickel													
40	63	0.185	140	7.2	0.004	0.28	115.8	11.6	2.9	1,158	0.010	81	18.6
IR-33, Hexavalent Chromium													
40	63	0.250	140	7.2	0.004	0.28	110.5	11.1	2.8	1,105	0.014	74	17.4

Notes: Distance to receptor is the shortest distance from the source area to San Francisco Bay, without consideration of the direction of groundwater flow

1 A hydraulic conductivity of 7.2 ft/day is equivalent to 2.54 E-03 cm/sec.

ft/ft Feet per foot

kg Kilogram

mg/L Milligram per liter

TABLE G-5: COMPARISON OF ATTENUATION FACTORS DERIVED FROM PLUME-SPECIFIC MODELING AND FROM NOMOGRAPHS
Revised Feasibility Study Report for Parcel D, Hunters Point Shipyard, San Francisco, California

Area	Source Width for Modeling (feet)	Source Width Used for Nomographs (feet)	Distance to Receptor (feet)	Attenuation Factor from Plume Specific Modeling (Table G-4)	Attenuation Factor from Nomographs
IR-09 North, Hexavalent Chromium	232	240	1,516	12.4	12
IR-09 South, Hexavalent Chromium	63	80	1,242	21	18
IR-09 South, Nickel	63	80	1,158	18.6	16
IR-33, Hexavalent Chromium	63	80	1,105	17.4	14

Note:

IR Installation Restoration

ATTACHMENT G1
BIOSCREEN MODEL INPUT AND OUTPUT SCREENS

BIOSCREEN Model Input for Chromium VI at IR09PPY1

Chromium VI (advection and dispersion only; no retardation due to sorption; no degradation

HPS Parcel D
IR09PPY1
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
or
0.02 → 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	37.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	2.5E-03	(cm/sec)
Hydraulic Gradient	i	0.004	(ft/ft)
Porosity	n	0.28	(-)

2. DISPERSION

Longitudinal Dispersivity	alpha x	151.6	(ft)
Transverse Dispersivity	alpha y	15.2	(ft)
Vertical Dispersivity	alpha z	3.8	(ft)
or		or	
Estimated Plume Length	Lp	1516	(ft)

3. ADSORPTION

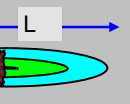
Retardation Factor*	R	1.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbor	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	0.0E+0	(per yr)
or		or	
Solute Half-Life	t-half	1000.00	(year)
or Instantaneous Reaction Mode			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1516	(ft)
Modeled Area Width*	232	(ft)
Simulation Time*	64	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone: 40 (ft)

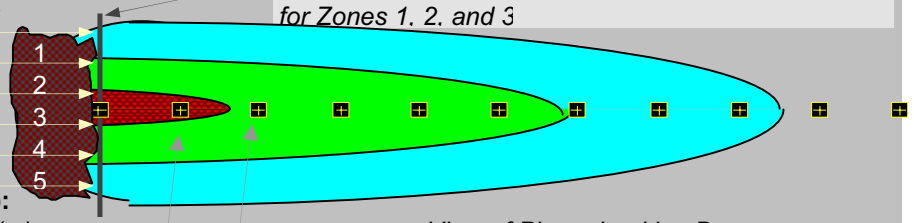
Source Zones:

Width* (ft)	Conc. (mg/L)*	
0	0	1
0	0	2
232	0.493	3
0	0	4
0	0	5

Source Halflife (see Help):

70	70	(yr)
Inst. React.	1st Order	
Soluble Mass	140	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.493										
Dist. from Source (ft)	0	152	303	455	606	758	910	1061	1213	1364	1516

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

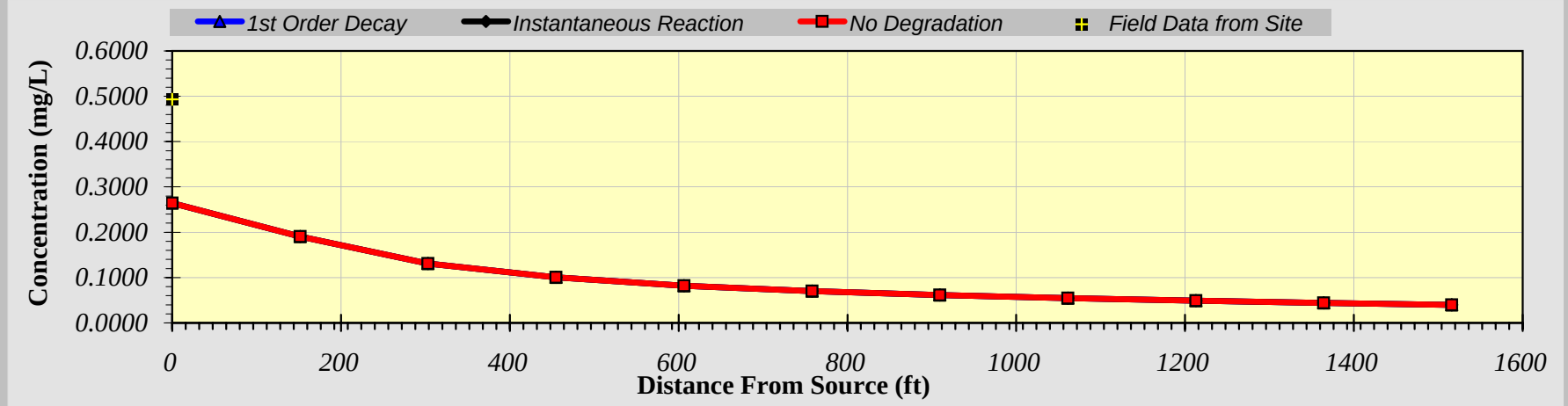
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Chromium VI at IR09PPY1

DISSOLVED CHROMIUM VI CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

TYPE OF MODEL	Distance from Source (ft) 0	152	303	455	606	758	910	1061	1213	1364	1516
No Degradation	0.264	0.190	0.131	0.100	0.082	0.070	0.061	0.054	0.049	0.044	0.040
1st Order Decay	0.264	0.190	0.131	0.100	0.082	0.070	0.061	0.054	0.049	0.044	0.040
Inst. Reaction	0.264	0.190	0.131	0.100	0.082	0.070	0.061	0.054	0.049	0.044	0.040
Field Data from Site	0.4930										



Replay Animation | Next Timestep | Prev Timestep

Time: 64 Years

Return to Input | Recalculate This Sheet

BIOSCREEN Model Input for Chromium VI at IR09MW35A

Chromium VI (advection and dispersion only; no retardation due to sorption; no degradation

HPS Parcel D
IR09MW35A
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
or → 2. Calculate by filling in grey
0.02 cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	37.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	2.5E-03	(cm/sec)
Hydraulic Gradient	i	0.004	(ft/ft)
Porosity	n	0.28	(-)

2. DISPERSION

Longitudinal Dispersivity	alpha x	124.2	(ft)
Transverse Dispersivity	alpha y	12.4	(ft)
Vertical Dispersivity	alpha z	3.1	(ft)
or		or	
Estimated Plume Length	Lp	1242	(ft)

3. ADSORPTION

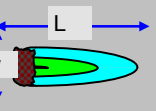
Retardation Factor*	R	1.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	0.0E+0	(per yr)
or		or	
Solute Half-Life	t-half	1000.00	(year)
or Instantaneous Reaction Mode			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1242	(ft)
Modeled Area Width*	63	(ft)
Simulation Time*	91	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone: 40 (ft)

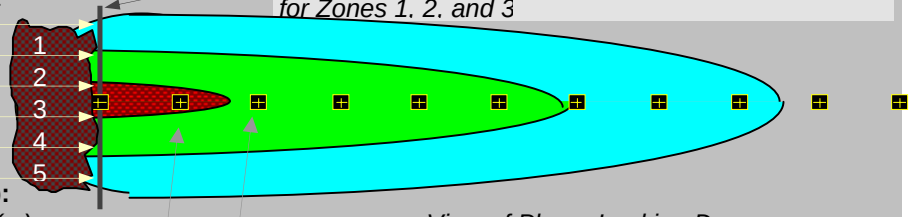
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
63	0.13
0	0
0	0

Source Halflife (see Help):

1000	1000	(yr)
Inst. React.	1st Order	
Soluble Mass	140	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1. 2. and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.13										
Dist. from Source (ft)	0	124	248	373	497	621	745	869	994	1118	1242

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

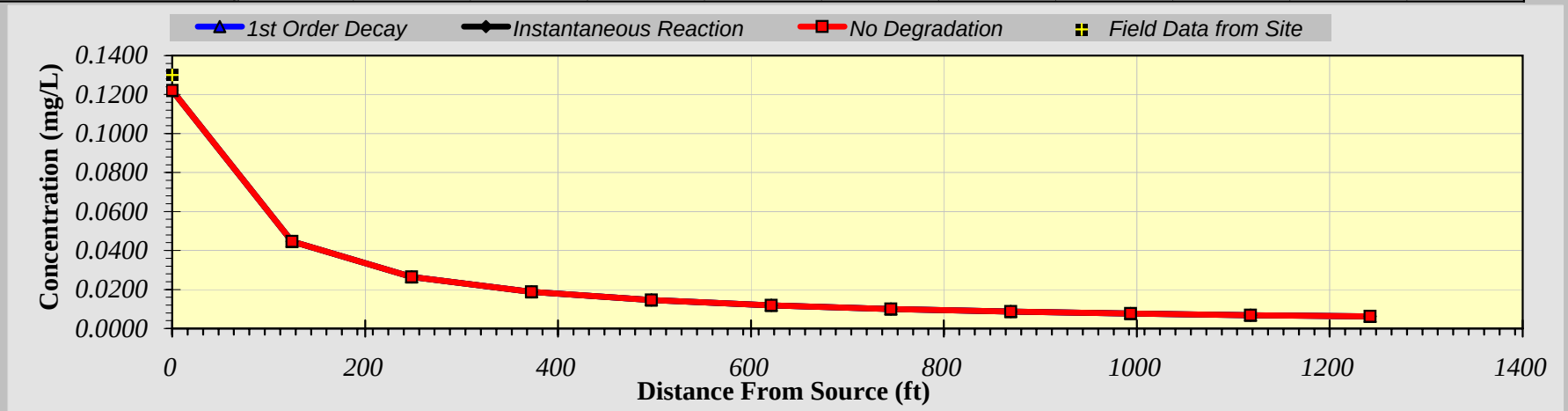
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Chromium VI at IR09MW35A

DISSOLVED CHROMIUM VI CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

TYPE OF MODEL	Distance from Source (ft) 0	124	248	373	497	621	745	869	994	1118	1242
No Degradation	0.122	0.045	0.026	0.019	0.015	0.012	0.010	0.009	0.008	0.007	0.006
1st Order Decay	0.122	0.045	0.026	0.019	0.015	0.012	0.010	0.009	0.008	0.007	0.006
Inst. Reaction	0.122	0.045	0.026	0.019	0.015	0.012	0.010	0.009	0.008	0.007	0.006
Field Data from Site	0.1300										



Replay Animation | Next Timestep | Prev Timestep

Time: 91 Years

Return to Input | Recalculate This Sheet

BIOSCREEN Model Input for Nickel at IR09P043A

Nickel (advection and dispersion only; no retardation due to sorption; no degradation)

HPS Parcel D
IR09P043A
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
or
0.02 → 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	37.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	2.5E-03	(cm/sec)
Hydraulic Gradient	i	0.004	(ft/ft)
Porosity	n	0.28	(-)

2. DISPERSION

Longitudinal Dispersivity	alpha x	115.8	(ft)
Transverse Dispersivity	alpha y	11.6	(ft)
Vertical Dispersivity	alpha z	2.9	(ft)
or		or	
Estimated Plume Length	Lp	1158	(ft)

3. ADSORPTION

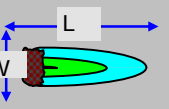
Retardation Factor*	R	1.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	0.0E+0	(per yr)
or		or	
Solute Half-Life	t-half	1000.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1158	(ft)
Modeled Area Width*	63	(ft)
Simulation Time*	81	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 40 (ft)

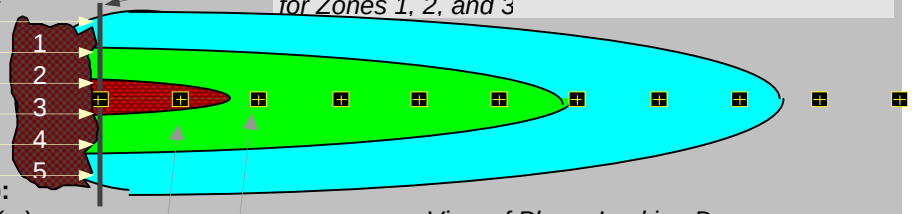
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
63	0.185
0	0
0	0

Source Halflife (see Help):

700	700	(yr)
Inst. React.	1st Order	
Soluble Mass	140	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0'

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.185										
Dist. from Source (ft)	0	116	232	347	463	579	695	811	926	1042	1158

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

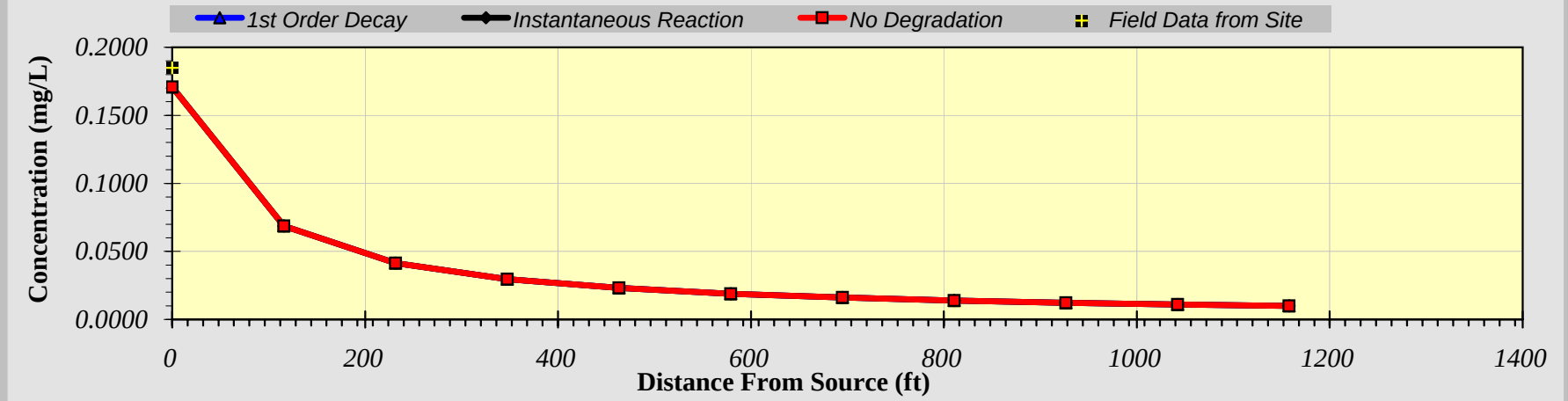
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Nickel at IR09P043A

DISSOLVED NICKEL CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

	Distance from Source (ft)										
TYPE OF MODEL	0	116	232	347	463	579	695	811	926	1042	1158
No Degradation	0.171	0.069	0.041	0.030	0.023	0.019	0.016	0.014	0.012	0.011	0.010
1st Order Decay	0.171	0.069	0.041	0.030	0.023	0.019	0.016	0.014	0.012	0.011	0.010
Inst. Reaction	0.171	0.069	0.041	0.030	0.023	0.019	0.016	0.014	0.012	0.011	0.010
Field Data from Site	0.1850										



Replay Animation | Next Timestep | Prev Timestep

Time: *81 Years*

Return to Input | Recalculate This Sheet

BIOSCREEN Model Input for Chromium VI at IR33MW61A

Chromium VI (advection and dispersion only; no retardation due to sorption; no degradation)

HPS Parcel D
IR33MW61A
Run Name

Data Input Instructions:

115 or 0.02
1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* → Data used directly in model.
20 → Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	37.5	(ft/yr)
or		or	
Hydraulic Conductivity	K	2.5E-03	(cm/sec)
Hydraulic Gradient	i	0.004	(ft/ft)
Porosity	n	0.28	(-)

2. DISPERSION

Longitudinal Dispersivity	alpha x	110.5	(ft)
Transverse Dispersivity	alpha y	11.1	(ft)
Vertical Dispersivity	alpha z	2.8	(ft)
or		or	
Estimated Plume Length	Lp	1105	(ft)

3. ADSORPTION

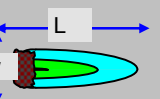
Retardation Factor*	R	1.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	0.0E+0	(per yr)
or		or	
Solute Half-Life	t-half	1000.00	(year)
or Instantaneous Reaction Mode			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	1105	(ft)
Modeled Area Width*	63	(ft)
Simulation Time*	74	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone: 40 (ft)

Source Zones:

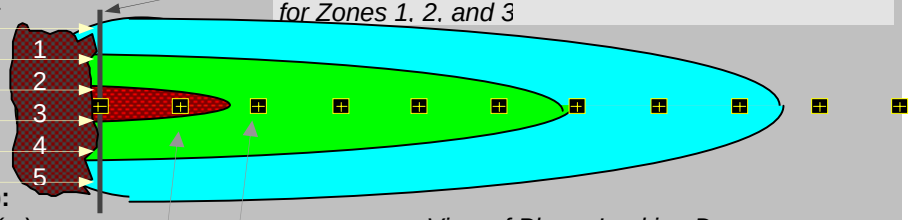
Width* (ft)	Conc. (mg/L)*
0	0
0	0
63	0.25
0	0
0	0

Source Halflife (see Help):

500	500 (yr)
Inst. React.	1st Order

Soluble Mass In Source NAPL, Soil: 140 (Kg)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0'

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	.25
111	
221	
332	
442	
553	
663	
774	
884	
995	
1105	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

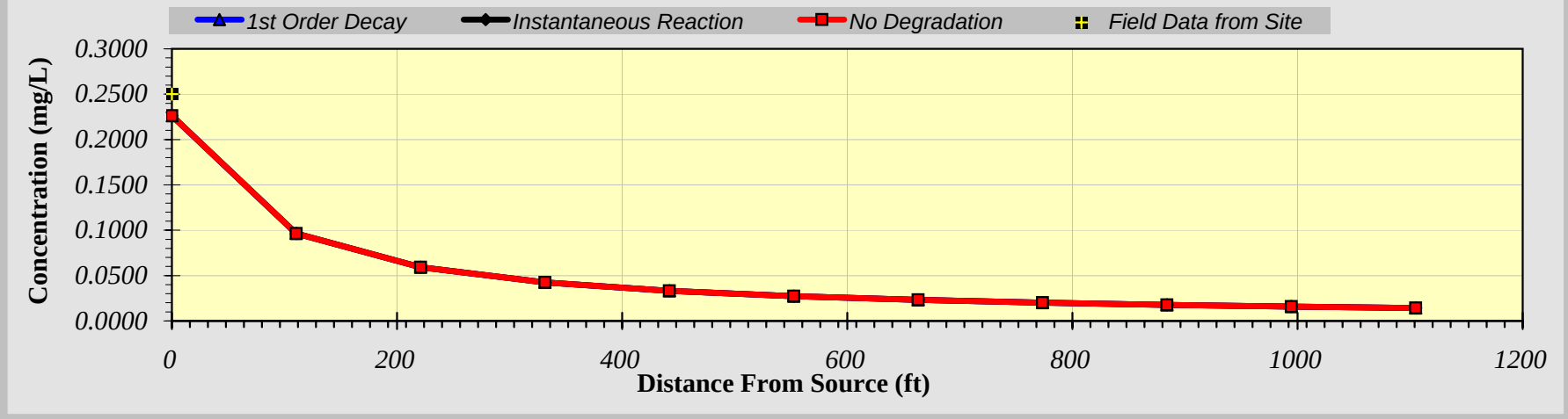
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Model Output for Chromium VI at IR33MW61A

DISSOLVED CHROMIUM VI CONCENTRATION ALONG PLUME CENTERLINE (mg/L)

	Distance from Source (ft)										
TYPE OF MODEL	0	111	221	332	442	553	663	774	884	995	1105
No Degradation	0.226	0.097	0.059	0.043	0.033	0.027	0.023	0.020	0.018	0.016	0.014
1st Order Decay	0.226	0.097	0.059	0.043	0.033	0.027	0.023	0.020	0.018	0.016	0.014
Inst. Reaction	0.226	0.097	0.059	0.043	0.033	0.027	0.023	0.020	0.018	0.016	0.014
Field Data from Site	0.2500										



Replay Animation | Next Timestep | Prev Timestep

Time: *74 Years*

Return to Input | Recalculate This Sheet

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
29	Chromium VI	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G, Tables G-2 and G-3.

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CHROM	Chromium VI	µg/L	266	26	9.77	NA	50	NA	5	260	IR28MW125A (15-AUG-2000)	86.08	90.55	60.66	NA	0.65	NA	50	17 / 266	COEC
METAL	Aluminum	µg/L	335	37	11.04	NA	NA	NA	15.7	26,300	IR28MW294A (17-NOV-1995)	1,085	82.8	4,284	NA	NA	NA	NA	NA	-
METAL	Antimony	µg/L	332	37	11.14	43.26	NA	NA	0.21	40.1	IR06MW44A (07-JAN-1992)	9.54	5.4	10.13	0.00	NA	NA	43.26	0 / 332	-
METAL	Arsenic	µg/L	403	166	41.19	27.34	36	NA	1.2	27.6	PA28MW52A (13-DEC-1995)	5.83	4.3	4.72	0.01	0.00	NA	36	0 / 403	-
METAL	Barium	µg/L	332	314	94.58	504.2	NA	NA	3.8	929	IR06MW41A (08-JAN-1992)	128	74.95	151	0.04	NA	NA	504.2	12 / 332	-
METAL	Beryllium	µg/L	386	16	4.15	1.4	NA	NA	0.2	1.1	IR06MW45A (11-OCT-2000)	0.54	0.37	0.27	0.00	NA	NA	1.4	0 / 386	-
METAL	Cadmium	µg/L	337	20	5.93	5.08	8.8	NA	0.26	9.2	IR06MW53F (11-AUG-1994)	2.34	1.3	2.36	0.15	0.05	NA	8.8	1 / 337	COPEC
METAL	Calcium	µg/L	445	426	95.73	NA	NA	NA	2,220	730,000	IR29MW56F (22-JUN-1995)	94,947	56,900	104,516	NA	NA	NA	NA	NA	-
METAL	Chromium	µg/L	405	108	26.67	15.66	400	8	0.74	1,200	IR28MW920A (28-AUG-2001)	62.64	11.2	149	0.44	0.03	0.56	400	3 / 405	COPEC
METAL	Cobalt	µg/L	332	127	38.25	20.8	NA	NA	0.41	98.4	IR25MW15A2 (26-MAY-1995)	6.04	2	10.77	0.04	NA	NA	20.8	5 / 332	-
METAL	Copper	µg/L	337	84	24.93	28.04	3.1	NA	1.1	270	IR28MW170A (11-JUL-2002)	16.71	5.05	34.09	0.17	0.79	NA	28.04	14 / 337	COPEC
METAL	Iron	µg/L	499	213	42.69	2,380	NA	NA	8.5	550,000	IR25MW19A (29-JAN-1998)	6,143	468	38,760	0.29	NA	NA	2,380	61 / 499	-
METAL	Lead	µg/L	331	24	7.25	14.44	5.6	NA	0.79	29.7	IR28MW127A (27-NOV-1995)	6.65	3.5	7.50	0.13	0.33	NA	14.44	3 / 331	COPEC
METAL	Magnesium	µg/L	448	447	99.78	1,440,000	NA	NA	2,950	1,150,000	IR25MW17A (14-JUN-2002)	317,426	234,000	283,448	0.00	NA	NA	1,440,000	0 / 448	-
METAL	Manganese	µg/L	381	339	88.98	8140	NA	NA	0.69	10,500	IR28MW311A (28-MAY-1996)	1,221	366	2,055	0.02	NA	NA	8,140	7 / 381	-
METAL	Mercury	µg/L	417	60	14.39	0.6	0.025	NA	0.046	54	IR28MW170A (23-JAN-2001)	1.79	0.29	6.94	0.35	1.00	NA	0.6	21 / 417	COPEC
METAL	Molybdenum	µg/L	308	77	25.00	61.9	NA	NA	0.95	360	IR30MW01F (12-JUL-2002)	37.87	7	73.43	0.17	NA	NA	61.9	13 / 308	-
METAL	Nickel	µg/L	341	175	51.32	96.48	8.2	NA	1.4	384	IR28MW294A (17-NOV-1995)	30.73	14.9	47.11	0.05	0.67	NA	96.48	9 / 341	COPEC
METAL	Potassium	µg/L	448	430	95.98	448,000	NA	NA	258	710,000	IR28MW920A (28-AUG-2001)	79,126	33,800	112,187	0.01	NA	NA	448,000	6 / 448	-
METAL	Selenium	µg/L	329	45	13.68	14.5	71	NA	2.2	64.2	IR06MW45A (30-MAR-2004)	10.54	4.4	13.40	0.22	0.00	NA	71	0 / 329	-
METAL	Silver	µg/L	331	10	3.02	7.43	0.38	NA	0.55	24.1	IR28MW314B (03-JUL-1996)	3.59	0.92	6.90	0.10	1.00	NA	7.43	1 / 331	COPEC
METAL	Sodium	µg/L	448	446	99.55	9,242,000	NA	NA	980	9,700,000	IR28MW123A (18-MAY-1994)	1,629,632	712,500	2,176,934	0.01	NA	NA	9,242,000	3 / 448	-
METAL	Thallium	µg/L	327	39	11.93	12.97	426	NA	0.103	52.7	IR25MW17A (14-JUN-2002)	6.54	4	8.66	0.08	0.00	NA	426	0 / 327	-
METAL	Vanadium	µg/L	329	189	57.45	26.62	NA	NA	0.55	71.6	IR28MW294A (17-NOV-1995)	6.00	4.1	7.77	0.02	NA	NA	26.62	3 / 329	-
METAL	Zinc	µg/L	337	97	28.78	75.68	81	10	3	1,300	IR28MW170A (11-JUL-2002)	56.24	21	140	0.14	0.13	0.81	81	13 / 337	COEC
VOA	1,1,1,2-Tetrachloroethane	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1,1-Trichloroethane	µg/L	1,067	8	0.75	NA	6,240	NA	0.14	720	IR25MW15A1 (13-JUN-1994)	98.97	4.5	235	NA	0.00	NA	6,240	0 / 1067	-
VOA	1,1,2,2-Tetrachloroethane	µg/L	1,067	2	0.19	NA	1,804	0.5	6	120	IR28MW211F (13-NOV-2002)	63.00	63	57.00	NA	0.00	1.00	1,804	0 / 1067	-
VOA	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	469	47	10.02	NA	NA	NA	0.14	140	IR25MW52A (17-JUN-2002)	13.73	0.95	27.15	NA	NA	NA	NA	NA	-
VOA	1,1,2-Trichloroethane	µg/L	1,067	34	3.19	NA	NA	0.5	0.2	170	IR28MW211F (09-JUL-2002)	24.34	3	39.14	NA	NA	0.91	NA	NA	-
VOA	1,1-Dichloroethane	µg/L	1,067	59	5.53	NA	NA	0.5	0.17	38	IR28MW916A (23-JAN-2001)	5.25	0.6	10.15	NA	NA	0.54	NA	NA	-
VOA	1,1-Dichloroethene	µg/L	1,067	72	6.75	NA	44,800	NA	0.14	42	IR25MW15A1 (11-JAN-2001)	3.82	0.975	7.48	NA	0.00	NA	44,800	0 / 1067	-
VOA	1,1-Dichloropropene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichlorobenzene	µg/L	352	8	2.27	NA	NA	NA	0.5	1.4	IR58MW35A (11-JUL-2002)	0.94	0.98	0.33	NA	NA	NA	NA	NA	-
VOA	1,2,3-Trichloropropane	µg/L	382	2	0.52	NA	NA	0.5	1.5	16	IR28MW934F2 (06-MAR-2001)	8.75	8.75	7.25	NA	NA	1.00	NA	NA	-
VOA	1,2,4-Trichlorobenzene	µg/L	1,051	56	5.33	NA	129	0.5	0.32	200	IR25MW19A (29-JAN-1998)	18.30	4.85	36.95	NA	0.04	0.89	129	2 / 1051	COPEC
VOA	1,2,4-Trimethylbenzene	µg/L	207	29	14.01	NA	NA	0.5	0.2	220	IR28MW909A (08-FEB-2001, 12-FEB-2001)	45.06	13	67.23	NA	NA	0.97	NA	NA	-
VOA	1,2-Dibromo-3-Chloropropane	µg/L	707	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromoethane	µg/L	545	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dichlorobenzene	µg/L	1,065	206	19.34	NA	129	0.5	0.09	62,000	IR25MW15A1 (14-JUN-1994)	3,577	37	10,039	NA	0.39	0.90	129	80 / 1065	COPEC
VOA	1,2-Dichloroethane	µg/L	1,083	125	11.54	NA	22,600	0.5	0.17	150,000	IR25MW15A1 (26-MAY-1995)	8,263	93	23,217	NA	0.10	0.94	22,600	13 / 1083	COPEC
VOA	1,2-Dichloroethene (Total)	µg/L	287	89	31.01	NA	44,800	0.5	0.3	57,000	IR25MW15A1 (11-AUG-1994)	2,304	14	9,200	NA	0.01	0.94	44,800	1 / 287	COPEC
VOA	1,2-Dichloropropane	µg/L	1,067	38	3.56	NA	3,040	0.5	0.2	350	IR25MW19A (29-JAN-1998)	53.04	2.85	99.82	NA	0.00	0.79	3,040	0 / 1067	-
VOA	1,3,5-Trimethylbenzene	µg/L	207	10	4.83	NA	NA	0.5	0.79	28	IR28MW909A (24-JAN-2001)	9.44	5.7	9.30	NA	NA	1.00	NA	NA	-
VOA	1,3-Dichlorobenzene	µg/L	1,064	87	8.18	NA	129	NA	0.1	630	IR25MW19A (22-JAN-2001)	44.70	10	97.11	NA	0.10	NA	129	9 / 1064	COPEC
VOA	1,3-Dichloropropane	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,4-Dichlorobenzene	µg/L	1,064	175	16.45	NA	129	0.5	0.12	15,000	IR25MW19A (29-JAN-1998)	983	31	2,488	NA	0.39	0.89	129	69 / 1064	COPEC
VOA	2,2'-Oxybis(1-Chloropropane)	µg/L	2	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2,2-Dichloropropane	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Butanone	µg/L	785	3	0.38	NA	NA	NA	0.7	29	IR06MW22AD (15-JUL-1991)	12.23	7	12.13	NA	NA	NA	NA	NA	-
VOA	2-Chloroethyl Vinyl Ether	µg/L	60	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Chlorotoluene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Hexanone	µg/L	582	1	0.17	NA	NA	NA	0.4	0.4	IR28MW342F (18-MAR-2003)	0.40	0.4	NA	NA	NA	NA	NA	NA	-
VOA	4-Chlorotoluene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Methyl-2-Pentanone	µg/L	758	5	0.66	NA	NA	NA	0.2	9	IR25MW15A1 (26-MAY-1995)	2.44	1.1	3.31	NA	NA	NA	NA	NA	-
VOA	Acetone	µg/L	708	26	3.67	NA	NA	NA	4.3	6,900	IR28MW936F (05-APR-2001)	428	22	1,359	NA	NA	NA	NA	NA	-
VOA	Benzene	µg/L	1,076	223	20.72	NA	700	0.5	0.1	400	IR25MW19A (22-JAN-2001)	17.74	2	51.86	NA	0.00	0.80	700	0 / 1076	-
VOA	Bromobenzene	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Bromochloromethane	µg/L	504	0	0.00	NA	6,400	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 504	-
VOA	Bromodichloromethane	µg/L	1,067	11	1.03	NA	6,400	0.5	0.15	130	IR25MW19A (22-JAN-2001)	17.86	0.9	37.98	NA	0.00	0.64	6,400	0 / 1067	-
VOA	Bromoform	µg/L	1,067	4	0.37	NA	6,400	NA	1	33	IR28MW930A (28-AUG-2001)	10.75	4.5	13.15	NA	0.00	NA	6,400	0 / 1067	-
VOA	Bromomethane	µg/L	1,067	6	0.56	NA	6,400	NA	0.3	8.1	IR58MW34A (08-JUL-2002)	2.98	1.995	2.82	NA	0.00	NA	6,400	0 / 1067	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	Carbon Disulfide	µg/L	832	59	7.09	NA	NA	NA	0.16	39	IR29MW56F (10-AUG-1994)	3.08	0.94	6.10	NA	NA	NA	NA	NA	-
VOA	Carbon Tetrachloride	µg/L	1,083	95	8.77	NA	6,400	0.5	0.15	520	IR28MW937F (02-APR-2001)	40.89	12	81.99	NA	0.00	0.89	6,400	0 / 1083	-
VOA	Chlorobenzene	µg/L	1,067	118	11.06	NA	129	0.5	0.13	9,900	IR28MW909A (08-FEB-2001)	456	28.5	1,140	NA	0.32	0.86	129	38 / 1067	COPEC
VOA	Chloroethane	µg/L	1,066	44	4.13	NA	NA	0.5	0.52	81	IR06MW30A (23-AUG-1994)	12.97	5	18.36	NA	NA	1.00	NA	NA	-
VOA	Chloroform	µg/L	1,083	246	22.71	NA	6,400	0.5	0.09	1,000	IR28MW937F (02-APR-2001)	49.15	3	133	NA	0.00	0.88	6,400	0 / 1083	-
VOA	Chloromethane	µg/L	1,067	15	1.41	NA	6,400	NA	0.2	3.8	IR58MW34A (08-JUL-2002)	0.75	0.3	1.05	NA	0.00	NA	6,400	0 / 1067	-
VOA	Cis-1,2-Dichloroethene	µg/L	796	443	55.65	NA	44,800	0.5	0.12	58,000	IR25MW15A1 (05-FEB-1998)	1,342	21	6,111	NA	0.00	0.87	44,800	2 / 796	COPEC
VOA	Cis-1,3-Dichloropropene	µg/L	1,067	2	0.19	NA	NA	0.5	0.54	4	IR58MW33B (23-MAY-1996)	2.27	2.27	1.73	NA	NA	1.00	NA	NA	-
VOA	Cyclohexane	µg/L	123	6	4.88	NA	NA	NA	0.26	1.6	IR28MW128A (09-AUG-2002)	0.73	0.585	0.43	NA	NA	NA	NA	NA	-
VOA	Dibromochloromethane	µg/L	1,067	5	0.47	NA	6,400	0.5	0.2	3	IR58MW33B (23-MAY-1996)	0.85	0.32	1.08	NA	0.00	0.40	6,400	0 / 1067	-
VOA	Dibromomethane	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Dichlorodifluoromethane	µg/L	628	11	1.75	NA	NA	NA	0.22	4.2	IR25MW52A (08-JUN-2004)	1.74	1.8	1.12	NA	NA	NA	NA	NA	-
VOA	Ethylbenzene	µg/L	1,076	67	6.23	NA	86	NA	0.1	79	IR28MW155A (31-MAY-1994)	6.17	3	10.47	NA	0.00	NA	86	0 / 1076	-
VOA	Isopropylbenzene	µg/L	393	34	8.65	NA	NA	0.5	0.11	15	IR28MW909A (24-JAN-2001)	2.13	0.92	3.24	NA	NA	0.74	NA	NA	-
VOA	M,P-Xylenes	µg/L	125	13	10.40	NA	NA	NA	0.23	28	IR25MW15A1 (13-AUG-2002)	6.27	1.7	8.02	NA	NA	NA	NA	NA	-
VOA	Methyl Acetate	µg/L	121	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylcyclohexane	µg/L	123	4	3.25	NA	NA	NA	0.22	0.73	IR28MW128A (09-AUG-2002)	0.50	0.515	0.23	NA	NA	NA	NA	NA	-
VOA	Methylene Chloride	µg/L	1,067	33	3.09	NA	6,400	0.5	0.3	270	IR28MW936F (05-APR-2001)	40.13	12	66.42	NA	0.00	0.82	6,400	0 / 1067	-
VOA	N-Butylbenzene	µg/L	207	4	1.93	NA	NA	NA	1.1	6.5	IR58MW35A (11-JUL-2002)	4.43	5.05	2.17	NA	NA	NA	NA	NA	-
VOA	Naphthalene	µg/L	603	103	17.08	NA	470	0.05	0.06	1,800	IR06MW42A (10-JAN-1992)	110	25	242	NA	0.04	1.00	470	4 / 603	COPEC
VOA	O-Xylene	µg/L	125	23	18.40	NA	NA	NA	0.08	16	IR25MW15A1 (13-AUG-2002)	2.32	0.47	3.66	NA	NA	NA	NA	NA	-
VOA	Para-Isopropyl Toluene	µg/L	207	12	5.80	NA	NA	NA	0.52	34	IR25MW19A (22-JAN-2001)	6.60	2.75	9.28	NA	NA	NA	NA	NA	-
VOA	Propylbenzene	µg/L	207	9	4.35	NA	NA	NA	0.46	27	IR28MW909A (12-FEB-2001)	7.12	2.7	8.97	NA	NA	NA	NA	NA	-
VOA	Sec-Butylbenzene	µg/L	207	13	6.28	NA	NA	NA	0.2	4.8	IR28MW913A (25-JAN-2001)	1.88	1.5	1.52	NA	NA	NA	NA	NA	-
VOA	Styrene	µg/L	832	3	0.36	NA	NA	NA	1	7.9	IR25MW15A1 (11-JAN-2001)	4.30	4	2.82	NA	NA	NA	NA	NA	-
VOA	Tert-Butyl Methyl Ether	µg/L	716	67	9.36	NA	8,000	NA	0.09	25	IR28MW155A (18-JUN-2002)	3.00	1.2	4.19	NA	0.00	NA	8,000	0 / 716	-
VOA	Tert-Butylbenzene	µg/L	207	1	0.48	NA	NA	NA	0.4	0.4	IR58MW34A (08-JUL-2002)	0.40	0.4	NA	NA	NA	NA	NA	NA	-
VOA	Tetrachloroethene	µg/L	1,083	334	30.84	NA	450	0.5	0.1	72,000	IR25MW19A (29-JAN-1998, 22-JAN-2001)	2,031	5.15	8,612	NA	0.15	0.79	450	51 / 1083	COPEC
VOA	Toluene	µg/L	1,076	105	9.76	NA	5,000	NA	0.1	66	IR25MW19A (29-JAN-1998)	6.79	1	12.69	NA	0.00	NA	5,000	0 / 1076	-
VOA	Trans-1,2-Dichloroethene	µg/L	796	215	27.01	NA	44,800	0.5	0.14	2,400	IR25MW19A (22-JAN-2001)	59.51	5	236	NA	0.00	0.88	44,800	0 / 796	-
VOA	Trans-1,3-Dichloropropene	µg/L	1,067	1	0.09	NA	NA	0.5	3	3	IR58MW33B (23-MAY-1996)	3.00	3	NA	NA	NA	1.00	NA	NA	-
VOA	Trichloroethene	µg/L	1,082	578	53.42	NA	400	0.5	0.12	76,000	IR28MW211F (13-NOV-2002)	1,950	13	7,820	NA	0.19	0.89	400	108 / 1082	COPEC
VOA	Trichlorofluoromethane	µg/L	628	82	13.06	NA	NA	0.5	0.24	5,900	IR25MW52A (17-JUN-2002)	122	3.35	661	NA	NA	0.80	NA	NA	-
VOA	Vinyl Acetate	µg/L	98	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Vinyl Chloride	µg/L	1,083	318	29.36	NA	NA	0.5	0.28	6,600	IR25MW15A1 (05-OCT-1995)	286	62	669	NA	NA	0.94	NA	NA	-
VOA	Xylene (Total)	µg/L	951	77	8.10	NA	NA	NA	0.2	150	IR25MW19A (22-JAN-2001)	14.11	3	28.84	NA	NA	NA	NA	NA	-
SVOA	1,4-Dioxane	µg/L	13	2	15.38	NA	NA	NA	0.66	1.4	IR28MW151A (06-DEC-2004)	1.03	1	0.37	NA	NA	NA	NA	NA	-
SVOA	1-Methylnaphthalene	µg/L	4	2	50.00	NA	NA	NA	0.02	4	IR06MW22A (18-AUG-2000)	2.01	2	1.99	NA	NA	NA	NA	NA	-
SVOA	2-Chloronaphthalene	µg/L	402	2	0.50	NA	1.5	NA	1	1	IR25MW15A2 (26-MAY-1995), IR28MW129A (27-JUN-1995)	1.00	1	0.00	NA	0.00	NA	1.5	0 / 402	-
SVOA	2-Chlorophenol	µg/L	398	2	0.50	NA	NA	NA	1	24	IR25MW15A1 (13-AUG-2002)	12.50	13	11.50	NA	NA	NA	NA	NA	-
SVOA	2-Methylnaphthalene	µg/L	413	55	13.32	NA	NA	NA	0.5	920	IR25MW11A (18-AUG-1994)	49.04	9.8	137	NA	NA	NA	NA	NA	-
SVOA	2-Methylphenol	µg/L	392	11	2.81	NA	NA	NA	0.2	3,800	IR25MW15A1 (11-AUG-1994)	774	63	1,235	NA	NA	NA	NA	NA	-
SVOA	2-Nitroaniline	µg/L	379	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitrophenol	µg/L	398	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 398	-
SVOA	2,4-Dichlorophenol	µg/L	393	4	1.02	NA	NA	NA	1.7	37	IR25MW15A1 (13-AUG-2002)	10.93	3	15.06	NA	NA	NA	NA	NA	-
SVOA	2,4-Dimethylphenol	µg/L	393	25	6.36	NA	NA	10	0.6	16,000	IR25MW15A1 (11-AUG-1994)	1,225	32	3,345	NA	NA	0.68	NA	NA	-
SVOA	2,4-Dinitrophenol	µg/L	388	0	0.00	NA	46	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	46	0 / 388	-
SVOA	2,4-Dinitrotoluene	µg/L	403	1	0.25	NA	118	10	4,900	4,900	IR25MW11A (07-JUN-1995)	4,900	4,900	NA	NA	1.00	1.00	118	1 / 403	COPEC
SVOA	2,4,5-Trichlorophenol	µg/L	375	1	0.27	NA	NA	NA	0.57	0.57	IR25MW15A1 (13-AUG-2002)	0.57	1	NA	NA	NA	NA	NA	NA	-
SVOA	2,4,6-Trichlorophenol	µg/L	393	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,6-Dinitrotoluene	µg/L	402	0	0.00	NA	118	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	118	0 / 402	-
SVOA	3,3'-Dichlorobenzidine	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	3,4-Methylphenol	µg/L	13	2	15.38	NA	NA	10	380	3,200	IR25MW19A (24-JAN-2001)	1,790	1,790	1,410	NA	NA	1.00	NA	NA	-
SVOA	3-Nitroaniline	µg/L	377	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4,6-Dinitro-2-Methylphenol	µg/L	391	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 391	-
SVOA	4-Bromophenyl-Phenylether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloro-3-Methylphenol	µg/L	393	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloroaniline	µg/L	384	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chlorophenyl-Phenylether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Methylphenol	µg/L	380	15	3.95	NA	NA	10	0.7	9,100	IR25MW15A1 (11-AUG-1994)	703	10	2,251	NA	NA	0.47	NA	NA	-
SVOA	4-Nitroaniline	µg/L	384	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitrophenol	µg/L	399	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 399	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
SVOA	Acenaphthene	µg/L	417	85	20.38	NA	710	NA	0.1	230	IR06MW42A (10-JAN-1992)	42.24	17	48.58	NA	0.00	NA	710	0 / 417	-
SVOA	Acenaphthylene	µg/L	417	14	3.36	NA	60	NA	0.07	10	IR06MW42A (16-JAN-2001, 01-MAY-2001)	2.34	0.9	3.21	NA	0.00	NA	60	0 / 417	-
SVOA	Acetophenone	µg/L	13	3	23.08	NA	NA	NA	2	24	IR06MW42A (28-AUG-2002)	10.67	6	9.57	NA	NA	NA	NA	NA	-
SVOA	Aniline	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Anthracene	µg/L	417	45	10.79	NA	60	NA	0.074	21	IR06MW42A (08-JAN-1991)	4.00	3	4.06	NA	0.00	NA	60	0 / 417	-
SVOA	Atrazine	µg/L	13	0	0.00	NA	11	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	0 / 13	-
SVOA	Azobenzene	µg/L	12	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzaldehyde	µg/L	14	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzo(a)anthracene	µg/L	417	10	2.40	NA	60	0.05	0.01	10	IR06MW42A (16-JAN-2001)	2.14	0.6	2.91	NA	0.00	0.80	60	0 / 417	-
SVOA	Benzo(a)pyrene	µg/L	415	3	0.72	NA	60	0.05	0.21	3	IR28MW311A (19-APR-1996)	1.74	2	1.15	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzo(b)fluoranthene	µg/L	415	3	0.72	NA	60	0.05	0.055	4	IR28MW311A (19-APR-1996)	2.02	2	1.61	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzo(e)pyrene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzo(g,h,i)perylene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Benzo(k)fluoranthene	µg/L	415	2	0.48	NA	60	0.05	1	1	IR28MW311A (19-APR-1996), PA28MW52A (23-FEB-1993)	1.00	1	0.00	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzoic Acid	µg/L	92	2	2.17	NA	NA	NA	5	10	IR25MW15A1 (13-AUG-2002)	7.50	7.5	2.50	NA	NA	NA	NA	NA	-
SVOA	Benzyl Alcohol	µg/L	75	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Biphenyl	µg/L	17	4	23.53	NA	NA	NA	0.1	10	IR06MW42A (16-JAN-2001, 01-MAY-2001)	5.28	5.5	4.74	NA	NA	NA	NA	NA	-
SVOA	Bis(2-chloroethoxy)methane	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethyl)ether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-ethylhexyl)phthalate	µg/L	402	6	1.49	NA	NA	NA	1	99	PA50MW03A (11-JUL-1994)	53.67	56.5	31.55	NA	NA	NA	NA	NA	-
SVOA	Butylbenzylphthalate	µg/L	402	1	0.25	NA	588.8	NA	7	7	IR06MW30A (12-JUN-1990)	7.00	7	NA	NA	0.00	NA	588.8	0 / 402	-
SVOA	Caprolactam	µg/L	15	2	13.33	NA	NA	NA	10	25	IR06MW42A (12-OCT-2000)	17.50	17.5	7.50	NA	NA	NA	NA	NA	-
SVOA	Carbazole	µg/L	308	30	9.74	NA	NA	NA	0.1	53	IR06MW42A (16-MAY-1994)	8.29	4.35	12.68	NA	NA	NA	NA	NA	-
SVOA	Chrysene	µg/L	418	7	1.67	NA	60	0.05	0.02	200	IR25MW11A (07-JUN-1995)	31.05	3	69.05	NA	0.14	0.71	60	1 / 418	COPEC
SVOA	Di-N-Butylphthalate	µg/L	402	2	0.50	NA	588.8	NA	0.9	1	IR28MW128A (25-MAY-1994)	0.95	0.95	0.05	NA	0.00	NA	588.8	0 / 402	-
SVOA	Di-N-Octylphthalate	µg/L	400	0	0.00	NA	588.8	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 400	-
SVOA	Dibenz(a,h)anthracene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Dibenzofuran	µg/L	403	56	13.90	NA	NA	NA	0.42	140	IR06MW42A (08-JAN-1991, 16-JUL-1991, 10-JAN-1992)	23.68	7.1	35.56	NA	NA	NA	NA	NA	-
SVOA	Dibenzothiophene	µg/L	4	2	50.00	NA	NA	NA	0.09	0.1	IR06MW22A (18-AUG-2000)	0.10	0.095	0.01	NA	NA	NA	NA	NA	-
SVOA	Diethylphthalate	µg/L	402	2	0.50	NA	588.8	NA	6	10	IR06MW42A (03-JUN-2004)	8.00	8	2.00	NA	0.00	NA	588.8	0 / 402	-
SVOA	Dimethylphthalate	µg/L	402	0	0.00	NA	3.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	0 / 402	-
SVOA	Fluoranthene	µg/L	417	55	13.19	NA	16	NA	0.06	36	IR06MW42A (08-JAN-1991)	8.37	8	7.42	NA	0.16	NA	16	9 / 417	COPEC
SVOA	Fluorene	µg/L	418	65	15.55	NA	60	NA	0.2	180	IR25MW11A (28-DEC-1993)	25.73	7	41.17	NA	0.14	NA	60	9 / 418	COPEC
SVOA	Hexachlorobenzene	µg/L	402	0	0.00	NA	129	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	129	0 / 402	-
SVOA	Hexachlorobutadiene	µg/L	587	0	0.00	NA	6.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.4	0 / 587	-
SVOA	Hexachlorocyclopentadiene	µg/L	402	0	0.00	NA	1.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 402	-
SVOA	Hexachloroethane	µg/L	402	1	0.25	NA	188	NA	8	8	IR25MW16A (01-JUN-1995)	8.00	8	NA	NA	0.00	NA	188	0 / 402	-
SVOA	Indeno(1,2,3-cd)pyrene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Isophorone	µg/L	402	0	0.00	NA	2,580	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,580	0 / 402	-
SVOA	N-Nitroso-Di-N-Propylamine	µg/L	402	0	0.00	NA	660,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 402	-
SVOA	N-Nitrosodimethylamine	µg/L	31	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	N-Nitrosodiphenylamine	µg/L	402	1	0.25	NA	660,000	NA	6.4	6.4	IR29MW56F (13-SEP-2004)	6.40	6.4	NA	NA	0.00	NA	660,000	0 / 402	-
SVOA	Naphthalene, 1,6,7-Trimethyl-	µg/L	4	2	50.00	NA	NA	NA	0.4	0.4	IR06MW22A (18-AUG-2000), IR25MW16A (17-AUG-2000)	0.40	0.4	0.00	NA	NA	NA	NA	NA	-
SVOA	Naphthalene, 2,6-Dimethyl-	µg/L	4	2	50.00	NA	NA	NA	0.2	2	IR06MW22A (18-AUG-2000)	1.10	1.1	0.90	NA	NA	NA	NA	NA	-
SVOA	Nitrobenzene	µg/L	402	0	0.00	NA	1,336	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,336	0 / 402	-
SVOA	Pentachlorophenol	µg/L	393	4	1.02	NA	7.9	50	0.3	6,100	IR25MW11A (07-JUN-1995)	1,526	1.75	2,641	NA	0.25	0.25	7.9	1 / 393	COPEC
SVOA	Perylene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Phenacetin	µg/L	7	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Phenanthrene	µg/L	418	78	18.66	NA	60	NA	0.08	590	IR25MW11A (18-AUG-1994)	27.42	5.5	78.76	NA	0.13	NA	60	10 / 418	COPEC
SVOA	Phenanthrene, 1-Methyl-	µg/L	4	2	50.00	NA	NA	NA	0.01	0.05	IR06MW22A (18-AUG-2000)	0.03	0.03	0.02	NA	NA	NA	NA	NA	-
SVOA	Phenol	µg/L	393	10	2.54	NA	1,160	NA	1.5	2,300	IR25MW15A1 (11-AUG-1994)	414	80.5	671	NA	0.10	NA	1,160	1 / 393	COPEC
SVOA	Pyrene	µg/L	417	55	13.19	NA	60	NA	0.1	16	IR06MW42A (08-JAN-1991)	5.26	5	3.75	NA	0.00	NA	60	0 / 417	-
PEST	4,4'-DDD	µg/L	247	3	1.21	NA	0.72	NA	0.01	0.06	IR58MW33B (23-MAY-1996)	0.04	0	0.02	NA	0.00	NA	0.72	0 / 247	-
PEST	4,4'-DDE	µg/L	247	5	2.02	NA	2.8	NA	0.006	0.2	IR29MW48A (06-JUN-1994)	0.05	0	0.07	NA	0.00	NA	2.8	0 / 247	-
PEST	4,4'-DDT	µg/L	247	7	2.83	NA	0.001	NA	0.0094	0.5	IR58MW31A (22-FEB-2001)	0.11	0	0.16	NA	1.00	NA	0.001	7 / 247	COPEC
PEST	Aldrin	µg/L	247	4	1.62	NA	0.26	NA	0.01	0.08	IR28MW124A (02-AUG-1995), IR29MW48A (06-JUN-1994)	0.05	0	0.03	NA	0.00	NA	0.26	0 / 247	-
PEST	alpha-BHC	µg/L	247	2	0.81	NA	NA	NA	0.02	0.02	IR25MW15A1 (17-AUG-2000, 01-FEB-2001)	0.02	0	0.00	NA	NA	NA	NA	NA	-
PEST	alpha-Chlordane	µg/L	247	7	2.83	NA	0.004	NA	0.0079	1	IR29MW48A (06-JUN-1994)	0.15	0	0.35	NA	1.00	NA	0.004	7 / 247	COPEC
PEST	Azinphos Methyl	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	beta-BHC	µg/L	247	6	2.43	NA	NA	NA	0.005	0.04	IR58MW32B (17-APR-1996)	0.02	0	0.01	NA	NA	NA	NA	NA	-
PEST	Bolstar	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Chlorpyrifos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
PEST	Coumaphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	delta-BHC	µg/L	247	8	3.24	NA	NA	NA	0.0018	0.03	IR06MW42A (16-JAN-2001), IR25MW15A1 (17-AUG-2000)	0.01	0	0.01	NA	NA	NA	NA	NA	-
PEST	Demeton	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Diazinon	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dichlorvos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dieldrin	µg/L	247	7	2.83	NA	0.142	NA	0.006	0.09	IR58MW31A (22-FEB-2001)	0.05	0	0.03	NA	0.00	NA	0.142	0 / 247	-
PEST	Dimethoate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Disulfoton	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endosulfan I	µg/L	247	0	0.00	NA	0.0087	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 247	-
PEST	Endosulfan II	µg/L	247	2	0.81	NA	0.0087	NA	0.02	0.07	IR29MW48A (06-JUN-1994)	0.05	0	0.03	NA	1.00	NA	0.0087	2 / 247	COPEC
PEST	Endosulfan Sulfate	µg/L	247	3	1.21	NA	NA	NA	0.01	0.1	IR25MW16A (02-JUN-1994)	0.04	0	0.04	NA	NA	NA	NA	NA	-
PEST	Endrin	µg/L	247	5	2.02	NA	0.0023	NA	0.0041	0.02	IR58MW31A (11-AUG-2000)	0.01	0	0.01	NA	1.00	NA	0.0023	5 / 247	COPEC
PEST	Endrin Aldehyde	µg/L	247	6	2.43	NA	NA	NA	0.007	0.1	IR58MW31A (01-JUL-1994)	0.05	0	0.04	NA	NA	NA	NA	NA	-
PEST	Endrin Ketone	µg/L	243	2	0.82	NA	NA	NA	0.01	0.1	IR25MW15A1 (26-MAY-1995)	0.06	0	0.05	NA	NA	NA	NA	NA	-
PEST	EPN	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ethion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ethoprop	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Famphur	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Fensulfothion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Fenthion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	gamma-BHC (Lindane)	µg/L	247	2	0.81	NA	0.032	NA	0.01	0.01	IR25MW15A1 (17-AUG-2000, 01-FEB-2001)	0.01	0	0.00	NA	0.00	NA	0.032	0 / 247	-
PEST	gamma-Chlordane	µg/L	247	5	2.02	NA	0.004	NA	0.006	1	IR29MW48A (06-JUN-1994)	0.21	0	0.40	NA	1.00	NA	0.004	5 / 247	COPEC
PEST	Heptachlor	µg/L	247	4	1.62	NA	0.0036	NA	0.002	0.013	IR06MW42A (05-MAR-2003)	0.01	0	0.00	NA	0.50	NA	0.0036	2 / 247	COPEC
PEST	Heptachlor Epoxide	µg/L	243	6	2.47	NA	0.0036	NA	0.002	0.03	IR25MW15A1 (14-JUN-1994), IR28MW311A (27-JUN-1996)	0.02	0	0.01	NA	0.83	NA	0.0036	5 / 243	COPEC
PEST	Heptachlor Epoxide A	µg/L	4	1	25.00	NA	NA	NA	0.055	0.055	IR25MW15A1 (13-AUG-2002)	0.06	0	NA	NA	NA	NA	NA	NA	-
PEST	Heptachlor Epoxide B	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Malathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Merphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Methoxychlor	µg/L	247	1	0.40	NA	0.003	NA	0.0084	0.0084	IR06MW42A (20-MAY-2003)	0.01	0	NA	NA	1.00	NA	0.003	1 / 247	COPEC
PEST	Methyl Parathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Mevinphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Naled	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Parathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Phorate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ronnel	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Sulfotep	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Tetrachlorvinphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Tokuthion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Toxaphene	µg/L	247	0	0.00	NA	0.0002	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0002	0 / 247	-
PEST	Trichloronate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PCB	Aroclor-1016	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1221	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1232	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1242	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1248	µg/L	291	1	0.34	NA	0.03	NA	2	2	IR29MW48A (06-JUN-1994)	2.00	2	NA	NA	1.00	NA	0.03	1 / 291	COPEC
PCB	Aroclor-1254	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1260	µg/L	291	31	10.65	NA	0.03	NA	0.06	23	IR28MW129A (27-JUN-1995)	2.79	1	4.47	NA	1.00	NA	0.03	31 / 291	COPEC
TPHEXT	Diesel-Range Organics	µg/L	643	295	45.88	NA	1,400	NA	39	3,400,000	IR25MW11A (18-AUG-1994)	20,299	500	205,051	NA	0.24	NA	1,400	71 / 643	COPEC
TPHEXT	Motor Oil-Range Organics	µg/L	571	265	46.41	NA	1,400	NA	20	200,000	IR25MW19A (15-MAR-2001)	1,383	240	12,321	NA	0.08	NA	1,400	22 / 571	COPEC
TPHEXT	TPH-Extractable Unknown Hydrocarbon	µg/L	17	5	29.41	NA	NA	NA	310	7,000	IR06MW22AD (06-JAN-1992)	2,544	2,000	2,446	NA	NA	NA	NA	NA	-
TPHEXT	TPH-Kerosene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
TPHPRG	Diesel-Range Organics	µg/L	3	1	33.33	NA	1,400	NA	920	920	IR06MW42A (23-MAR-2004)	920	920	NA	NA	0.00	NA	1,400	0 / 3	-
TPHPRG	Gasoline-Range Organics	µg/L	553	220	39.78	NA	1,400	NA	8.5	1,300,000	IR25MW11A (28-DEC-1993)	10,759	170	89,358	NA	0.20	NA	1,400	45 / 553	COPEC
TPHPRG	Motor Oil-Range Organics	µg/L	3	0	0.00	NA	1,400	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,400	0 / 3	-
TPHPRG	TPH-Purgeable Unknown Hydrocarbons	µg/L	9	2	22.22	NA	NA	NA	17	68	IR28MW124A (20-MAY-1994)	42.50	42.5	25.50	NA	NA	NA	NA	NA	-
ORGAN	Tributyltin	µg/L	11	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	-
TOC	Total Organic Carbon	µg/L	50	40	80.00	NA	NA	NA	720	50,000	IR25MW15A1 (06-MAY-1999)	5,508	2,650	8,044	NA	NA	NA	NA	NA	-
ALKALN	Bicarbonate Alkalinity	µg/L	126	126	100.00	NA	NA	NA	44,000	1,430,000	IR28MW170A (22-FEB-2001)	403,751	353,500	250,490	NA	NA	NA	NA	NA	-
ALKALN	Carbonate Alkalinity	µg/L	126	24	19.05	NA	NA	NA	40,000	229,000	IR28MW330A (28-JAN-1998)	131,900	139,500	52,212	NA	NA	NA	NA	NA	-
ALKALN	Hydroxide Alkalinity	µg/L	101	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Total Alkalinity	µg/L	219	219	100.00	NA	NA	NA	14,000	1,430,000	IR28MW170A (22-FEB-2001)	346,329	287,000	253,020	NA	NA	NA	NA	NA	-
AMMON	Ammonia	µg/L	28	27	96.43	NA	NA	NA	120	2,500	IR06MW40A (17-JUL-1991)	986	890	722	NA	NA	NA	NA	NA	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
ANION	Chloride	µg/L	386	385	99.74	NA	NA	NA	7,700	17,400,000	IR28MW270A (06-MAY-1996)	2,810,272	1,290,000	4,035,306	NA	NA	NA	NA	NA	-
ANION	Fluoride	µg/L	79	46	58.23	NA	NA	NA	110	3,700	IR25MW20A (29-JAN-1998)	569	405	624	NA	NA	NA	NA	NA	-
ANION	Nitrate as Nitrogen	µg/L	322	197	61.18	NA	NA	NA	10	104,000	IR29MW56F (22-JUN-1995)	3,139	710	9,409	NA	NA	NA	NA	NA	-
ANION	Nitrate/Nitrite as Nitrogen	µg/L	161	110	68.32	NA	NA	NA	10	30,900	IR28MW217A (28-APR-1999)	1,646	425	4,003	NA	NA	NA	NA	NA	-
ANION	Nitrite as Nitrogen	µg/L	229	27	11.79	NA	NA	NA	6	870	IR06MW44A (28-JAN-1998)	84.52	15	196	NA	NA	NA	NA	NA	-
ANION	Orthophosphate	µg/L	142	24	16.90	NA	NA	NA	64	29,000	IR29MW85F (24-MAY-1996)	2,222	530	5,766	NA	NA	NA	NA	NA	-
ANION	Sulfate	µg/L	335	320	95.52	NA	NA	NA	1,300	6,580,000	IR28MW297A (07-MAY-1996)	452,637	172,000	679,947	NA	NA	NA	NA	NA	-
CEC	Calcium	µg/L	32	32	100.00	NA	NA	NA	2,300	330,000	IR28MW150A (03-AUG-2000), IR28MW270A (04-AUG-2000), IR29MW57A (23-JUN-1995)	79,150	35,500	88,793	NA	NA	NA	NA	NA	-
CEC	Iron	µg/L	32	7	21.88	2,380	NA	NA	590	16,000	IR25MW15A2 (16-AUG-2000)	5,459	5,600	5,046	0.57	NA	NA	2,380	4 / 32	-
CEC	Magnesium	µg/L	32	32	100.00	1,440,000	NA	NA	2,800	1,100,000	IR25MW17A (29-MAR-2004), IR28MW270A (04-AUG-2000), IR28MW297A (20-NOV-1995)	335,784	255,000	307,068	0.00	NA	NA	1,440,000	0 / 32	-
CEC	Potassium	µg/L	32	31	96.88	448,000	NA	NA	370	360,000	IR28MW270A (04-AUG-2000)	68,117	41,000	85,398	0.00	NA	NA	448,000	0 / 32	-
CEC	Sodium	µg/L	32	31	96.88	9,242,000	NA	NA	12,000	11,000,000	IR28MW270A (04-AUG-2000)	1,812,710	860,000	2,555,009	0.03	NA	NA	9,242,000	1 / 32	-
CYAN	Cyanide	µg/L	9	2	22.22	NA	1	NA	0.76	1.2	PA50MW03A (25-MAR-1996)	0.98	0.98	0.22	NA	0.50	NA	1	1 / 9	COPEC
DGASES	Carbon Dioxide in Water	µg/L	33	14	42.42	NA	NA	NA	16,000	406,000	IR28MW217A (28-APR-1999)	146,000	146,500	107,038	NA	NA	NA	NA	NA	-
DGASES	Ethane	µg/L	118	31	26.27	NA	NA	NA	0.3	77	IR28MW211F (21-MAR-2003)	20.77	7.2	24.07	NA	NA	NA	NA	NA	-
DGASES	Ethene	µg/L	118	28	23.73	NA	NA	NA	0.4	620	IR25MW15A1 (06-MAY-1999)	54.53	10.5	123	NA	NA	NA	NA	NA	-
DGASES	Hydrogen in Water	µg/L	84	4	4.76	NA	NA	NA	35.9	226	IR28MW362F (06-FEB-2003)	117	102.45	80.95	NA	NA	NA	NA	NA	-
DGASES	Methane	µg/L	67	45	67.16	NA	NA	NA	2	8,500	IR06MW34A (27-APR-1999)	625	160	1,475	NA	NA	NA	NA	NA	-
DO	Dissolved Oxygen	µg/L	227	227	100.00	NA	NA	NA	50	8,660	IR29MW56F (22-AUG-2000)	3,101	2,860	2,488	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Bottom	µg/L	157	157	100.00	NA	NA	NA	50	6,300	IR28MW275F (17-AUG-2000)	1,117	510	1,282	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Middle	µg/L	160	160	100.00	NA	NA	NA	80	8,400	IR28MW169A (23-FEB-2001)	1,683	965	1,608	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Top	µg/L	164	164	100.00	NA	NA	NA	250	9,000	IR28MW298A (14-AUG-2000)	2,503	1,905	1,907	NA	NA	NA	NA	NA	-
FTK-METAL	Dissolved Iron (II)	µg/L	1	1	100.00	NA	NA	NA	0	0	IR29MW56F (02-MAR-2001)	0.00	0	NA	NA	NA	NA	NA	NA	-
FTK-METAL	Dissolved Managanese (II)	µg/L	3	3	100.00	NA	NA	NA	100	800	IR28MW398A (01-MAR-2001)	500	600	294	NA	NA	NA	NA	NA	-
FTK-METAL	Total Iron (II)	µg/L	117	117	100.00	NA	NA	NA	0	7,200	IR25MW15A2 (16-AUG-2000)	503	0	1,227	NA	NA	NA	NA	NA	-
FTK-METAL	Total Manganese (II)	µg/L	92	92	100.00	NA	NA	NA	0	14,000	IR06MW41A (14-AUG-2002)	1,440	300	2,637	NA	NA	NA	NA	NA	-
H2S	Hydrogen Sulfide	µg/L	30	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
HARD	Hardness	µg/L	25	25	100.00	NA	NA	NA	140	4,500,000	IR25MW18A (29-JAN-1998)	1,099,109	970,000	927,443	NA	NA	NA	NA	NA	-
IRON_ION	Iron (II)	µg/L	34	2	5.88	NA	NA	NA	180	510	IR25MW15A2 (27-APR-1999)	345	345	165	NA	NA	NA	NA	NA	-
IRON_ION	Iron (III)	µg/L	1	1	100.00	NA	NA	NA	110	110	IR25MW37A (11-JUN-2002)	110	110	NA	NA	NA	NA	NA	NA	-
MEE	Ethane	µg/L	183	5	2.73	NA	NA	NA	3.4	13	IR28MW916A (08-FEB-2001)	6.76	5.9	3.44	NA	NA	NA	NA	NA	-
MEE	Ethene	µg/L	183	46	25.14	NA	NA	NA	3.9	570	IR25MW15A1 (01-FEB-2001)	144	32.5	175	NA	NA	NA	NA	NA	-
MEE	Methane	µg/L	183	124	67.76	NA	NA	NA	2	16,000	IR28MW918A (08-FEB-2001)	762	165	2,239	NA	NA	NA	NA	NA	-

Notes:

µg/L	Microgram per liter
BHC	Benzene hexachloride
CEC	Cation exchange capacity
COEC	Chemical of ecological concern
COPEC	Chemical of potential ecological concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DGASES	Dissolved gases
BHC	Benzene hexachloride
CEC	Cation exchange capacity
COEC	Chemical of ecological concern
CONC.	Concentration
COPEC	Chemical of potential ecological concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DGASES	Dissolved gases
DO	Dissolved oxygen
FTK	Field test kit
HGAL	Hunters Point groundwater ambient level
MEE	Methane, ethane, ethene
NA	Not applicable or not available
ND	Nondetect
PAH	Polynuclear aromatic hydrocarbon
PEST	Pesticides
SVOA	Semivolatile organic compound
TOC	Total organic carbon
VOA	Volatile organic compound

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CHROM	Chromium VI	µg/L	10	0	0.00	NA	50	ND	ND	ND	ND	ND	ND	ND	50	0 / 10	-
METAL	Aluminum	µg/L	12	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
METAL	Antimony	µg/L	12	2	16.67	43.26	NA	3.4	5.3	4.4	4.4	1.0	0.00	NA	43.26	0 / 12	-
METAL	Arsenic	µg/L	12	2	16.67	27.34	36	1.9	2.8	2.4	2.4	0.5	0.00	0.00	36	0 / 12	-
METAL	Barium	µg/L	12	12	100.00	504.2	NA	65.8	730	435	467	243	0.50	NA	504.2	6 / 12	-
METAL	Beryllium	µg/L	12	0	0.00	1.4	NA	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 12	-
METAL	Cadmium	µg/L	12	2	16.67	5.08	8.8	0.37	0.63	0.50	0.5	0.13	0.00	0.00	8.8	0 / 12	-
METAL	Calcium	µg/L	21	21	100.00	NA	NA	7,700	1,070,000	270,148	123,000	279,349	NA	NA	NA	NA	-
METAL	Chromium	µg/L	12	1	8.33	15.66	400	5.9	5.9	5.9	5.9	NA	0.00	0.00	400	0 / 12	-
METAL	Cobalt	µg/L	12	9	75.00	20.8	NA	0.82	6.3	2.7	2.1	1.8	0.00	NA	20.8	0 / 12	-
METAL	Copper	µg/L	12	2	16.67	28.04	3.1	3.6	4	3.8	3.8	0.2	0.00	1.00	28.04	0 / 12	-
METAL	Iron	µg/L	21	5	23.81	2380	NA	10.1	429	131	70	152	0.00	NA	2,380	0 / 21	-
METAL	Lead	µg/L	12	1	8.33	14.44	5.6	2	2	2.0	2.0	NA	0.00	0.00	14.44	0 / 12	-
METAL	Magnesium	µg/L	21	21	100.00	1,440,000	NA	14,700	3,640,000	884,224	657,000	804,047	0.24	NA	1,440,000	5 / 21	-
METAL	Manganese	µg/L	12	12	100.00	8,140	NA	30	1,480	823	767	461	0.00	NA	8,140	0 / 12	-
METAL	Mercury	µg/L	19	1	5.26	0.6	0.025	0.18	0.18	0.18	0.18	NA	0.00	1.00	0.6	0 / 19	-
METAL	Molybdenum	µg/L	12	1	8.33	61.9	NA	1.7	1.7	1.7	1.7	NA	0.00	NA	61.9	0 / 12	-
METAL	Nickel	µg/L	12	11	91.67	96.48	8.2	15.9	49.6	27.1	24.5	9.4	0.00	1.00	96.48	0 / 12	-
METAL	Potassium	µg/L	21	21	100.00	448,000	NA	765	295,000	56,075	27,000	78,460	0.00	NA	448,000	0 / 21	-
METAL	Selenium	µg/L	12	4	33.33	14.5	71	2.8	4.6	3.9	4.2	0.7	0.00	0.00	71	0 / 12	-
METAL	Silver	µg/L	12	0	0.00	7.43	0.38	ND	ND	ND	ND	ND	ND	ND	7.43	0 / 12	-
METAL	Sodium	µg/L	21	21	100.00	9,242,000	NA	193,000	8,000,000	3,027,667	2,400,000	1,989,383	0.00	NA	9,242,000	0 / 21	-
METAL	Thallium	µg/L	12	1	8.33	12.97	426	3	3	3.0	3.0	NA	0.00	0.00	426	0 / 12	-
METAL	Vanadium	µg/L	12	9	75.00	26.62	NA	0.72	11	5.4	5.9	3.4	0.00	NA	26.62	0 / 12	-
METAL	Zinc	µg/L	13	5	38.46	75.68	81	11.3	143	50.6	28.0	49.1	0.20	0.20	81	1 / 13	COPEC
VOA	1,1,1,2-Tetrachloroethane	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1,1-Trichloroethane	µg/L	77	0	0.00	NA	6,240	ND	ND	ND	ND	ND	ND	ND	6,240	0 / 77	-
VOA	1,1,2,2-Tetrachloroethane	µg/L	77	0	0.00	NA	1,804	ND	ND	ND	ND	ND	ND	ND	1,804	0 / 77	-
VOA	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	46	4	8.70	NA	NA	0.4	2.6	1.2	0.8	0.9	NA	NA	NA	NA	-
VOA	1,1,2-Trichloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1-Dichloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1-Dichloroethene	µg/L	77	0	0.00	NA	44,800	ND	ND	ND	ND	ND	ND	ND	44,800	0 / 77	-
VOA	1,1-Dichloropropene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichlorobenzene	µg/L	22	1	4.55	NA	NA	0.77	0.77	0.77	0.77	NA	NA	NA	NA	NA	-
VOA	1,2,3-Trichloropropane	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,4-Trichlorobenzene	µg/L	77	3	3.90	NA	129	0.35	0.94	0.56	0.4	0.27	NA	0.00	129	0 / 77	-
VOA	1,2,4-Trimethylbenzene	µg/L	14	7	50.00	NA	NA	8	48	31.0	25.0	14.5	NA	NA	NA	NA	-
VOA	1,2-Dibromo-3-Chloropropane	µg/L	68	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromoethane	µg/L	32	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dichlorobenzene	µg/L	77	12	15.58	NA	129	0.17	100	50.0	57.5	28.8	NA	0.00	129	0 / 77	-
VOA	1,2-Dichloroethane	µg/L	77	0	0.00	NA	22,600	ND	ND	ND	ND	ND	ND	ND	22,600	0 / 77	-
VOA	1,2-Dichloroethene (Total)	µg/L	9	0	0.00	NA	44,800	ND	ND	ND	ND	ND	ND	ND	44,800	0 / 9	-
VOA	1,2-Dichloropropane	µg/L	77	0	0.00	NA	3,040	ND	ND	ND	ND	ND	ND	ND	3,040	0 / 77	-
VOA	1,3,5-Trimethylbenzene	µg/L	14	3	21.43	NA	NA	1.8	3.7	2.5	1.9	0.9	NA	NA	NA	NA	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

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VOA	1,3-Dichlorobenzene	µg/L	77	12	15.58	NA	129	0.2	84	29.9	21.0	30.6	NA	0.00	129	0 / 77	-
VOA	1,3-Dichloropropane	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,4-Dichlorobenzene	µg/L	77	13	16.88	NA	129	0.37	180	62.3	25.0	65.6	NA	0.23	129	3 / 77	COPEC
VOA	2,2-Dichloropropane	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Butanone	µg/L	33	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Chlorotoluene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Hexanone	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Chlorotoluene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Methyl-2-Pentanone	µg/L	33	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Acetone	µg/L	34	4	11.76	NA	NA	16	120	58.8	49.5	44.7	NA	NA	NA	NA	-
VOA	Benzene	µg/L	77	4	5.19	NA	700	0.24	9	4.6	4.5	4.2	NA	0.00	700	0 / 77	-
VOA	Bromobenzene	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Bromochloromethane	µg/L	32	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 32	-
VOA	Bromodichloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Bromoform	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Bromomethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Carbon Disulfide	µg/L	41	4	9.76	NA	NA	0.25	6	2.8	2.5	2.1	NA	NA	NA	NA	-
VOA	Carbon Tetrachloride	µg/L	77	6	7.79	NA	6,400	0.31	11	5.0	5.2	3.4	NA	0.00	6,400	0 / 77	-
VOA	Chlorobenzene	µg/L	77	11	14.29	NA	129	0.1	1000	365	300	405	NA	0.55	129	6 / 77	COPEC
VOA	Chloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Chloroform	µg/L	77	17	22.08	NA	6,400	0.17	7.3	1.9	1.4	1.8	NA	0.00	6,400	0 / 77	-
VOA	Chloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	cis-1,2-Dichloroethene	µg/L	68	17	25.00	NA	44,800	0.15	870	217	55	294	NA	0.00	44,800	0 / 68	-
VOA	cis-1,3-Dichloropropene	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Cyclohexane	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Dibromochloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Dibromomethane	µg/L	50	1	2.00	NA	NA	0.25	0.25	0.25	0.25	NA	NA	NA	NA	NA	-
VOA	Dichlorodifluoromethane	µg/L	58	3	5.17	NA	NA	0.28	0.6	0.41	0.34	0.14	NA	NA	NA	NA	-
VOA	Ethylbenzene	µg/L	77	6	7.79	NA	86	0.19	16	3.0	0.4	5.8	NA	0.00	86	0 / 77	-
VOA	Isopropylbenzene	µg/L	22	2	9.09	NA	NA	0.12	0.59	0.36	0.355	0.24	NA	NA	NA	NA	-
VOA	m,p-Xylenes	µg/L	10	2	20.00	NA	NA	0.74	2.1	1.4	1.4	0.7	NA	NA	NA	NA	-
VOA	Methyl Acetate	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylcyclohexane	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylene Chloride	µg/L	77	2	2.60	NA	6,400	0.66	21	10.8	10.8	10.2	NA	0.00	6,400	0 / 77	-
VOA	n-Butylbenzene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Naphthalene	µg/L	29	7	24.14	NA	470	2.6	42	21.9	19.0	11.3	NA	0.00	470	0 / 29	-
VOA	o-Xylene	µg/L	10	1	10.00	NA	NA	1.1	1.1	1.1	1.1	NA	NA	NA	NA	NA	-
VOA	Para-Isopropyl Toluene	µg/L	14	1	7.14	NA	NA	0.62	0.62	0.62	0.62	NA	NA	NA	NA	NA	-
VOA	Propylbenzene	µg/L	14	1	7.14	NA	NA	0.74	0.74	0.74	0.74	NA	NA	NA	NA	NA	-
VOA	Sec-Butylbenzene	µg/L	14	1	7.14	NA	NA	0.55	0.55	0.55	0.55	NA	NA	NA	NA	NA	-
VOA	Styrene	µg/L	41	1	2.44	NA	NA	0.8	0.8	0.80	0.8	NA	NA	NA	NA	NA	-
VOA	Tert-Butyl Methyl Ether	µg/L	68	0	0.00	NA	8,000	ND	ND	ND	ND	ND	ND	ND	8,000	0 / 68	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
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Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	Tert-Butylbenzene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Tetrachloroethene	µg/L	77	12	15.58	NA	450	1.7	55	12.2	2.8	18.6	NA	0.00	450	0 / 77	-
VOA	Toluene	µg/L	77	3	3.90	NA	5,000	0.2	0.87	0.55	0.58	0.27	NA	0.00	5,000	0 / 77	-
VOA	Total LMW PAH	µg/L	29	7	24.14	NA	NA	5.2	84	43.9	38.0	22.5	NA	NA	NA	NA	-
VOA	Total PAH	µg/L	29	7	24.14	NA	NA	5.2	84	43.9	38.0	22.5	NA	NA	NA	NA	-
VOA	trans-1,2-Dichloroethene	µg/L	68	2	2.94	NA	44,800	0.52	0.83	0.68	0.675	0.16	NA	0.00	44,800	0 / 68	-
VOA	trans-1,3-Dichloropropene	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Trichloroethene	µg/L	77	23	29.87	NA	400	0.2	28	6.1	3.5	7.0	NA	0.00	400	0 / 77	-
VOA	Trichlorofluoromethane	µg/L	58	10	17.24	NA	NA	0.14	16	5.1	1.8	6.1	NA	NA	NA	NA	-
VOA	Vinyl Acetate	µg/L	2	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Vinyl Chloride	µg/L	77	13	16.88	NA	NA	0.29	84	33.6	34.0	29.8	NA	NA	NA	NA	-
VOA	Xylene (Total)	µg/L	67	6	8.96	NA	NA	0.57	31	6.9	2.2	10.9	NA	NA	NA	NA	-
SVOA	1,4-Dioxane	µg/L	3	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,2'-Oxybis(1-chloropropane)	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,5-Trichlorophenol	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,6-Trichlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dichlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dimethylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dinitrophenol	µg/L	15	0	0.00	NA	46	ND	ND	ND	ND	ND	ND	ND	46	0 / 15	-
SVOA	2,4-Dinitrotoluene	µg/L	15	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 15	-
SVOA	2,6-Dinitrotoluene	µg/L	15	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 15	-
SVOA	2-Chloronaphthalene	µg/L	15	0	0.00	NA	1.5	ND	ND	ND	ND	ND	ND	ND	1.5	0 / 15	-
SVOA	2-Chlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylnaphthalene	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitrophenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	3,3'-Dichlorobenzidine	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	3-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4,6-Dinitro-2-Methylphenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	4-Bromophenyl-Phenylether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloro-3-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chlorophenyl-Phenylether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitrophenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	Acenaphthene	µg/L	15	0	0.00	NA	710	ND	ND	ND	ND	ND	ND	ND	710	0 / 15	-
SVOA	Acenaphthylene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(a)anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(a)pyrene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(b)fluoranthene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-

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SVOA	Benzo(g,h,i)perylene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(k)fluoranthene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzoic Acid	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzyl Alcohol	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethoxy)methane	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethyl)ether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-ethylhexyl)phthalate	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Butylbenzylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Carbazole	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Chrysene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Di-N-Butylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Di-N-Octylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Dibenz(a,h)anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Dibenzofuran	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Diethylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Dimethylphthalate	µg/L	15	0	0.00	NA	3.4	ND	ND	ND	ND	ND	ND	ND	3.4	0 / 15	-
SVOA	Fluoranthene	µg/L	15	1	6.67	NA	16	1	1	1.0	1.0	NA	NA	0.00	16	0 / 15	-
SVOA	Fluorene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Hexachlorobenzene	µg/L	15	0	0.00	NA	129	ND	ND	ND	ND	ND	ND	ND	129	0 / 15	-
SVOA	Hexachlorobutadiene	µg/L	29	0	0.00	NA	6.4	ND	ND	ND	ND	ND	ND	ND	6.4	0 / 29	-
SVOA	Hexachlorocyclopentadiene	µg/L	15	0	0.00	NA	1.4	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 15	-
SVOA	Hexachloroethane	µg/L	15	0	0.00	NA	188	ND	ND	ND	ND	ND	ND	ND	188	0 / 15	-
SVOA	Indeno(1,2,3-cd)pyrene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Isophorone	µg/L	15	0	0.00	NA	2,580	ND	ND	ND	ND	ND	ND	ND	2,580	0 / 15	-
SVOA	n-Nitroso-Di-N-Propylamine	µg/L	15	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 15	-
SVOA	n-Nitrosodimethylamine	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	n-Nitrosodiphenylamine	µg/L	15	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 15	-
SVOA	Nitrobenzene	µg/L	15	0	0.00	NA	1,336	ND	ND	ND	ND	ND	ND	ND	1,336	0 / 15	-
SVOA	Pentachlorophenol	µg/L	15	0	0.00	NA	7.9	ND	ND	ND	ND	ND	ND	ND	7.9	0 / 15	-
SVOA	Phenanthrene	µg/L	15	1	6.67	NA	60	0.8	0.8	0.80	0.8	NA	NA	0.00	60	0 / 15	-
SVOA	Phenol	µg/L	15	0	0.00	NA	1,160	ND	ND	ND	ND	ND	ND	ND	1,160	0 / 15	-
SVOA	Pyrene	µg/L	15	1	6.67	NA	60	1	1	1.0	1.0	NA	NA	0.00	60	0 / 15	-
SVOA	Total Chlordane	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PCB	Aroclor-1016	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1221	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1232	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1242	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1248	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1254	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1260	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
PCB	Total Aroclor	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	4,4'-DDD	µg/L	9	0	0.00	NA	0.72	ND	ND	ND	ND	ND	ND	ND	0.72	0 / 9	-
PEST	4,4'-DDE	µg/L	9	0	0.00	NA	2.8	ND	ND	ND	ND	ND	ND	ND	2.8	0 / 9	-
PEST	4,4'-DDT	µg/L	9	0	0.00	NA	0.001	ND	ND	ND	ND	ND	ND	ND	0.001	0 / 9	-
PEST	Aldrin	µg/L	9	0	0.00	NA	0.26	ND	ND	ND	ND	ND	ND	ND	0.26	0 / 9	-
PEST	alpha-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	alpha-Chlordane	µg/L	9	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 9	-
PEST	beta-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	delta-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dieldrin	µg/L	9	0	0.00	NA	0.142	ND	ND	ND	ND	ND	ND	ND	0.142	0 / 9	-
PEST	Endosulfan I	µg/L	9	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 9	-
PEST	Endosulfan II	µg/L	9	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 9	-
PEST	Endosulfan Sulfate	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin	µg/L	9	0	0.00	NA	0.0023	ND	ND	ND	ND	ND	ND	ND	0.0023	0 / 9	-
PEST	Endrin Aldehyde	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin Ketone	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	gamma-BHC (Lindane)	µg/L	9	0	0.00	NA	0.032	ND	ND	ND	ND	ND	ND	ND	0.032	0 / 9	-
PEST	Gamma-Chlordane	µg/L	9	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 9	-
PEST	Heptachlor	µg/L	9	0	0.00	NA	0.0036	ND	ND	ND	ND	ND	ND	ND	0.0036	0 / 9	-
PEST	Heptachlor Epoxide	µg/L	9	0	0.00	NA	0.0036	ND	ND	ND	ND	ND	ND	ND	0.0036	0 / 9	-
PEST	Methoxychlor	µg/L	9	0	0.00	NA	0.003	ND	ND	ND	ND	ND	ND	ND	0.003	0 / 9	-
PEST	Total Chlordane	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Total DDT	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Toxaphene	µg/L	9	0	0.00	NA	0.0002	ND	ND	ND	ND	ND	ND	ND	0.0002	0 / 9	-
SOLIDS	Total Dissolved Solids	µg/L	44	44	100.00	NA	NA	620,000	30,700,000	11,030,455	10,600,000	7,675,599	NA	NA	NA	NA	-
SOLIDS	Total Suspended Solids	µg/L	1	1	100.00	NA	NA	11,000	11,000	11,000	11,000	NA	NA	NA	NA	NA	-
TOC	Total Organic Carbon	µg/L	3	2	66.67	NA	NA	1,300	2,300	1,800	1,800	500	NA	NA	NA	NA	-
TPHEXT	Diesel-Range Organics	µg/L	28	8	28.57	NA	1,400	75	660	302	185	242	NA	0.00	1,400	0 / 28	-
TPHEXT	Motor Oil-Range Organics	µg/L	28	10	35.71	NA	1,400	22	900	242	87	272	NA	0.00	1,400	0 / 28	-
TPHPRG	Gasoline-Range Organics	µg/L	28	9	32.14	NA	1,400	24	420	167	60	166	NA	0.00	1,400	0 / 28	-
ALKALN	Bicarbonate Alkalinity	µg/L	9	9	100.00	NA	NA	250,000	1,090,000	480,222	428,000	230,326	NA	NA	NA	NA	-
ALKALN	Carbonate Alkalinity	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Hydroxide Alkalinity	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Total Alkalinity	µg/L	10	10	100.00	NA	NA	250,000	1,090,000	481,800	440,000	218,558	NA	NA	NA	NA	-
ANION	Chloride	µg/L	15	15	100.00	NA	NA	192,000	19,000,000	7,913,933	6,660,000	5,762,438	NA	NA	NA	NA	-
ANION	Fluoride	µg/L	3	1	33.33	NA	NA	160	160	160	160	NA	NA	NA	NA	NA	-
ANION	Nitrate As Nitrogen	µg/L	15	7	46.67	NA	NA	20	23,000	5,051	420	7,809	NA	NA	NA	NA	-
ANION	Nitrate/Nitrite As Nitrogen	µg/L	10	8	80.00	NA	NA	20	23,000	4,465	330	7,500	NA	NA	NA	NA	-
ANION	Nitrite As Nitrogen	µg/L	13	4	30.77	NA	NA	17	210	82.3	51.0	75.5	NA	NA	NA	NA	-
ANION	Orthophosphate	µg/L	5	1	20.00	NA	NA	26,700	26,700	26,700	26,700	NA	NA	NA	NA	NA	-
ANION	Sulfate	µg/L	15	15	100.00	NA	NA	37,200	1,810,000	616,080	343,000	550,174	NA	NA	NA	NA	-
CEC	Calcium	µg/L	1	1	100.00	NA	NA	98,000	98,000	98,000	98,000	NA	NA	NA	NA	NA	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CEC	Iron	µg/L	1	1	100.00	2,380	NA	310	310	310	310	NA	0.00	NA	2,380	0 / 1	-
CEC	Magnesium	µg/L	1	1	100.00	1,440,000	NA	390,000	390,000	390,000	390,000	NA	0.00	NA	1,440,000	0 / 1	-
CEC	Potassium	µg/L	1	1	100.00	448,000	NA	34,000	34,000	34,000	34,000	NA	0.00	NA	448,000	0 / 1	-
CEC	Sodium	µg/L	1	1	100.00	9,242,000	NA	2,200,000	2,200,000	2,200,000	2,200,000	NA	0.00	NA	9,242,000	0 / 1	-
DGASES	Ethane	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DGASES	Ethene	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DGASES	Methane	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DO	Dissolved Oxygen	µg/L	17	17	100.00	NA	NA	40	6,670	2,269	1,380	2,148	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Bottom	µg/L	10	10	100.00	NA	NA	400	1,560	794	755	349	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Middle	µg/L	11	11	100.00	NA	NA	190	2,980	1,379	1,100	854	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Top	µg/L	10	10	100.00	NA	NA	740	5,280	2,255	1,740	1,366	NA	NA	NA	NA	-
FTK-METAL	Dissolved Iron (II)	µg/L	3	3	100.00	NA	NA	0	1,000	333	0	471	NA	NA	NA	NA	-
FTK-METAL	Dissolved Manganese (II)	µg/L	3	3	100.00	NA	NA	0	11,000	4,033	1,100	4,947	NA	NA	NA	NA	-
FTK-METAL	Total Iron (II)	µg/L	10	10	100.00	NA	NA	0	2,080	698	300	786	NA	NA	NA	NA	-
FTK-METAL	Total Manganese (II)	µg/L	9	9	100.00	NA	NA	0	11,000	3,119	600	4,296	NA	NA	NA	NA	-
MEE	Ethane	µg/L	16	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
MEE	Ethene	µg/L	16	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
MEE	Methane	µg/L	16	11	68.75	NA	NA	4	7,000	1,949	410	2,622	NA	NA	NA	NA	-

Notes:

µg/L	Microgram per liter	FTK	Field test kit
BHC	Benzene hexachloride	HGAL	Hunters Point groundwater ambient level
CEC	Cation exchange capacity	MEE	Methane, ethane, ethene
COPEC	Chemical of potential ecological concern	ND	Nondetect
COEC	Chemical of ecological concern	NA	Not applicable or not available
DDD	Dichlorodiphenyldichloroethane	PAH	Polynuclear aromatic hydrocarbon
DDE	Dichlorodiphenyldichloroethene	PEST	Pesticides
DDT	Dichlorodiphenyltrichloroethane	SVOA	Semi-volatile organic compound
DGASES	Dissolved gases	TOC	Total organic carbon
DO	Dissolved oxygen	VOA	Volatile organic compound

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
30	Zinc	Section 2.5.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix G, Tables G-2 and G-3.

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CHROM	Chromium VI	µg/L	266	26	9.77	NA	50	NA	5	260	IR28MW125A (15-AUG-2000)	86.08	90.55	60.66	NA	0.65	NA	50	17 / 266	COEC
METAL	Aluminum	µg/L	335	37	11.04	NA	NA	NA	15.7	26,300	IR28MW294A (17-NOV-1995)	1,085	82.8	4,284	NA	NA	NA	NA	NA	-
METAL	Antimony	µg/L	332	37	11.14	43.26	NA	NA	0.21	40.1	IR06MW44A (07-JAN-1992)	9.54	5.4	10.13	0.00	NA	NA	43.26	0 / 332	-
METAL	Arsenic	µg/L	403	166	41.19	27.34	36	NA	1.2	27.6	PA28MW52A (13-DEC-1995)	5.83	4.3	4.72	0.01	0.00	NA	36	0 / 403	-
METAL	Barium	µg/L	332	314	94.58	504.2	NA	NA	3.8	929	IR06MW41A (08-JAN-1992)	128	74.95	151	0.04	NA	NA	504.2	12 / 332	-
METAL	Beryllium	µg/L	386	16	4.15	1.4	NA	NA	0.2	1.1	IR06MW45A (11-OCT-2000)	0.54	0.37	0.27	0.00	NA	NA	1.4	0 / 386	-
METAL	Cadmium	µg/L	337	20	5.93	5.08	8.8	NA	0.26	9.2	IR06MW53F (11-AUG-1994)	2.34	1.3	2.36	0.15	0.05	NA	8.8	1 / 337	COPEC
METAL	Calcium	µg/L	445	426	95.73	NA	NA	NA	2,220	730,000	IR29MW56F (22-JUN-1995)	94,947	56,900	104,516	NA	NA	NA	NA	NA	-
METAL	Chromium	µg/L	405	108	26.67	15.66	400	8	0.74	1,200	IR28MW920A (28-AUG-2001)	62.64	11.2	149	0.44	0.03	0.56	400	3 / 405	COPEC
METAL	Cobalt	µg/L	332	127	38.25	20.8	NA	NA	0.41	98.4	IR25MW15A2 (26-MAY-1995)	6.04	2	10.77	0.04	NA	NA	20.8	5 / 332	-
METAL	Copper	µg/L	337	84	24.93	28.04	3.1	NA	1.1	270	IR28MW170A (11-JUL-2002)	16.71	5.05	34.09	0.17	0.79	NA	28.04	14 / 337	COPEC
METAL	Iron	µg/L	499	213	42.69	2,380	NA	NA	8.5	550,000	IR25MW19A (29-JAN-1998)	6,143	468	38,760	0.29	NA	NA	2,380	61 / 499	-
METAL	Lead	µg/L	331	24	7.25	14.44	5.6	NA	0.79	29.7	IR28MW127A (27-NOV-1995)	6.65	3.5	7.50	0.13	0.33	NA	14.44	3 / 331	COPEC
METAL	Magnesium	µg/L	448	447	99.78	1,440,000	NA	NA	2,950	1,150,000	IR25MW17A (14-JUN-2002)	317,426	234,000	283,448	0.00	NA	NA	1,440,000	0 / 448	-
METAL	Manganese	µg/L	381	339	88.98	8140	NA	NA	0.69	10,500	IR28MW311A (28-MAY-1996)	1,221	366	2,055	0.02	NA	NA	8,140	7 / 381	-
METAL	Mercury	µg/L	417	60	14.39	0.6	0.025	NA	0.046	54	IR28MW170A (23-JAN-2001)	1.79	0.29	6.94	0.35	1.00	NA	0.6	21 / 417	COPEC
METAL	Molybdenum	µg/L	308	77	25.00	61.9	NA	NA	0.95	360	IR30MW01F (12-JUL-2002)	37.87	7	73.43	0.17	NA	NA	61.9	13 / 308	-
METAL	Nickel	µg/L	341	175	51.32	96.48	8.2	NA	1.4	384	IR28MW294A (17-NOV-1995)	30.73	14.9	47.11	0.05	0.67	NA	96.48	9 / 341	COPEC
METAL	Potassium	µg/L	448	430	95.98	448,000	NA	NA	258	710,000	IR28MW920A (28-AUG-2001)	79,126	33,800	112,187	0.01	NA	NA	448,000	6 / 448	-
METAL	Selenium	µg/L	329	45	13.68	14.5	71	NA	2.2	64.2	IR06MW45A (30-MAR-2004)	10.54	4.4	13.40	0.22	0.00	NA	71	0 / 329	-
METAL	Silver	µg/L	331	10	3.02	7.43	0.38	NA	0.55	24.1	IR28MW314B (03-JUL-1996)	3.59	0.92	6.90	0.10	1.00	NA	7.43	1 / 331	COPEC
METAL	Sodium	µg/L	448	446	99.55	9,242,000	NA	NA	980	9,700,000	IR28MW123A (18-MAY-1994)	1,629,632	712,500	2,176,934	0.01	NA	NA	9,242,000	3 / 448	-
METAL	Thallium	µg/L	327	39	11.93	12.97	426	NA	0.103	52.7	IR25MW17A (14-JUN-2002)	6.54	4	8.66	0.08	0.00	NA	426	0 / 327	-
METAL	Vanadium	µg/L	329	189	57.45	26.62	NA	NA	0.55	71.6	IR28MW294A (17-NOV-1995)	6.00	4.1	7.77	0.02	NA	NA	26.62	3 / 329	-
METAL	Zinc	µg/L	337	97	28.78	75.68	81	10	3	1,300	IR28MW170A (11-JUL-2002)	56.24	21	140	0.14	0.13	0.81	81	13 / 337	COEC
VOA	1,1,1,2-Tetrachloroethane	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1,1-Trichloroethane	µg/L	1,067	8	0.75	NA	6,240	NA	0.14	720	IR25MW15A1 (13-JUN-1994)	98.97	4.5	235	NA	0.00	NA	6,240	0 / 1067	-
VOA	1,1,2,2-Tetrachloroethane	µg/L	1,067	2	0.19	NA	1,804	0.5	6	120	IR28MW211F (13-NOV-2002)	63.00	63	57.00	NA	0.00	1.00	1,804	0 / 1067	-
VOA	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	469	47	10.02	NA	NA	NA	0.14	140	IR25MW52A (17-JUN-2002)	13.73	0.95	27.15	NA	NA	NA	NA	NA	-
VOA	1,1,2-Trichloroethane	µg/L	1,067	34	3.19	NA	NA	0.5	0.2	170	IR28MW211F (09-JUL-2002)	24.34	3	39.14	NA	NA	0.91	NA	NA	-
VOA	1,1-Dichloroethane	µg/L	1,067	59	5.53	NA	NA	0.5	0.17	38	IR28MW916A (23-JAN-2001)	5.25	0.6	10.15	NA	NA	0.54	NA	NA	-
VOA	1,1-Dichloroethene	µg/L	1,067	72	6.75	NA	44,800	NA	0.14	42	IR25MW15A1 (11-JAN-2001)	3.82	0.975	7.48	NA	0.00	NA	44,800	0 / 1067	-
VOA	1,1-Dichloropropene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichlorobenzene	µg/L	352	8	2.27	NA	NA	NA	0.5	1.4	IR58MW35A (11-JUL-2002)	0.94	0.98	0.33	NA	NA	NA	NA	NA	-
VOA	1,2,3-Trichloropropane	µg/L	382	2	0.52	NA	NA	0.5	1.5	16	IR28MW934F2 (06-MAR-2001)	8.75	8.75	7.25	NA	NA	1.00	NA	NA	-
VOA	1,2,4-Trichlorobenzene	µg/L	1,051	56	5.33	NA	129	0.5	0.32	200	IR25MW19A (29-JAN-1998)	18.30	4.85	36.95	NA	0.04	0.89	129	2 / 1051	COPEC
VOA	1,2,4-Trimethylbenzene	µg/L	207	29	14.01	NA	NA	0.5	0.2	220	IR28MW909A (08-FEB-2001, 12-FEB-2001)	45.06	13	67.23	NA	NA	0.97	NA	NA	-
VOA	1,2-Dibromo-3-Chloropropane	µg/L	707	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromoethane	µg/L	545	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dichlorobenzene	µg/L	1,065	206	19.34	NA	129	0.5	0.09	62,000	IR25MW15A1 (14-JUN-1994)	3,577	37	10,039	NA	0.39	0.90	129	80 / 1065	COPEC
VOA	1,2-Dichloroethane	µg/L	1,083	125	11.54	NA	22,600	0.5	0.17	150,000	IR25MW15A1 (26-MAY-1995)	8,263	93	23,217	NA	0.10	0.94	22,600	13 / 1083	COPEC
VOA	1,2-Dichloroethene (Total)	µg/L	287	89	31.01	NA	44,800	0.5	0.3	57,000	IR25MW15A1 (11-AUG-1994)	2,304	14	9,200	NA	0.01	0.94	44,800	1 / 287	COPEC
VOA	1,2-Dichloropropane	µg/L	1,067	38	3.56	NA	3,040	0.5	0.2	350	IR25MW19A (29-JAN-1998)	53.04	2.85	99.82	NA	0.00	0.79	3,040	0 / 1067	-
VOA	1,3,5-Trimethylbenzene	µg/L	207	10	4.83	NA	NA	0.5	0.79	28	IR28MW909A (24-JAN-2001)	9.44	5.7	9.30	NA	NA	1.00	NA	NA	-
VOA	1,3-Dichlorobenzene	µg/L	1,064	87	8.18	NA	129	NA	0.1	630	IR25MW19A (22-JAN-2001)	44.70	10	97.11	NA	0.10	NA	129	9 / 1064	COPEC
VOA	1,3-Dichloropropane	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,4-Dichlorobenzene	µg/L	1,064	175	16.45	NA	129	0.5	0.12	15,000	IR25MW19A (29-JAN-1998)	983	31	2,488	NA	0.39	0.89	129	69 / 1064	COPEC
VOA	2,2'-Oxybis(1-Chloropropane)	µg/L	2	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2,2-Dichloropropane	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Butanone	µg/L	785	3	0.38	NA	NA	NA	0.7	29	IR06MW22AD (15-JUL-1991)	12.23	7	12.13	NA	NA	NA	NA	NA	-
VOA	2-Chloroethyl Vinyl Ether	µg/L	60	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Chlorotoluene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Hexanone	µg/L	582	1	0.17	NA	NA	NA	0.4	0.4	IR28MW342F (18-MAR-2003)	0.40	0.4	NA	NA	NA	NA	NA	NA	-
VOA	4-Chlorotoluene	µg/L	207	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Methyl-2-Pentanone	µg/L	758	5	0.66	NA	NA	NA	0.2	9	IR25MW15A1 (26-MAY-1995)	2.44	1.1	3.31	NA	NA	NA	NA	NA	-
VOA	Acetone	µg/L	708	26	3.67	NA	NA	NA	4.3	6,900	IR28MW936F (05-APR-2001)	428	22	1,359	NA	NA	NA	NA	NA	-
VOA	Benzene	µg/L	1,076	223	20.72	NA	700	0.5	0.1	400	IR25MW19A (22-JAN-2001)	17.74	2	51.86	NA	0.00	0.80	700	0 / 1076	-
VOA	Bromobenzene	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Bromochloromethane	µg/L	504	0	0.00	NA	6,400	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 504	-
VOA	Bromodichloromethane	µg/L	1,067	11	1.03	NA	6,400	0.5	0.15	130	IR25MW19A (22-JAN-2001)	17.86	0.9	37.98	NA	0.00	0.64	6,400	0 / 1067	-
VOA	Bromoform	µg/L	1,067	4	0.37	NA	6,400	NA	1	33	IR28MW930A (28-AUG-2001)	10.75	4.5	13.15	NA	0.00	NA	6,400	0 / 1067	-
VOA	Bromomethane	µg/L	1,067	6	0.56	NA	6,400	NA	0.3	8.1	IR58MW34A (08-JUL-2002)	2.98	1.995	2.82	NA	0.00	NA	6,400	0 / 1067	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	Carbon Disulfide	µg/L	832	59	7.09	NA	NA	NA	0.16	39	IR29MW56F (10-AUG-1994)	3.08	0.94	6.10	NA	NA	NA	NA	NA	-
VOA	Carbon Tetrachloride	µg/L	1,083	95	8.77	NA	6,400	0.5	0.15	520	IR28MW937F (02-APR-2001)	40.89	12	81.99	NA	0.00	0.89	6,400	0 / 1083	-
VOA	Chlorobenzene	µg/L	1,067	118	11.06	NA	129	0.5	0.13	9,900	IR28MW909A (08-FEB-2001)	456	28.5	1,140	NA	0.32	0.86	129	38 / 1067	COPEC
VOA	Chloroethane	µg/L	1,066	44	4.13	NA	NA	0.5	0.52	81	IR06MW30A (23-AUG-1994)	12.97	5	18.36	NA	NA	1.00	NA	NA	-
VOA	Chloroform	µg/L	1,083	246	22.71	NA	6,400	0.5	0.09	1,000	IR28MW937F (02-APR-2001)	49.15	3	133	NA	0.00	0.88	6,400	0 / 1083	-
VOA	Chloromethane	µg/L	1,067	15	1.41	NA	6,400	NA	0.2	3.8	IR58MW34A (08-JUL-2002)	0.75	0.3	1.05	NA	0.00	NA	6,400	0 / 1067	-
VOA	Cis-1,2-Dichloroethene	µg/L	796	443	55.65	NA	44,800	0.5	0.12	58,000	IR25MW15A1 (05-FEB-1998)	1,342	21	6,111	NA	0.00	0.87	44,800	2 / 796	COPEC
VOA	Cis-1,3-Dichloropropene	µg/L	1,067	2	0.19	NA	NA	0.5	0.54	4	IR58MW33B (23-MAY-1996)	2.27	2.27	1.73	NA	NA	1.00	NA	NA	-
VOA	Cyclohexane	µg/L	123	6	4.88	NA	NA	NA	0.26	1.6	IR28MW128A (09-AUG-2002)	0.73	0.585	0.43	NA	NA	NA	NA	NA	-
VOA	Dibromochloromethane	µg/L	1,067	5	0.47	NA	6,400	0.5	0.2	3	IR58MW33B (23-MAY-1996)	0.85	0.32	1.08	NA	0.00	0.40	6,400	0 / 1067	-
VOA	Dibromomethane	µg/L	382	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Dichlorodifluoromethane	µg/L	628	11	1.75	NA	NA	NA	0.22	4.2	IR25MW52A (08-JUN-2004)	1.74	1.8	1.12	NA	NA	NA	NA	NA	-
VOA	Ethylbenzene	µg/L	1,076	67	6.23	NA	86	NA	0.1	79	IR28MW155A (31-MAY-1994)	6.17	3	10.47	NA	0.00	NA	86	0 / 1076	-
VOA	Isopropylbenzene	µg/L	393	34	8.65	NA	NA	0.5	0.11	15	IR28MW909A (24-JAN-2001)	2.13	0.92	3.24	NA	NA	0.74	NA	NA	-
VOA	M,P-Xylenes	µg/L	125	13	10.40	NA	NA	NA	0.23	28	IR25MW15A1 (13-AUG-2002)	6.27	1.7	8.02	NA	NA	NA	NA	NA	-
VOA	Methyl Acetate	µg/L	121	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylcyclohexane	µg/L	123	4	3.25	NA	NA	NA	0.22	0.73	IR28MW128A (09-AUG-2002)	0.50	0.515	0.23	NA	NA	NA	NA	NA	-
VOA	Methylene Chloride	µg/L	1,067	33	3.09	NA	6,400	0.5	0.3	270	IR28MW936F (05-APR-2001)	40.13	12	66.42	NA	0.00	0.82	6,400	0 / 1067	-
VOA	N-Butylbenzene	µg/L	207	4	1.93	NA	NA	NA	1.1	6.5	IR58MW35A (11-JUL-2002)	4.43	5.05	2.17	NA	NA	NA	NA	NA	-
VOA	Naphthalene	µg/L	603	103	17.08	NA	470	0.05	0.06	1,800	IR06MW42A (10-JAN-1992)	110	25	242	NA	0.04	1.00	470	4 / 603	COPEC
VOA	O-Xylene	µg/L	125	23	18.40	NA	NA	NA	0.08	16	IR25MW15A1 (13-AUG-2002)	2.32	0.47	3.66	NA	NA	NA	NA	NA	-
VOA	Para-Isopropyl Toluene	µg/L	207	12	5.80	NA	NA	NA	0.52	34	IR25MW19A (22-JAN-2001)	6.60	2.75	9.28	NA	NA	NA	NA	NA	-
VOA	Propylbenzene	µg/L	207	9	4.35	NA	NA	NA	0.46	27	IR28MW909A (12-FEB-2001)	7.12	2.7	8.97	NA	NA	NA	NA	NA	-
VOA	Sec-Butylbenzene	µg/L	207	13	6.28	NA	NA	NA	0.2	4.8	IR28MW913A (25-JAN-2001)	1.88	1.5	1.52	NA	NA	NA	NA	NA	-
VOA	Styrene	µg/L	832	3	0.36	NA	NA	NA	1	7.9	IR25MW15A1 (11-JAN-2001)	4.30	4	2.82	NA	NA	NA	NA	NA	-
VOA	Tert-Butyl Methyl Ether	µg/L	716	67	9.36	NA	8,000	NA	0.09	25	IR28MW155A (18-JUN-2002)	3.00	1.2	4.19	NA	0.00	NA	8,000	0 / 716	-
VOA	Tert-Butylbenzene	µg/L	207	1	0.48	NA	NA	NA	0.4	0.4	IR58MW34A (08-JUL-2002)	0.40	0.4	NA	NA	NA	NA	NA	NA	-
VOA	Tetrachloroethene	µg/L	1,083	334	30.84	NA	450	0.5	0.1	72,000	IR25MW19A (29-JAN-1998, 22-JAN-2001)	2,031	5.15	8,612	NA	0.15	0.79	450	51 / 1083	COPEC
VOA	Toluene	µg/L	1,076	105	9.76	NA	5,000	NA	0.1	66	IR25MW19A (29-JAN-1998)	6.79	1	12.69	NA	0.00	NA	5,000	0 / 1076	-
VOA	Trans-1,2-Dichloroethene	µg/L	796	215	27.01	NA	44,800	0.5	0.14	2,400	IR25MW19A (22-JAN-2001)	59.51	5	236	NA	0.00	0.88	44,800	0 / 796	-
VOA	Trans-1,3-Dichloropropene	µg/L	1,067	1	0.09	NA	NA	0.5	3	3	IR58MW33B (23-MAY-1996)	3.00	3	NA	NA	NA	1.00	NA	NA	-
VOA	Trichloroethene	µg/L	1,082	578	53.42	NA	400	0.5	0.12	76,000	IR28MW211F (13-NOV-2002)	1,950	13	7,820	NA	0.19	0.89	400	108 / 1082	COPEC
VOA	Trichlorofluoromethane	µg/L	628	82	13.06	NA	NA	0.5	0.24	5,900	IR25MW52A (17-JUN-2002)	122	3.35	661	NA	NA	0.80	NA	NA	-
VOA	Vinyl Acetate	µg/L	98	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Vinyl Chloride	µg/L	1,083	318	29.36	NA	NA	0.5	0.28	6,600	IR25MW15A1 (05-OCT-1995)	286	62	669	NA	NA	0.94	NA	NA	-
VOA	Xylene (Total)	µg/L	951	77	8.10	NA	NA	NA	0.2	150	IR25MW19A (22-JAN-2001)	14.11	3	28.84	NA	NA	NA	NA	NA	-
SVOA	1,4-Dioxane	µg/L	13	2	15.38	NA	NA	NA	0.66	1.4	IR28MW151A (06-DEC-2004)	1.03	1	0.37	NA	NA	NA	NA	NA	-
SVOA	1-Methylnaphthalene	µg/L	4	2	50.00	NA	NA	NA	0.02	4	IR06MW22A (18-AUG-2000)	2.01	2	1.99	NA	NA	NA	NA	NA	-
SVOA	2-Chloronaphthalene	µg/L	402	2	0.50	NA	1.5	NA	1	1	IR25MW15A2 (26-MAY-1995), IR28MW129A (27-JUN-1995)	1.00	1	0.00	NA	0.00	NA	1.5	0 / 402	-
SVOA	2-Chlorophenol	µg/L	398	2	0.50	NA	NA	NA	1	24	IR25MW15A1 (13-AUG-2002)	12.50	13	11.50	NA	NA	NA	NA	NA	-
SVOA	2-Methylnaphthalene	µg/L	413	55	13.32	NA	NA	NA	0.5	920	IR25MW11A (18-AUG-1994)	49.04	9.8	137	NA	NA	NA	NA	NA	-
SVOA	2-Methylphenol	µg/L	392	11	2.81	NA	NA	NA	0.2	3,800	IR25MW15A1 (11-AUG-1994)	774	63	1,235	NA	NA	NA	NA	NA	-
SVOA	2-Nitroaniline	µg/L	379	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitrophenol	µg/L	398	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 398	-
SVOA	2,4-Dichlorophenol	µg/L	393	4	1.02	NA	NA	NA	1.7	37	IR25MW15A1 (13-AUG-2002)	10.93	3	15.06	NA	NA	NA	NA	NA	-
SVOA	2,4-Dimethylphenol	µg/L	393	25	6.36	NA	NA	10	0.6	16,000	IR25MW15A1 (11-AUG-1994)	1,225	32	3,345	NA	NA	0.68	NA	NA	-
SVOA	2,4-Dinitrophenol	µg/L	388	0	0.00	NA	46	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	46	0 / 388	-
SVOA	2,4-Dinitrotoluene	µg/L	403	1	0.25	NA	118	10	4,900	4,900	IR25MW11A (07-JUN-1995)	4,900	4,900	NA	NA	1.00	1.00	118	1 / 403	COPEC
SVOA	2,4,5-Trichlorophenol	µg/L	375	1	0.27	NA	NA	NA	0.57	0.57	IR25MW15A1 (13-AUG-2002)	0.57	1	NA	NA	NA	NA	NA	NA	-
SVOA	2,4,6-Trichlorophenol	µg/L	393	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,6-Dinitrotoluene	µg/L	402	0	0.00	NA	118	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	118	0 / 402	-
SVOA	3,3'-Dichlorobenzidine	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	3,4-Methylphenol	µg/L	13	2	15.38	NA	NA	10	380	3,200	IR25MW19A (24-JAN-2001)	1,790	1,790	1,410	NA	NA	1.00	NA	NA	-
SVOA	3-Nitroaniline	µg/L	377	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4,6-Dinitro-2-Methylphenol	µg/L	391	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 391	-
SVOA	4-Bromophenyl-Phenylether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloro-3-Methylphenol	µg/L	393	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloroaniline	µg/L	384	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chlorophenyl-Phenylether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Methylphenol	µg/L	380	15	3.95	NA	NA	10	0.7	9,100	IR25MW15A1 (11-AUG-1994)	703	10	2,251	NA	NA	0.47	NA	NA	-
SVOA	4-Nitroaniline	µg/L	384	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitrophenol	µg/L	399	0	0.00	NA	970	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	970	0 / 399	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
SVOA	Acenaphthene	µg/L	417	85	20.38	NA	710	NA	0.1	230	IR06MW42A (10-JAN-1992)	42.24	17	48.58	NA	0.00	NA	710	0 / 417	-
SVOA	Acenaphthylene	µg/L	417	14	3.36	NA	60	NA	0.07	10	IR06MW42A (16-JAN-2001, 01-MAY-2001)	2.34	0.9	3.21	NA	0.00	NA	60	0 / 417	-
SVOA	Acetophenone	µg/L	13	3	23.08	NA	NA	NA	2	24	IR06MW42A (28-AUG-2002)	10.67	6	9.57	NA	NA	NA	NA	NA	-
SVOA	Aniline	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Anthracene	µg/L	417	45	10.79	NA	60	NA	0.074	21	IR06MW42A (08-JAN-1991)	4.00	3	4.06	NA	0.00	NA	60	0 / 417	-
SVOA	Atrazine	µg/L	13	0	0.00	NA	11	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	0 / 13	-
SVOA	Azobenzene	µg/L	12	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzaldehyde	µg/L	14	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzo(a)anthracene	µg/L	417	10	2.40	NA	60	0.05	0.01	10	IR06MW42A (16-JAN-2001)	2.14	0.6	2.91	NA	0.00	0.80	60	0 / 417	-
SVOA	Benzo(a)pyrene	µg/L	415	3	0.72	NA	60	0.05	0.21	3	IR28MW311A (19-APR-1996)	1.74	2	1.15	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzo(b)fluoranthene	µg/L	415	3	0.72	NA	60	0.05	0.055	4	IR28MW311A (19-APR-1996)	2.02	2	1.61	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzo(e)pyrene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzo(g,h,i)perylene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Benzo(k)fluoranthene	µg/L	415	2	0.48	NA	60	0.05	1	1	IR28MW311A (19-APR-1996), PA28MW52A (23-FEB-1993)	1.00	1	0.00	NA	0.00	1.00	60	0 / 415	-
SVOA	Benzoic Acid	µg/L	92	2	2.17	NA	NA	NA	5	10	IR25MW15A1 (13-AUG-2002)	7.50	7.5	2.50	NA	NA	NA	NA	NA	-
SVOA	Benzyl Alcohol	µg/L	75	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Biphenyl	µg/L	17	4	23.53	NA	NA	NA	0.1	10	IR06MW42A (16-JAN-2001, 01-MAY-2001)	5.28	5.5	4.74	NA	NA	NA	NA	NA	-
SVOA	Bis(2-chloroethoxy)methane	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethyl)ether	µg/L	402	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-ethylhexyl)phthalate	µg/L	402	6	1.49	NA	NA	NA	1	99	PA50MW03A (11-JUL-1994)	53.67	56.5	31.55	NA	NA	NA	NA	NA	-
SVOA	Butylbenzylphthalate	µg/L	402	1	0.25	NA	588.8	NA	7	7	IR06MW30A (12-JUN-1990)	7.00	7	NA	NA	0.00	NA	588.8	0 / 402	-
SVOA	Caprolactam	µg/L	15	2	13.33	NA	NA	NA	10	25	IR06MW42A (12-OCT-2000)	17.50	17.5	7.50	NA	NA	NA	NA	NA	-
SVOA	Carbazole	µg/L	308	30	9.74	NA	NA	NA	0.1	53	IR06MW42A (16-MAY-1994)	8.29	4.35	12.68	NA	NA	NA	NA	NA	-
SVOA	Chrysene	µg/L	418	7	1.67	NA	60	0.05	0.02	200	IR25MW11A (07-JUN-1995)	31.05	3	69.05	NA	0.14	0.71	60	1 / 418	COPEC
SVOA	Di-N-Butylphthalate	µg/L	402	2	0.50	NA	588.8	NA	0.9	1	IR28MW128A (25-MAY-1994)	0.95	0.95	0.05	NA	0.00	NA	588.8	0 / 402	-
SVOA	Di-N-Octylphthalate	µg/L	400	0	0.00	NA	588.8	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 400	-
SVOA	Dibenz(a,h)anthracene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Dibenzofuran	µg/L	403	56	13.90	NA	NA	NA	0.42	140	IR06MW42A (08-JAN-1991, 16-JUL-1991, 10-JAN-1992)	23.68	7.1	35.56	NA	NA	NA	NA	NA	-
SVOA	Dibenzothiophene	µg/L	4	2	50.00	NA	NA	NA	0.09	0.1	IR06MW22A (18-AUG-2000)	0.10	0.095	0.01	NA	NA	NA	NA	NA	-
SVOA	Diethylphthalate	µg/L	402	2	0.50	NA	588.8	NA	6	10	IR06MW42A (03-JUN-2004)	8.00	8	2.00	NA	0.00	NA	588.8	0 / 402	-
SVOA	Dimethylphthalate	µg/L	402	0	0.00	NA	3.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	0 / 402	-
SVOA	Fluoranthene	µg/L	417	55	13.19	NA	16	NA	0.06	36	IR06MW42A (08-JAN-1991)	8.37	8	7.42	NA	0.16	NA	16	9 / 417	COPEC
SVOA	Fluorene	µg/L	418	65	15.55	NA	60	NA	0.2	180	IR25MW11A (28-DEC-1993)	25.73	7	41.17	NA	0.14	NA	60	9 / 418	COPEC
SVOA	Hexachlorobenzene	µg/L	402	0	0.00	NA	129	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	129	0 / 402	-
SVOA	Hexachlorobutadiene	µg/L	587	0	0.00	NA	6.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.4	0 / 587	-
SVOA	Hexachlorocyclopentadiene	µg/L	402	0	0.00	NA	1.4	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 402	-
SVOA	Hexachloroethane	µg/L	402	1	0.25	NA	188	NA	8	8	IR25MW16A (01-JUN-1995)	8.00	8	NA	NA	0.00	NA	188	0 / 402	-
SVOA	Indeno(1,2,3-cd)pyrene	µg/L	415	0	0.00	NA	60	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	0 / 415	-
SVOA	Isophorone	µg/L	402	0	0.00	NA	2,580	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,580	0 / 402	-
SVOA	N-Nitroso-Di-N-Propylamine	µg/L	402	0	0.00	NA	660,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 402	-
SVOA	N-Nitrosodimethylamine	µg/L	31	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	N-Nitrosodiphenylamine	µg/L	402	1	0.25	NA	660,000	NA	6.4	6.4	IR29MW56F (13-SEP-2004)	6.40	6.4	NA	NA	0.00	NA	660,000	0 / 402	-
SVOA	Naphthalene, 1,6,7-Trimethyl-	µg/L	4	2	50.00	NA	NA	NA	0.4	0.4	IR06MW22A (18-AUG-2000), IR25MW16A (17-AUG-2000)	0.40	0.4	0.00	NA	NA	NA	NA	NA	-
SVOA	Naphthalene, 2,6-Dimethyl-	µg/L	4	2	50.00	NA	NA	NA	0.2	2	IR06MW22A (18-AUG-2000)	1.10	1.1	0.90	NA	NA	NA	NA	NA	-
SVOA	Nitrobenzene	µg/L	402	0	0.00	NA	1,336	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,336	0 / 402	-
SVOA	Pentachlorophenol	µg/L	393	4	1.02	NA	7.9	50	0.3	6,100	IR25MW11A (07-JUN-1995)	1,526	1.75	2,641	NA	0.25	0.25	7.9	1 / 393	COPEC
SVOA	Perylene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Phenacetin	µg/L	7	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Phenanthrene	µg/L	418	78	18.66	NA	60	NA	0.08	590	IR25MW11A (18-AUG-1994)	27.42	5.5	78.76	NA	0.13	NA	60	10 / 418	COPEC
SVOA	Phenanthrene, 1-Methyl-	µg/L	4	2	50.00	NA	NA	NA	0.01	0.05	IR06MW22A (18-AUG-2000)	0.03	0.03	0.02	NA	NA	NA	NA	NA	-
SVOA	Phenol	µg/L	393	10	2.54	NA	1,160	NA	1.5	2,300	IR25MW15A1 (11-AUG-1994)	414	80.5	671	NA	0.10	NA	1,160	1 / 393	COPEC
SVOA	Pyrene	µg/L	417	55	13.19	NA	60	NA	0.1	16	IR06MW42A (08-JAN-1991)	5.26	5	3.75	NA	0.00	NA	60	0 / 417	-
PEST	4,4'-DDD	µg/L	247	3	1.21	NA	0.72	NA	0.01	0.06	IR58MW33B (23-MAY-1996)	0.04	0	0.02	NA	0.00	NA	0.72	0 / 247	-
PEST	4,4'-DDE	µg/L	247	5	2.02	NA	2.8	NA	0.006	0.2	IR29MW48A (06-JUN-1994)	0.05	0	0.07	NA	0.00	NA	2.8	0 / 247	-
PEST	4,4'-DDT	µg/L	247	7	2.83	NA	0.001	NA	0.0094	0.5	IR58MW31A (22-FEB-2001)	0.11	0	0.16	NA	1.00	NA	0.001	7 / 247	COPEC
PEST	Aldrin	µg/L	247	4	1.62	NA	0.26	NA	0.01	0.08	IR28MW124A (02-AUG-1995), IR29MW48A (06-JUN-1994)	0.05	0	0.03	NA	0.00	NA	0.26	0 / 247	-
PEST	alpha-BHC	µg/L	247	2	0.81	NA	NA	NA	0.02	0.02	IR25MW15A1 (17-AUG-2000, 01-FEB-2001)	0.02	0	0.00	NA	NA	NA	NA	NA	-
PEST	alpha-Chlordane	µg/L	247	7	2.83	NA	0.004	NA	0.0079	1	IR29MW48A (06-JUN-1994)	0.15	0	0.35	NA	1.00	NA	0.004	7 / 247	COPEC
PEST	Azinphos Methyl	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	beta-BHC	µg/L	247	6	2.43	NA	NA	NA	0.005	0.04	IR58MW32B (17-APR-1996)	0.02	0	0.01	NA	NA	NA	NA	NA	-
PEST	Bolstar	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Chlorpyrifos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
PEST	Coumaphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	delta-BHC	µg/L	247	8	3.24	NA	NA	NA	0.0018	0.03	IR06MW42A (16-JAN-2001), IR25MW15A1 (17-AUG-2000)	0.01	0	0.01	NA	NA	NA	NA	NA	-
PEST	Demeton	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Diazinon	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dichlorvos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dieldrin	µg/L	247	7	2.83	NA	0.142	NA	0.006	0.09	IR58MW31A (22-FEB-2001)	0.05	0	0.03	NA	0.00	NA	0.142	0 / 247	-
PEST	Dimethoate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Disulfoton	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endosulfan I	µg/L	247	0	0.00	NA	0.0087	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 247	-
PEST	Endosulfan II	µg/L	247	2	0.81	NA	0.0087	NA	0.02	0.07	IR29MW48A (06-JUN-1994)	0.05	0	0.03	NA	1.00	NA	0.0087	2 / 247	COPEC
PEST	Endosulfan Sulfate	µg/L	247	3	1.21	NA	NA	NA	0.01	0.1	IR25MW16A (02-JUN-1994)	0.04	0	0.04	NA	NA	NA	NA	NA	-
PEST	Endrin	µg/L	247	5	2.02	NA	0.0023	NA	0.0041	0.02	IR58MW31A (11-AUG-2000)	0.01	0	0.01	NA	1.00	NA	0.0023	5 / 247	COPEC
PEST	Endrin Aldehyde	µg/L	247	6	2.43	NA	NA	NA	0.007	0.1	IR58MW31A (01-JUL-1994)	0.05	0	0.04	NA	NA	NA	NA	NA	-
PEST	Endrin Ketone	µg/L	243	2	0.82	NA	NA	NA	0.01	0.1	IR25MW15A1 (26-MAY-1995)	0.06	0	0.05	NA	NA	NA	NA	NA	-
PEST	EPN	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ethion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ethoprop	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Famphur	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Fensulfothion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Fenthion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	gamma-BHC (Lindane)	µg/L	247	2	0.81	NA	0.032	NA	0.01	0.01	IR25MW15A1 (17-AUG-2000, 01-FEB-2001)	0.01	0	0.00	NA	0.00	NA	0.032	0 / 247	-
PEST	gamma-Chlordane	µg/L	247	5	2.02	NA	0.004	NA	0.006	1	IR29MW48A (06-JUN-1994)	0.21	0	0.40	NA	1.00	NA	0.004	5 / 247	COPEC
PEST	Heptachlor	µg/L	247	4	1.62	NA	0.0036	NA	0.002	0.013	IR06MW42A (05-MAR-2003)	0.01	0	0.00	NA	0.50	NA	0.0036	2 / 247	COPEC
PEST	Heptachlor Epoxide	µg/L	243	6	2.47	NA	0.0036	NA	0.002	0.03	IR25MW15A1 (14-JUN-1994), IR28MW311A (27-JUN-1996)	0.02	0	0.01	NA	0.83	NA	0.0036	5 / 243	COPEC
PEST	Heptachlor Epoxide A	µg/L	4	1	25.00	NA	NA	NA	0.055	0.055	IR25MW15A1 (13-AUG-2002)	0.06	0	NA	NA	NA	NA	NA	NA	-
PEST	Heptachlor Epoxide B	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Malathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Merphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Methoxychlor	µg/L	247	1	0.40	NA	0.003	NA	0.0084	0.0084	IR06MW42A (20-MAY-2003)	0.01	0	NA	NA	1.00	NA	0.003	1 / 247	COPEC
PEST	Methyl Parathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Mevinphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Naled	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Parathion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Phorate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Ronnel	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Sulfotep	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Tetrachlorvinphos	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Tokuthion	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Toxaphene	µg/L	247	0	0.00	NA	0.0002	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0002	0 / 247	-
PEST	Trichloronate	µg/L	1	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PCB	Aroclor-1016	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1221	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1232	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1242	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1248	µg/L	291	1	0.34	NA	0.03	NA	2	2	IR29MW48A (06-JUN-1994)	2.00	2	NA	NA	1.00	NA	0.03	1 / 291	COPEC
PCB	Aroclor-1254	µg/L	291	0	0.00	NA	0.03	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 291	-
PCB	Aroclor-1260	µg/L	291	31	10.65	NA	0.03	NA	0.06	23	IR28MW129A (27-JUN-1995)	2.79	1	4.47	NA	1.00	NA	0.03	31 / 291	COPEC
TPHEXT	Diesel-Range Organics	µg/L	643	295	45.88	NA	1,400	NA	39	3,400,000	IR25MW11A (18-AUG-1994)	20,299	500	205,051	NA	0.24	NA	1,400	71 / 643	COPEC
TPHEXT	Motor Oil-Range Organics	µg/L	571	265	46.41	NA	1,400	NA	20	200,000	IR25MW19A (15-MAR-2001)	1,383	240	12,321	NA	0.08	NA	1,400	22 / 571	COPEC
TPHEXT	TPH-Extractable Unknown Hydrocarbon	µg/L	17	5	29.41	NA	NA	NA	310	7,000	IR06MW22AD (06-JAN-1992)	2,544	2,000	2,446	NA	NA	NA	NA	NA	-
TPHEXT	TPH-Kerosene	µg/L	4	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
TPHPRG	Diesel-Range Organics	µg/L	3	1	33.33	NA	1,400	NA	920	920	IR06MW42A (23-MAR-2004)	920	920	NA	NA	0.00	NA	1,400	0 / 3	-
TPHPRG	Gasoline-Range Organics	µg/L	553	220	39.78	NA	1,400	NA	8.5	1,300,000	IR25MW11A (28-DEC-1993)	10,759	170	89,358	NA	0.20	NA	1,400	45 / 553	COPEC
TPHPRG	Motor Oil-Range Organics	µg/L	3	0	0.00	NA	1,400	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,400	0 / 3	-
TPHPRG	TPH-Purgeable Unknown Hydrocarbons	µg/L	9	2	22.22	NA	NA	NA	17	68	IR28MW124A (20-MAY-1994)	42.50	42.5	25.50	NA	NA	NA	NA	NA	-
ORGAN	Tributyltin	µg/L	11	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	-
TOC	Total Organic Carbon	µg/L	50	40	80.00	NA	NA	NA	720	50,000	IR25MW15A1 (06-MAY-1999)	5,508	2,650	8,044	NA	NA	NA	NA	NA	-
ALKALN	Bicarbonate Alkalinity	µg/L	126	126	100.00	NA	NA	NA	44,000	1,430,000	IR28MW170A (22-FEB-2001)	403,751	353,500	250,490	NA	NA	NA	NA	NA	-
ALKALN	Carbonate Alkalinity	µg/L	126	24	19.05	NA	NA	NA	40,000	229,000	IR28MW330A (28-JAN-1998)	131,900	139,500	52,212	NA	NA	NA	NA	NA	-
ALKALN	Hydroxide Alkalinity	µg/L	101	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Total Alkalinity	µg/L	219	219	100.00	NA	NA	NA	14,000	1,430,000	IR28MW170A (22-FEB-2001)	346,329	287,000	253,020	NA	NA	NA	NA	NA	-
AMMON	Ammonia	µg/L	28	27	96.43	NA	NA	NA	120	2,500	IR06MW40A (17-JUL-1991)	986	890	722	NA	NA	NA	NA	NA	-

TABLE G-2: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN A-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)

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

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Laboratory Practical Quantitation Limit	Minimum Detected Conc.	Maximum Detected Conc.	Location(s) of Maximum Detected Concentration	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Fraction Detects Greater than Laboratory Practical Quantitation Limit	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
ANION	Chloride	µg/L	386	385	99.74	NA	NA	NA	7,700	17,400,000	IR28MW270A (06-MAY-1996)	2,810,272	1,290,000	4,035,306	NA	NA	NA	NA	NA	-
ANION	Fluoride	µg/L	79	46	58.23	NA	NA	NA	110	3,700	IR25MW20A (29-JAN-1998)	569	405	624	NA	NA	NA	NA	NA	-
ANION	Nitrate as Nitrogen	µg/L	322	197	61.18	NA	NA	NA	10	104,000	IR29MW56F (22-JUN-1995)	3,139	710	9,409	NA	NA	NA	NA	NA	-
ANION	Nitrate/Nitrite as Nitrogen	µg/L	161	110	68.32	NA	NA	NA	10	30,900	IR28MW217A (28-APR-1999)	1,646	425	4,003	NA	NA	NA	NA	NA	-
ANION	Nitrite as Nitrogen	µg/L	229	27	11.79	NA	NA	NA	6	870	IR06MW44A (28-JAN-1998)	84.52	15	196	NA	NA	NA	NA	NA	-
ANION	Orthophosphate	µg/L	142	24	16.90	NA	NA	NA	64	29,000	IR29MW85F (24-MAY-1996)	2,222	530	5,766	NA	NA	NA	NA	NA	-
ANION	Sulfate	µg/L	335	320	95.52	NA	NA	NA	1,300	6,580,000	IR28MW297A (07-MAY-1996)	452,637	172,000	679,947	NA	NA	NA	NA	NA	-
CEC	Calcium	µg/L	32	32	100.00	NA	NA	NA	2,300	330,000	IR28MW150A (03-AUG-2000), IR28MW270A (04-AUG-2000), IR29MW57A (23-JUN-1995)	79,150	35,500	88,793	NA	NA	NA	NA	NA	-
CEC	Iron	µg/L	32	7	21.88	2,380	NA	NA	590	16,000	IR25MW15A2 (16-AUG-2000)	5,459	5,600	5,046	0.57	NA	NA	2,380	4 / 32	-
CEC	Magnesium	µg/L	32	32	100.00	1,440,000	NA	NA	2,800	1,100,000	IR25MW17A (29-MAR-2004), IR28MW270A (04-AUG-2000), IR28MW297A (20-NOV-1995)	335,784	255,000	307,068	0.00	NA	NA	1,440,000	0 / 32	-
CEC	Potassium	µg/L	32	31	96.88	448,000	NA	NA	370	360,000	IR28MW270A (04-AUG-2000)	68,117	41,000	85,398	0.00	NA	NA	448,000	0 / 32	-
CEC	Sodium	µg/L	32	31	96.88	9,242,000	NA	NA	12,000	11,000,000	IR28MW270A (04-AUG-2000)	1,812,710	860,000	2,555,009	0.03	NA	NA	9,242,000	1 / 32	-
CYAN	Cyanide	µg/L	9	2	22.22	NA	1	NA	0.76	1.2	PA50MW03A (25-MAR-1996)	0.98	0.98	0.22	NA	0.50	NA	1	1 / 9	COPEC
DGASES	Carbon Dioxide in Water	µg/L	33	14	42.42	NA	NA	NA	16,000	406,000	IR28MW217A (28-APR-1999)	146,000	146,500	107,038	NA	NA	NA	NA	NA	-
DGASES	Ethane	µg/L	118	31	26.27	NA	NA	NA	0.3	77	IR28MW211F (21-MAR-2003)	20.77	7.2	24.07	NA	NA	NA	NA	NA	-
DGASES	Ethene	µg/L	118	28	23.73	NA	NA	NA	0.4	620	IR25MW15A1 (06-MAY-1999)	54.53	10.5	123	NA	NA	NA	NA	NA	-
DGASES	Hydrogen in Water	µg/L	84	4	4.76	NA	NA	NA	35.9	226	IR28MW362F (06-FEB-2003)	117	102.45	80.95	NA	NA	NA	NA	NA	-
DGASES	Methane	µg/L	67	45	67.16	NA	NA	NA	2	8,500	IR06MW34A (27-APR-1999)	625	160	1,475	NA	NA	NA	NA	NA	-
DO	Dissolved Oxygen	µg/L	227	227	100.00	NA	NA	NA	50	8,660	IR29MW56F (22-AUG-2000)	3,101	2,860	2,488	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Bottom	µg/L	157	157	100.00	NA	NA	NA	50	6,300	IR28MW275F (17-AUG-2000)	1,117	510	1,282	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Middle	µg/L	160	160	100.00	NA	NA	NA	80	8,400	IR28MW169A (23-FEB-2001)	1,683	965	1,608	NA	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Top	µg/L	164	164	100.00	NA	NA	NA	250	9,000	IR28MW298A (14-AUG-2000)	2,503	1,905	1,907	NA	NA	NA	NA	NA	-
FTK-METAL	Dissolved Iron (II)	µg/L	1	1	100.00	NA	NA	NA	0	0	IR29MW56F (02-MAR-2001)	0.00	0	NA	NA	NA	NA	NA	NA	-
FTK-METAL	Dissolved Managanese (II)	µg/L	3	3	100.00	NA	NA	NA	100	800	IR28MW398A (01-MAR-2001)	500	600	294	NA	NA	NA	NA	NA	-
FTK-METAL	Total Iron (II)	µg/L	117	117	100.00	NA	NA	NA	0	7,200	IR25MW15A2 (16-AUG-2000)	503	0	1,227	NA	NA	NA	NA	NA	-
FTK-METAL	Total Manganese (II)	µg/L	92	92	100.00	NA	NA	NA	0	14,000	IR06MW41A (14-AUG-2002)	1,440	300	2,637	NA	NA	NA	NA	NA	-
H2S	Hydrogen Sulfide	µg/L	30	0	0.00	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
HARD	Hardness	µg/L	25	25	100.00	NA	NA	NA	140	4,500,000	IR25MW18A (29-JAN-1998)	1,099,109	970,000	927,443	NA	NA	NA	NA	NA	-
IRON_ION	Iron (II)	µg/L	34	2	5.88	NA	NA	NA	180	510	IR25MW15A2 (27-APR-1999)	345	345	165	NA	NA	NA	NA	NA	-
IRON_ION	Iron (III)	µg/L	1	1	100.00	NA	NA	NA	110	110	IR25MW37A (11-JUN-2002)	110	110	NA	NA	NA	NA	NA	NA	-
MEE	Ethane	µg/L	183	5	2.73	NA	NA	NA	3.4	13	IR28MW916A (08-FEB-2001)	6.76	5.9	3.44	NA	NA	NA	NA	NA	-
MEE	Ethene	µg/L	183	46	25.14	NA	NA	NA	3.9	570	IR25MW15A1 (01-FEB-2001)	144	32.5	175	NA	NA	NA	NA	NA	-
MEE	Methane	µg/L	183	124	67.76	NA	NA	NA	2	16,000	IR28MW918A (08-FEB-2001)	762	165	2,239	NA	NA	NA	NA	NA	-

Notes:

µg/L	Microgram per liter
BHC	Benzene hexachloride
CEC	Cation exchange capacity
COEC	Chemical of ecological concern
COPEC	Chemical of potential ecological concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DGASES	Dissolved gases
BHC	Benzene hexachloride
CEC	Cation exchange capacity
COEC	Chemical of ecological concern
CONC.	Concentration
COPEC	Chemical of potential ecological concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
DGASES	Dissolved gases
DO	Dissolved oxygen
FTK	Field test kit
HGAL	Hunters Point groundwater ambient level
MEE	Methane, ethane, ethene
NA	Not applicable or not available
ND	Nondetect
PAH	Polynuclear aromatic hydrocarbon
PEST	Pesticides
SVOA	Semivolatile organic compound
TOC	Total organic carbon
VOA	Volatile organic compound

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA
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Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
CHROM	Chromium VI	µg/L	10	0	0.00	NA	50	ND	ND	ND	ND	ND	ND	ND	50	0 / 10	-
METAL	Aluminum	µg/L	12	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
METAL	Antimony	µg/L	12	2	16.67	43.26	NA	3.4	5.3	4.4	4.4	1.0	0.00	NA	43.26	0 / 12	-
METAL	Arsenic	µg/L	12	2	16.67	27.34	36	1.9	2.8	2.4	2.4	0.5	0.00	0.00	36	0 / 12	-
METAL	Barium	µg/L	12	12	100.00	504.2	NA	65.8	730	435	467	243	0.50	NA	504.2	6 / 12	-
METAL	Beryllium	µg/L	12	0	0.00	1.4	NA	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 12	-
METAL	Cadmium	µg/L	12	2	16.67	5.08	8.8	0.37	0.63	0.50	0.5	0.13	0.00	0.00	8.8	0 / 12	-
METAL	Calcium	µg/L	21	21	100.00	NA	NA	7,700	1,070,000	270,148	123,000	279,349	NA	NA	NA	NA	-
METAL	Chromium	µg/L	12	1	8.33	15.66	400	5.9	5.9	5.9	5.9	NA	0.00	0.00	400	0 / 12	-
METAL	Cobalt	µg/L	12	9	75.00	20.8	NA	0.82	6.3	2.7	2.1	1.8	0.00	NA	20.8	0 / 12	-
METAL	Copper	µg/L	12	2	16.67	28.04	3.1	3.6	4	3.8	3.8	0.2	0.00	1.00	28.04	0 / 12	-
METAL	Iron	µg/L	21	5	23.81	2380	NA	10.1	429	131	70	152	0.00	NA	2,380	0 / 21	-
METAL	Lead	µg/L	12	1	8.33	14.44	5.6	2	2	2.0	2.0	NA	0.00	0.00	14.44	0 / 12	-
METAL	Magnesium	µg/L	21	21	100.00	1,440,000	NA	14,700	3,640,000	884,224	657,000	804,047	0.24	NA	1,440,000	5 / 21	-
METAL	Manganese	µg/L	12	12	100.00	8,140	NA	30	1,480	823	767	461	0.00	NA	8,140	0 / 12	-
METAL	Mercury	µg/L	19	1	5.26	0.6	0.025	0.18	0.18	0.18	0.18	NA	0.00	1.00	0.6	0 / 19	-
METAL	Molybdenum	µg/L	12	1	8.33	61.9	NA	1.7	1.7	1.7	1.7	NA	0.00	NA	61.9	0 / 12	-
METAL	Nickel	µg/L	12	11	91.67	96.48	8.2	15.9	49.6	27.1	24.5	9.4	0.00	1.00	96.48	0 / 12	-
METAL	Potassium	µg/L	21	21	100.00	448,000	NA	765	295,000	56,075	27,000	78,460	0.00	NA	448,000	0 / 21	-
METAL	Selenium	µg/L	12	4	33.33	14.5	71	2.8	4.6	3.9	4.2	0.7	0.00	0.00	71	0 / 12	-
METAL	Silver	µg/L	12	0	0.00	7.43	0.38	ND	ND	ND	ND	ND	ND	ND	7.43	0 / 12	-
METAL	Sodium	µg/L	21	21	100.00	9,242,000	NA	193,000	8,000,000	3,027,667	2,400,000	1,989,383	0.00	NA	9,242,000	0 / 21	-
METAL	Thallium	µg/L	12	1	8.33	12.97	426	3	3	3.0	3.0	NA	0.00	0.00	426	0 / 12	-
METAL	Vanadium	µg/L	12	9	75.00	26.62	NA	0.72	11	5.4	5.9	3.4	0.00	NA	26.62	0 / 12	-
METAL	Zinc	µg/L	13	5	38.46	75.68	81	11.3	143	50.6	28.0	49.1	0.20	0.20	81	1 / 13	COPEC
VOA	1,1,1,2-Tetrachloroethane	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1,1-Trichloroethane	µg/L	77	0	0.00	NA	6,240	ND	ND	ND	ND	ND	ND	ND	6,240	0 / 77	-
VOA	1,1,2,2-Tetrachloroethane	µg/L	77	0	0.00	NA	1,804	ND	ND	ND	ND	ND	ND	ND	1,804	0 / 77	-
VOA	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	46	4	8.70	NA	NA	0.4	2.6	1.2	0.8	0.9	NA	NA	NA	NA	-
VOA	1,1,2-Trichloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1-Dichloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,1-Dichloroethene	µg/L	77	0	0.00	NA	44,800	ND	ND	ND	ND	ND	ND	ND	44,800	0 / 77	-
VOA	1,1-Dichloropropene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,3-Trichlorobenzene	µg/L	22	1	4.55	NA	NA	0.77	0.77	0.77	0.77	NA	NA	NA	NA	NA	-
VOA	1,2,3-Trichloropropane	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2,4-Trichlorobenzene	µg/L	77	3	3.90	NA	129	0.35	0.94	0.56	0.4	0.27	NA	0.00	129	0 / 77	-
VOA	1,2,4-Trimethylbenzene	µg/L	14	7	50.00	NA	NA	8	48	31.0	25.0	14.5	NA	NA	NA	NA	-
VOA	1,2-Dibromo-3-Chloropropane	µg/L	68	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dibromoethane	µg/L	32	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,2-Dichlorobenzene	µg/L	77	12	15.58	NA	129	0.17	100	50.0	57.5	28.8	NA	0.00	129	0 / 77	-
VOA	1,2-Dichloroethane	µg/L	77	0	0.00	NA	22,600	ND	ND	ND	ND	ND	ND	ND	22,600	0 / 77	-
VOA	1,2-Dichloroethene (Total)	µg/L	9	0	0.00	NA	44,800	ND	ND	ND	ND	ND	ND	ND	44,800	0 / 9	-
VOA	1,2-Dichloropropane	µg/L	77	0	0.00	NA	3,040	ND	ND	ND	ND	ND	ND	ND	3,040	0 / 77	-
VOA	1,3,5-Trimethylbenzene	µg/L	14	3	21.43	NA	NA	1.8	3.7	2.5	1.9	0.9	NA	NA	NA	NA	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
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Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
VOA	1,3-Dichlorobenzene	µg/L	77	12	15.58	NA	129	0.2	84	29.9	21.0	30.6	NA	0.00	129	0 / 77	-
VOA	1,3-Dichloropropane	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	1,4-Dichlorobenzene	µg/L	77	13	16.88	NA	129	0.37	180	62.3	25.0	65.6	NA	0.23	129	3 / 77	COPEC
VOA	2,2-Dichloropropane	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Butanone	µg/L	33	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Chlorotoluene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	2-Hexanone	µg/L	20	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Chlorotoluene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	4-Methyl-2-Pentanone	µg/L	33	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Acetone	µg/L	34	4	11.76	NA	NA	16	120	58.8	49.5	44.7	NA	NA	NA	NA	-
VOA	Benzene	µg/L	77	4	5.19	NA	700	0.24	9	4.6	4.5	4.2	NA	0.00	700	0 / 77	-
VOA	Bromobenzene	µg/L	50	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Bromochloromethane	µg/L	32	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 32	-
VOA	Bromodichloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Bromoform	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Bromomethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Carbon Disulfide	µg/L	41	4	9.76	NA	NA	0.25	6	2.8	2.5	2.1	NA	NA	NA	NA	-
VOA	Carbon Tetrachloride	µg/L	77	6	7.79	NA	6,400	0.31	11	5.0	5.2	3.4	NA	0.00	6,400	0 / 77	-
VOA	Chlorobenzene	µg/L	77	11	14.29	NA	129	0.1	1000	365	300	405	NA	0.55	129	6 / 77	COPEC
VOA	Chloroethane	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Chloroform	µg/L	77	17	22.08	NA	6,400	0.17	7.3	1.9	1.4	1.8	NA	0.00	6,400	0 / 77	-
VOA	Chloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	cis-1,2-Dichloroethene	µg/L	68	17	25.00	NA	44,800	0.15	870	217	55	294	NA	0.00	44,800	0 / 68	-
VOA	cis-1,3-Dichloropropene	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Cyclohexane	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Dibromochloromethane	µg/L	77	0	0.00	NA	6,400	ND	ND	ND	ND	ND	ND	ND	6,400	0 / 77	-
VOA	Dibromomethane	µg/L	50	1	2.00	NA	NA	0.25	0.25	0.25	0.25	NA	NA	NA	NA	NA	-
VOA	Dichlorodifluoromethane	µg/L	58	3	5.17	NA	NA	0.28	0.6	0.41	0.34	0.14	NA	NA	NA	NA	-
VOA	Ethylbenzene	µg/L	77	6	7.79	NA	86	0.19	16	3.0	0.4	5.8	NA	0.00	86	0 / 77	-
VOA	Isopropylbenzene	µg/L	22	2	9.09	NA	NA	0.12	0.59	0.36	0.355	0.24	NA	NA	NA	NA	-
VOA	m,p-Xylenes	µg/L	10	2	20.00	NA	NA	0.74	2.1	1.4	1.4	0.7	NA	NA	NA	NA	-
VOA	Methyl Acetate	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylcyclohexane	µg/L	8	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Methylene Chloride	µg/L	77	2	2.60	NA	6,400	0.66	21	10.8	10.8	10.2	NA	0.00	6,400	0 / 77	-
VOA	n-Butylbenzene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Naphthalene	µg/L	29	7	24.14	NA	470	2.6	42	21.9	19.0	11.3	NA	0.00	470	0 / 29	-
VOA	o-Xylene	µg/L	10	1	10.00	NA	NA	1.1	1.1	1.1	1.1	NA	NA	NA	NA	NA	-
VOA	Para-Isopropyl Toluene	µg/L	14	1	7.14	NA	NA	0.62	0.62	0.62	0.62	NA	NA	NA	NA	NA	-
VOA	Propylbenzene	µg/L	14	1	7.14	NA	NA	0.74	0.74	0.74	0.74	NA	NA	NA	NA	NA	-
VOA	Sec-Butylbenzene	µg/L	14	1	7.14	NA	NA	0.55	0.55	0.55	0.55	NA	NA	NA	NA	NA	-
VOA	Styrene	µg/L	41	1	2.44	NA	NA	0.8	0.8	0.80	0.8	NA	NA	NA	NA	NA	-
VOA	Tert-Butyl Methyl Ether	µg/L	68	0	0.00	NA	8,000	ND	ND	ND	ND	ND	ND	ND	8,000	0 / 68	-

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VOA	Tert-Butylbenzene	µg/L	14	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Tetrachloroethene	µg/L	77	12	15.58	NA	450	1.7	55	12.2	2.8	18.6	NA	0.00	450	0 / 77	-
VOA	Toluene	µg/L	77	3	3.90	NA	5,000	0.2	0.87	0.55	0.58	0.27	NA	0.00	5,000	0 / 77	-
VOA	Total LMW PAH	µg/L	29	7	24.14	NA	NA	5.2	84	43.9	38.0	22.5	NA	NA	NA	NA	-
VOA	Total PAH	µg/L	29	7	24.14	NA	NA	5.2	84	43.9	38.0	22.5	NA	NA	NA	NA	-
VOA	trans-1,2-Dichloroethene	µg/L	68	2	2.94	NA	44,800	0.52	0.83	0.68	0.675	0.16	NA	0.00	44,800	0 / 68	-
VOA	trans-1,3-Dichloropropene	µg/L	77	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Trichloroethene	µg/L	77	23	29.87	NA	400	0.2	28	6.1	3.5	7.0	NA	0.00	400	0 / 77	-
VOA	Trichlorofluoromethane	µg/L	58	10	17.24	NA	NA	0.14	16	5.1	1.8	6.1	NA	NA	NA	NA	-
VOA	Vinyl Acetate	µg/L	2	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
VOA	Vinyl Chloride	µg/L	77	13	16.88	NA	NA	0.29	84	33.6	34.0	29.8	NA	NA	NA	NA	-
VOA	Xylene (Total)	µg/L	67	6	8.96	NA	NA	0.57	31	6.9	2.2	10.9	NA	NA	NA	NA	-
SVOA	1,4-Dioxane	µg/L	3	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,2'-Oxybis(1-chloropropane)	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,5-Trichlorophenol	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4,6-Trichlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dichlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dimethylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2,4-Dinitrophenol	µg/L	15	0	0.00	NA	46	ND	ND	ND	ND	ND	ND	ND	46	0 / 15	-
SVOA	2,4-Dinitrotoluene	µg/L	15	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 15	-
SVOA	2,6-Dinitrotoluene	µg/L	15	0	0.00	NA	118	ND	ND	ND	ND	ND	ND	ND	118	0 / 15	-
SVOA	2-Chloronaphthalene	µg/L	15	0	0.00	NA	1.5	ND	ND	ND	ND	ND	ND	ND	1.5	0 / 15	-
SVOA	2-Chlorophenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylnaphthalene	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	2-Nitrophenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	3,3'-Dichlorobenzidine	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	3-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4,6-Dinitro-2-Methylphenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	4-Bromophenyl-Phenylether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloro-3-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chloroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Chlorophenyl-Phenylether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Methylphenol	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitroaniline	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	4-Nitrophenol	µg/L	15	0	0.00	NA	970	ND	ND	ND	ND	ND	ND	ND	970	0 / 15	-
SVOA	Acenaphthene	µg/L	15	0	0.00	NA	710	ND	ND	ND	ND	ND	ND	ND	710	0 / 15	-
SVOA	Acenaphthylene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(a)anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(a)pyrene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(b)fluoranthene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
SVOA	Benzo(g,h,i)perylene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzo(k)fluoranthene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Benzoic Acid	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Benzyl Alcohol	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethoxy)methane	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-chloroethyl)ether	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Bis(2-ethylhexyl)phthalate	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Butylbenzylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Carbazole	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Chrysene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Di-N-Butylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Di-N-Octylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Dibenz(a,h)anthracene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Dibenzofuran	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	Diethylphthalate	µg/L	15	0	0.00	NA	588.8	ND	ND	ND	ND	ND	ND	ND	588.8	0 / 15	-
SVOA	Dimethylphthalate	µg/L	15	0	0.00	NA	3.4	ND	ND	ND	ND	ND	ND	ND	3.4	0 / 15	-
SVOA	Fluoranthene	µg/L	15	1	6.67	NA	16	1	1	1.0	1.0	NA	NA	0.00	16	0 / 15	-
SVOA	Fluorene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Hexachlorobenzene	µg/L	15	0	0.00	NA	129	ND	ND	ND	ND	ND	ND	ND	129	0 / 15	-
SVOA	Hexachlorobutadiene	µg/L	29	0	0.00	NA	6.4	ND	ND	ND	ND	ND	ND	ND	6.4	0 / 29	-
SVOA	Hexachlorocyclopentadiene	µg/L	15	0	0.00	NA	1.4	ND	ND	ND	ND	ND	ND	ND	1.4	0 / 15	-
SVOA	Hexachloroethane	µg/L	15	0	0.00	NA	188	ND	ND	ND	ND	ND	ND	ND	188	0 / 15	-
SVOA	Indeno(1,2,3-cd)pyrene	µg/L	15	0	0.00	NA	60	ND	ND	ND	ND	ND	ND	ND	60	0 / 15	-
SVOA	Isophorone	µg/L	15	0	0.00	NA	2,580	ND	ND	ND	ND	ND	ND	ND	2,580	0 / 15	-
SVOA	n-Nitroso-Di-N-Propylamine	µg/L	15	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 15	-
SVOA	n-Nitrosodimethylamine	µg/L	6	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
SVOA	n-Nitrosodiphenylamine	µg/L	15	0	0.00	NA	660,000	ND	ND	ND	ND	ND	ND	ND	660,000	0 / 15	-
SVOA	Nitrobenzene	µg/L	15	0	0.00	NA	1,336	ND	ND	ND	ND	ND	ND	ND	1,336	0 / 15	-
SVOA	Pentachlorophenol	µg/L	15	0	0.00	NA	7.9	ND	ND	ND	ND	ND	ND	ND	7.9	0 / 15	-
SVOA	Phenanthrene	µg/L	15	1	6.67	NA	60	0.8	0.8	0.80	0.8	NA	NA	0.00	60	0 / 15	-
SVOA	Phenol	µg/L	15	0	0.00	NA	1,160	ND	ND	ND	ND	ND	ND	ND	1,160	0 / 15	-
SVOA	Pyrene	µg/L	15	1	6.67	NA	60	1	1	1.0	1.0	NA	NA	0.00	60	0 / 15	-
SVOA	Total Chlordane	µg/L	15	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PCB	Aroclor-1016	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1221	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1232	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1242	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1248	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1254	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-
PCB	Aroclor-1260	µg/L	9	0	0.00	NA	0.03	ND	ND	ND	ND	ND	ND	ND	0.03	0 / 9	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Analyte Group	Chemical	Unit	Number of Analyses	Number of Detections	Percent Detections	HGAL	Surface Water Criteria	Minimum Detected Conc.	Maximum Detected Conc.	Average Detected Conc.	Median Detected Conc.	Standard Deviation Detected Conc.	Fraction Detects Greater than HGAL	Fraction Detects Greater than Surface Water Criteria	Selected Criteria	Frequency of Analyses Above Criteria	COPEC/ COEC
PCB	Total Aroclor	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	4,4'-DDD	µg/L	9	0	0.00	NA	0.72	ND	ND	ND	ND	ND	ND	ND	0.72	0 / 9	-
PEST	4,4'-DDE	µg/L	9	0	0.00	NA	2.8	ND	ND	ND	ND	ND	ND	ND	2.8	0 / 9	-
PEST	4,4'-DDT	µg/L	9	0	0.00	NA	0.001	ND	ND	ND	ND	ND	ND	ND	0.001	0 / 9	-
PEST	Aldrin	µg/L	9	0	0.00	NA	0.26	ND	ND	ND	ND	ND	ND	ND	0.26	0 / 9	-
PEST	alpha-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	alpha-Chlordane	µg/L	9	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 9	-
PEST	beta-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	delta-BHC	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Dieldrin	µg/L	9	0	0.00	NA	0.142	ND	ND	ND	ND	ND	ND	ND	0.142	0 / 9	-
PEST	Endosulfan I	µg/L	9	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 9	-
PEST	Endosulfan II	µg/L	9	0	0.00	NA	0.0087	ND	ND	ND	ND	ND	ND	ND	0.0087	0 / 9	-
PEST	Endosulfan Sulfate	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin	µg/L	9	0	0.00	NA	0.0023	ND	ND	ND	ND	ND	ND	ND	0.0023	0 / 9	-
PEST	Endrin Aldehyde	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Endrin Ketone	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	gamma-BHC (Lindane)	µg/L	9	0	0.00	NA	0.032	ND	ND	ND	ND	ND	ND	ND	0.032	0 / 9	-
PEST	Gamma-Chlordane	µg/L	9	0	0.00	NA	0.004	ND	ND	ND	ND	ND	ND	ND	0.004	0 / 9	-
PEST	Heptachlor	µg/L	9	0	0.00	NA	0.0036	ND	ND	ND	ND	ND	ND	ND	0.0036	0 / 9	-
PEST	Heptachlor Epoxide	µg/L	9	0	0.00	NA	0.0036	ND	ND	ND	ND	ND	ND	ND	0.0036	0 / 9	-
PEST	Methoxychlor	µg/L	9	0	0.00	NA	0.003	ND	ND	ND	ND	ND	ND	ND	0.003	0 / 9	-
PEST	Total Chlordane	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Total DDT	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
PEST	Toxaphene	µg/L	9	0	0.00	NA	0.0002	ND	ND	ND	ND	ND	ND	ND	0.0002	0 / 9	-
SOLIDS	Total Dissolved Solids	µg/L	44	44	100.00	NA	NA	620,000	30,700,000	11,030,455	10,600,000	7,675,599	NA	NA	NA	NA	-
SOLIDS	Total Suspended Solids	µg/L	1	1	100.00	NA	NA	11,000	11,000	11,000	11,000	NA	NA	NA	NA	NA	-
TOC	Total Organic Carbon	µg/L	3	2	66.67	NA	NA	1,300	2,300	1,800	1,800	500	NA	NA	NA	NA	-
TPHEXT	Diesel-Range Organics	µg/L	28	8	28.57	NA	1,400	75	660	302	185	242	NA	0.00	1,400	0 / 28	-
TPHEXT	Motor Oil-Range Organics	µg/L	28	10	35.71	NA	1,400	22	900	242	87	272	NA	0.00	1,400	0 / 28	-
TPHPRG	Gasoline-Range Organics	µg/L	28	9	32.14	NA	1,400	24	420	167	60	166	NA	0.00	1,400	0 / 28	-
ALKALN	Bicarbonate Alkalinity	µg/L	9	9	100.00	NA	NA	250,000	1,090,000	480,222	428,000	230,326	NA	NA	NA	NA	-
ALKALN	Carbonate Alkalinity	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Hydroxide Alkalinity	µg/L	9	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
ALKALN	Total Alkalinity	µg/L	10	10	100.00	NA	NA	250,000	1,090,000	481,800	440,000	218,558	NA	NA	NA	NA	-
ANION	Chloride	µg/L	15	15	100.00	NA	NA	192,000	19,000,000	7,913,933	6,660,000	5,762,438	NA	NA	NA	NA	-
ANION	Fluoride	µg/L	3	1	33.33	NA	NA	160	160	160	160	NA	NA	NA	NA	NA	-
ANION	Nitrate As Nitrogen	µg/L	15	7	46.67	NA	NA	20	23,000	5,051	420	7,809	NA	NA	NA	NA	-
ANION	Nitrate/Nitrite As Nitrogen	µg/L	10	8	80.00	NA	NA	20	23,000	4,465	330	7,500	NA	NA	NA	NA	-
ANION	Nitrite As Nitrogen	µg/L	13	4	30.77	NA	NA	17	210	82.3	51.0	75.5	NA	NA	NA	NA	-
ANION	Orthophosphate	µg/L	5	1	20.00	NA	NA	26,700	26,700	26,700	26,700	NA	NA	NA	NA	NA	-
ANION	Sulfate	µg/L	15	15	100.00	NA	NA	37,200	1,810,000	616,080	343,000	550,174	NA	NA	NA	NA	-
CEC	Calcium	µg/L	1	1	100.00	NA	NA	98,000	98,000	98,000	98,000	NA	NA	NA	NA	NA	-

TABLE G-3: PARCEL-WIDE COMPARISON OF CHEMICAL CONCENTRATIONS IN B-AQUIFER GROUNDWATER WITH SURFACE WATER QUALITY SCREENING CRITERIA (CONTINUED)
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CEC	Iron	µg/L	1	1	100.00	2,380	NA	310	310	310	310	NA	0.00	NA	2,380	0 / 1	-
CEC	Magnesium	µg/L	1	1	100.00	1,440,000	NA	390,000	390,000	390,000	390,000	NA	0.00	NA	1,440,000	0 / 1	-
CEC	Potassium	µg/L	1	1	100.00	448,000	NA	34,000	34,000	34,000	34,000	NA	0.00	NA	448,000	0 / 1	-
CEC	Sodium	µg/L	1	1	100.00	9,242,000	NA	2,200,000	2,200,000	2,200,000	2,200,000	NA	0.00	NA	9,242,000	0 / 1	-
DGASES	Ethane	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DGASES	Ethene	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DGASES	Methane	µg/L	1	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
DO	Dissolved Oxygen	µg/L	17	17	100.00	NA	NA	40	6,670	2,269	1,380	2,148	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Bottom	µg/L	10	10	100.00	NA	NA	400	1,560	794	755	349	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Middle	µg/L	11	11	100.00	NA	NA	190	2,980	1,379	1,100	854	NA	NA	NA	NA	-
DO	Downhole Dissolved Oxygen Top	µg/L	10	10	100.00	NA	NA	740	5,280	2,255	1,740	1,366	NA	NA	NA	NA	-
FTK-METAL	Dissolved Iron (II)	µg/L	3	3	100.00	NA	NA	0	1,000	333	0	471	NA	NA	NA	NA	-
FTK-METAL	Dissolved Manganese (II)	µg/L	3	3	100.00	NA	NA	0	11,000	4,033	1,100	4,947	NA	NA	NA	NA	-
FTK-METAL	Total Iron (II)	µg/L	10	10	100.00	NA	NA	0	2,080	698	300	786	NA	NA	NA	NA	-
FTK-METAL	Total Manganese (II)	µg/L	9	9	100.00	NA	NA	0	11,000	3,119	600	4,296	NA	NA	NA	NA	-
MEE	Ethane	µg/L	16	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
MEE	Ethene	µg/L	16	0	0.00	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	-
MEE	Methane	µg/L	16	11	68.75	NA	NA	4	7,000	1,949	410	2,622	NA	NA	NA	NA	-

Notes:

µg/L	Microgram per liter	FTK	Field test kit
BHC	Benzene hexachloride	HGAL	Hunters Point groundwater ambient level
CEC	Cation exchange capacity	MEE	Methane, ethane, ethene
COPEC	Chemical of potential ecological concern	ND	Nondetect
COEC	Chemical of ecological concern	NA	Not applicable or not available
DDD	Dichlorodiphenyldichloroethane	PAH	Polynuclear aromatic hydrocarbon
DDE	Dichlorodiphenyldichloroethene	PEST	Pesticides
DDT	Dichlorodiphenyltrichloroethane	SVOA	Semi-volatile organic compound
DGASES	Dissolved gases	TOC	Total organic carbon
DO	Dissolved oxygen	VOA	Volatile organic compound

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
31	Soil	Section 2.5.3	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Figures 3-2 through 3-7.

Parcel B

Parcel D

CONCRETE SEAWALL DRY DOCK 3

CONCRETE SEAWALL DRY DOCK 2

CONCRETE SEAWALL DRY DOCK 4

SAN FRANCISCO BAY

Blk 10, Blk 11, Blk 13, Blk 18, Blk 20A, Blk 20B, Blk 22, Blk 23, Blk 24, Blk 25, Blk 26, Blk COS-1, Blk COS-2, Blk COS-3, Blk CMI-1

Notes:
1. A 50-foot by 50-foot exposure area (residential grid) is used to evaluate risks associated with Mixed Use and Research and Development planned reuses.
2. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with Maritime/Industrial and Educational/Cultural planned reuses.
3. Risks are based on nonradiological chemicals.

bgs Below ground surface
Blk Block
mg/kg Milligram per kilogram

Location Map

B, C, D, E, E-2, F

- Residential Lead Concentration > 155 mg/kg
- Industrial Lead Concentration > 800 mg/kg
- Recreational Lead Concentration > 155 mg/kg
- Residential Cancer Risk > 1E-06
- Industrial Cancer Risk > 1E-06
- Recreational Cancer Risk > 1E-06
- Residential, Industrial, and Recreational Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- No Data

Parcel C Redevelopment Blocks:

- Research and Development
- Mixed Use
- Open Space
- Maritime/Industrial
- Educational/Cultural
- Parcel Boundary
- Non-Navy Property
- Building
- Road

0 300 600
Scale in Feet

SulTech

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

FIGURE 3-2
TOTAL RISK - SURFACE SOIL (0 TO 2 FEET BGS) RISKS BASED ON PLANNED REUSE
Feasibility Study Report for Parcel C

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Parcel B

Parcel D

CONCRETE SEAWALL DRY DOCK 3

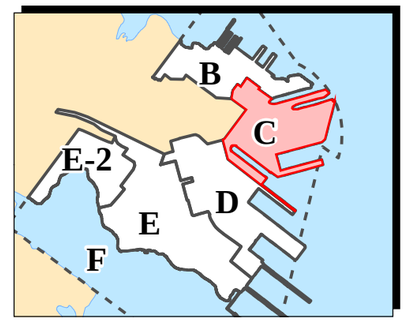
CONCRETE SEAWALL DRY DOCK 2

CONCRETE SEAWALL DRY DOCK 4

SAN FRANCISCO BAY

Blk 10 | Blk 11 | Blk 13 | Blk 18 | Blk 20A | Blk 20B | Blk 22 | Blk 23 | Blk 24 | Blk 25 | Blk 26

Blk COS-1 | Blk COS-2 | Blk COS-3 | Blk CMI-1



Location Map

- Residential Lead Concentration > 155 mg/kg
- Industrial Lead Concentration > 800 mg/kg
- Residential Cancer Risk > 1E-06
- Industrial Cancer Risk > 1E-06
- Residential and Industrial Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- Data Available; Recreational Scenario Not Evaluated for Subsurface Soil
- No Data

Parcel C Redevelopment Blocks:

- Research and Development
- Mixed Use
- Open Space
- Maritime/Industrial
- Educational/Cultural
- Parcel Boundary
- Non-Navy Property
- 253 Building
- Road

0 300 600

Scale in Feet

Notes:
1. A 50-foot by 50-foot exposure area (residential grid) is used to evaluate risks associated with Mixed Use and Research and Development planned reuses.
2. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with Maritime/Industrial and Educational/Cultural planned reuses.
3. Risks are based on nonradiological chemicals.

bgs Below ground surface
Blk Block
mg/kg Milligram per kilogram

SulTech

Hunters Point Shipyard, San Francisco, California

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

FIGURE 3-3
TOTAL RISK - SUBSURFACE SOIL (0 TO 10 FEET BGS) RISKS BASED ON PLANNED REUSE

Feasibility Study Report for Parcel C

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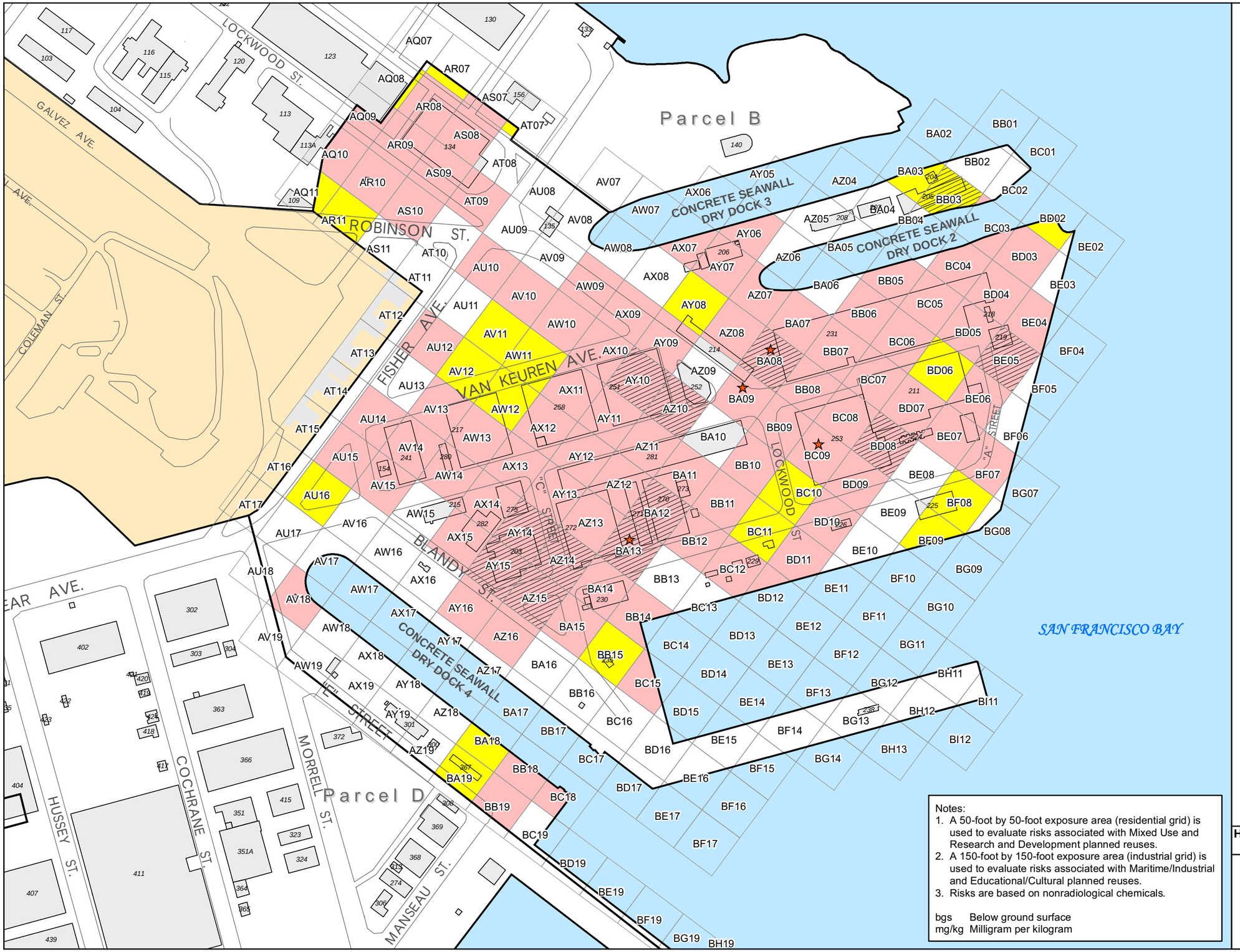

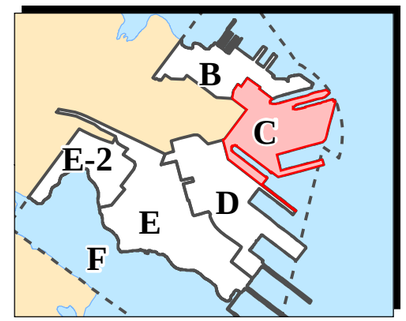

Location Map

- Industrial Lead Concentration > 800 mg/kg
- Construction Worker Cancer Risk > 1E-06
- Construction Worker Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- No Data
- Parcel Boundary
- Non-Navy Property
- 253 Building
- Road

0 300 600

Scale in Feet

Notes:
1. A 50-foot by 50-foot exposure area (residential grid) is used to evaluate risks associated with Mixed Use and Research and Development planned reuses.
2. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with Maritime/Industrial and Educational/Cultural planned reuses.
3. Risks are based on nonradiological chemicals.

bgs Below ground surface
mg/kg Milligram per kilogram

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

FIGURE 3-4
TOTAL RISK - SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER EXPOSURE SCENARIO
Feasibility Study Report for Parcel C

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Parcel B

Parcel D

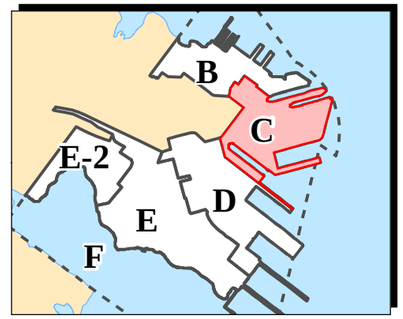
SAN FRANCISCO BAY

CONCRETE SEAWALL DRY DOCK 3

CONCRETE SEAWALL DRY DOCK 2

CONCRETE SEAWALL DRY DOCK 4

Blk 10 · Blk 11 · Blk 13 · Blk 18 · Blk 20A · Blk 20B · Blk 22 · Blk 23 · Blk 24 · Blk 25 · Blk 26 · Blk COS-1 · Blk COS-2 · Blk COS-3 · Blk CMI-1



Location Map

- Residential Lead Concentration > 155 mg/kg
- Industrial Lead Concentration > 800 mg/kg
- Recreational Lead Concentration > 155 mg/kg
- Residential Cancer Risk > 1E-06
- Industrial Cancer Risk > 1E-06
- Recreational Cancer Risk > 1E-06
- Residential, Industrial, and Recreational Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- No Data

Parcel C Redevelopment Blocks:

- Research and Development
- Mixed Use
- Open Space
- Maritime/Industrial
- Educational/Cultural
- Parcel Boundary
- Non-Navy Property
- 253 Building
- Road

0 300 600

Scale in Feet

SulTech

Notes:
1. A 50-foot by 50-foot exposure area (residential grid) is used to evaluate risks associated with Mixed Use and Research and Development planned reuses.
2. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with Maritime/Industrial and Educational/Cultural planned reuses.
3. Risks are based on nonradiological chemicals.

bgs Below ground surface
Blk Block
mg/kg Milligram per kilogram

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

FIGURE 3-5
INCREMENTAL RISK - SURFACE SOIL (0 TO 2 FEET BGS) RISKS BASED ON PLANNED REUSE
Feasibility Study Report for Parcel C

Parcel B

Parcel D

SAN FRANCISCO BAY

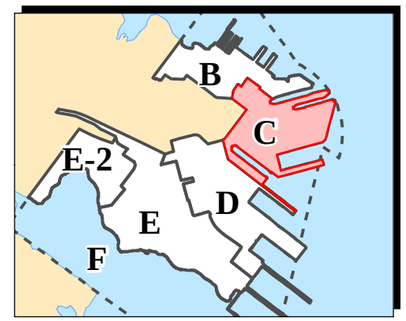
CONCRETE SEAWALL DRY DOCK 3

CONCRETE SEAWALL DRY DOCK 2

CONCRETE SEAWALL DRY DOCK 4

Blk 10 | Blk 11 | Blk 13 | Blk 18 | Blk 20A | Blk 20B | Blk 22 | Blk 23 | Blk 24 | Blk 25 | Blk 26

Blk COS-1 | Blk COS-2 | Blk COS-3 | Blk CMI-1



Location Map

- Residential Lead Concentration > 155 mg/kg
- Industrial Lead Concentration > 800 mg/kg
- Residential Cancer Risk > 1E-06
- Industrial Cancer Risk > 1E-06
- Residential and Industrial Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- Data Available; Recreational Scenario Not Evaluated for Subsurface Soil
- No Data

Parcel C Redevelopment Blocks:

- Research and Development
- Mixed Use
- Open Space
- Maritime/Industrial
- Educational/Cultural
- Parcel Boundary
- Non-Navy Property
- 253 Building
- Road

0 300 600

Scale in Feet

Notes:
1. A 50-foot by 50-foot exposure area (residential grid) is used to evaluate risks associated with Mixed Use and Research and Development planned reuses.
2. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with Maritime/Industrial and Educational/Cultural planned reuses.
3. Risks are based on nonradiological chemicals.

bgs Below ground surface
Blk Block
mg/kg Milligram per kilogram

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Hunters Point Shipyard, San Francisco, California

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

FIGURE 3-6
INCREMENTAL RISK - SUBSURFACE SOIL (0 TO 10 FEET BGS) RISKS BASED ON PLANNED REUSE

Feasibility Study Report for Parcel C

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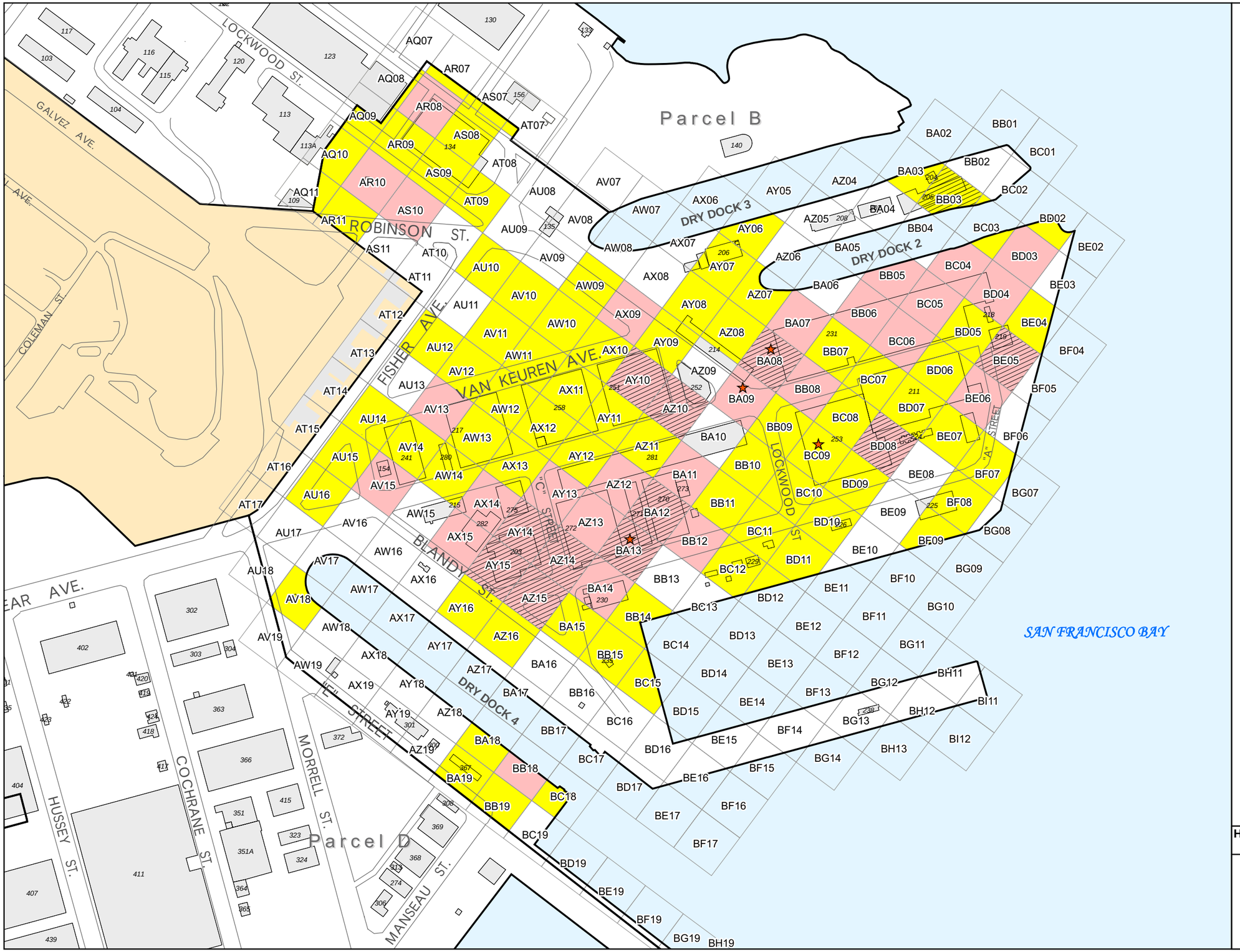
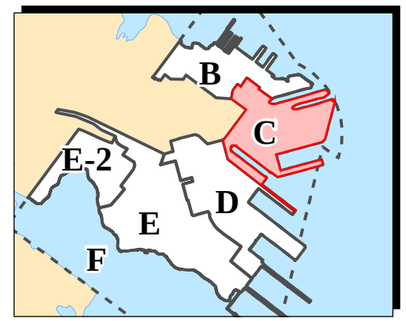




Location Map

- Industrial Lead Concentration > 800 mg/kg
- Construction Worker Cancer Risk > 1E-06
- Construction Worker Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- No Data
- Parcel Boundary
- Non-Navy Property
- 253 Building
- Road

Notes:
1. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with construction worker exposures.
2. Risks are based on nonradiological chemicals.

bgs Below ground surface
mg/kg Milligram per kilogram

0 300 600
Scale in Feet

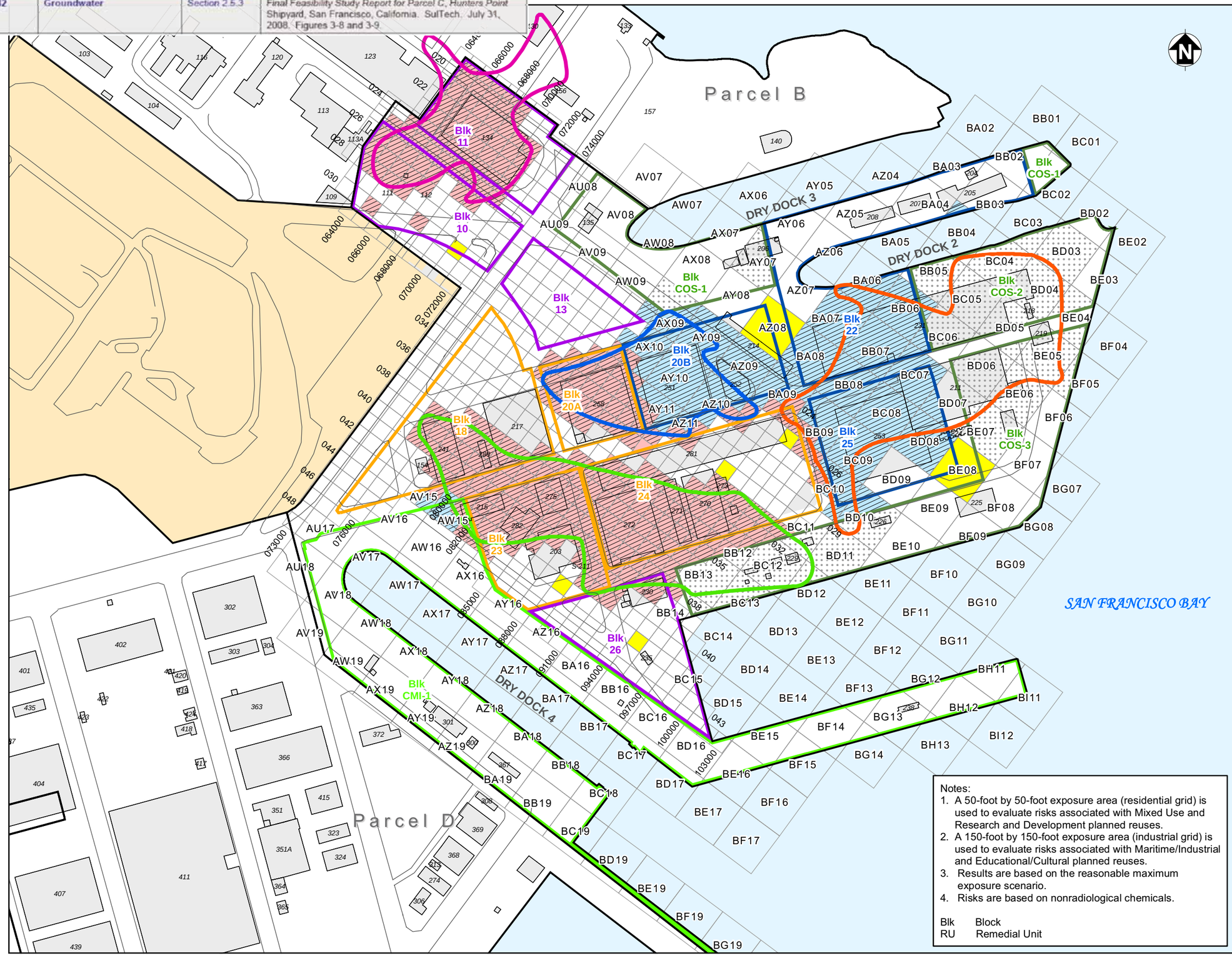
SulTech

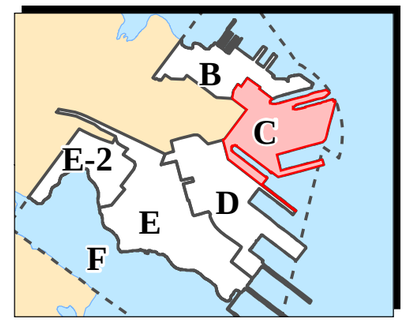
Hunters Point Shipyard, San Francisco, California
U.S. Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 3-7
INCREMENTAL RISK - SUBSURFACE SOIL (0 TO 10 FEET BGS), CONSTRUCTION WORKER EXPOSURE SCENARIO
Feasibility Study Report for Parcel C

07/29/2008 O:\Hunters Point\Projects\Parcel_C\Parcel C FS\risk\May2007\Parcel_C_3-7.mxd TtEMI-DN Kurt.Cholak

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
32	Groundwater	Section 2.5.3	*Final Feasibility Study Report for Parcel C, Hunters Point* Shipyard, San Francisco, California. SulTech. July 31, 2008. Figures 3-8 and 3-9.





Location Map

- RU-C1 Risk Plume
- RU-C2 Risk Plume
- RU-C4 Risk Plume
- RU-C5 Risk Plume
- Residential Cancer Risk > 1E-06
- Industrial Cancer Risk > 1E-06
- Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- Recreational Scenario Not Evaluated for Vapor Intrusion
- No Data

Parcel C Redevelopment Blocks:

- Research and Development
- Mixed Use
- Open Space
- Maritime/Industrial
- Educational/Cultural
- Parcel Boundary
- Non-Navy Property
- 253 Building
- Road

0 300 600

Scale in Feet

SulTech

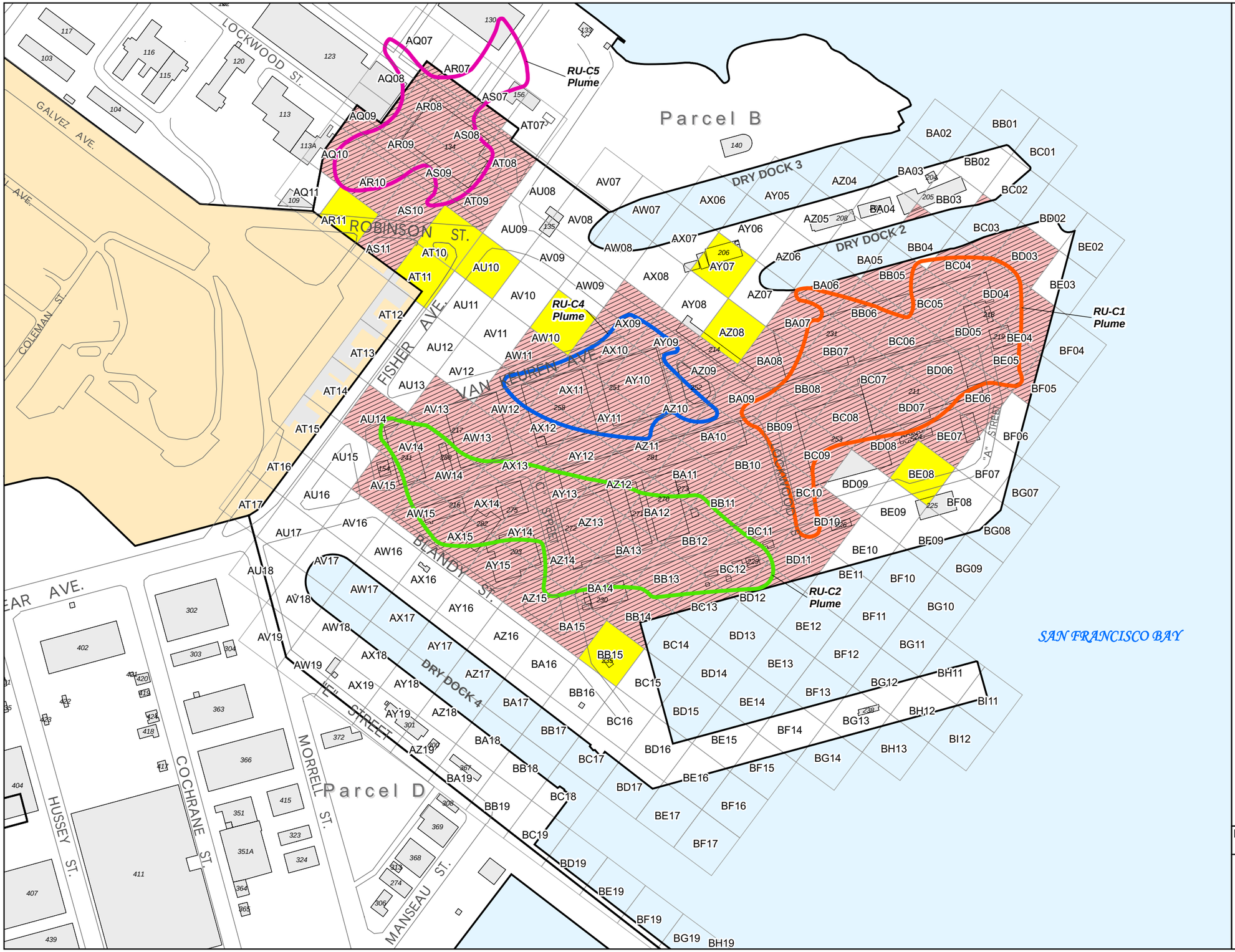
Notes:
1. A 50-foot by 50-foot exposure area (residential grid) is used to evaluate risks associated with Mixed Use and Research and Development planned reuses.
2. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with Maritime/Industrial and Educational/Cultural planned reuses.
3. Results are based on the reasonable maximum exposure scenario.
4. Risks are based on nonradiological chemicals.

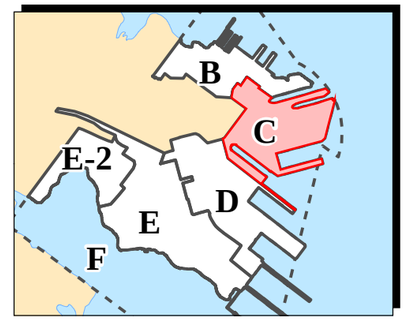
Blk Block
RU Remedial Unit

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

FIGURE 3-8
GROUNDWATER VAPOR INTRUSION RISKS IN THE A-AQUIFER BASED ON PLANNED REUSE
Feasibility Study Report for Parcel C

07/29/2008 O:\Hunters Point\Projects\Parcel_C\Parcel C FS\risk\May2007\Fig3-8_VaporIntrusionReuse.mxd TtEMI-DN Kurt.Cholak





Location Map

- RU-C1 Risk Plume
- RU-C2 Risk Plume
- RU-C4 Risk Plume
- RU-C5 Risk Plume
- Vapor Intrusion Cancer Risk > 1E-06
- Vapor Intrusion Cancer Risk ≤ 1E-06
- Highest Segregated Hazard Index > 1
- No Data
- Parcel Boundary
- Non-Navy Property
- 253 Building
- Road

Notes:
1. A 150-foot by 150-foot exposure area (industrial grid) is used to evaluate risks associated with construction worker exposures.
2. Risks are based on nonradiological chemicals.
3 . Results are based on the reasonable maximum exposure scenario.

RU Remedial Unit

0 300 600

Scale in Feet

SulTech

Hunters Point Shipyard, San Francisco, California

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

FIGURE 3-9
TRENCH GROUNDWATER RISKS IN A-AQUIFER, CONSTRUCTION WORKER EXPOSURE SCENARIO

Feasibility Study Report for Parcel C

07/29/2008 O:\Hunters Point\Projects\Parcel_C\Parcel C FS\risk\May2007\Fig3-9_TrenchGW_Const.mxd TtEMI-DN Kurt.Cholak

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
33	Radiologically impacted structures and soil	Section 2.5.3	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Tables 3-3 to 3-6.

TABLE 3-3

RESRAD-BUILD RESULTS[a]

Parcel C Impacted Sites	Radiological Risk[b]	Dose[cd]
Building 203	1.44×10^{-6}	5.43
Building 205 and Discharge Channel	1.44×10^{-6}	5.43
Building 211	1.30×10^{-6}	9.29
Building 214	1.44×10^{-6}	5.43
Building 224	1.48×10^{-6}	7.02
Building 241	8.70×10^{-7}	12.8
Building 253	1.29×10^{-6}	9.32
Building 271	1.34×10^{-6}	0.64
Building 272	3.09×10^{-6}	3.66

Notes:

[a] Total risk and dose is equivalent to incremental risk and dose
[b] Total excess lifetime carcinogen risk
[c] millirems per year
[d] Dose is calculated using DCGLs. Actual dose will be determined after remediation.

TABLE 3-4

RESRAD RESULTS

Total Dose and Risk		
Impacted Areas	**Radiological Risk[a]**	**Dose[bc]**
Storm Water Sewer System	6.75×10^{-5}	3.09
Sanitary Sewer System	6.75×10^{-5}	3.09
Incremental Dose and Risk		
Impacted Areas	**Radiological Risk[a]**	**Dose[bc]**
Storm Water Sewer System	4.54×10^{-5}	2.08
Sanitary Sewer System	4.54×10^{-5}	2.08

Notes:

[a] Total excess lifetime carcinogen risk.
[b] millirems per year.
[c] Dose is calculated using DCGLs. Actual dose will be determined after remediation.

TABLE 3-5

COMBINED TOTAL RISK FROM CHEMICAL AND RADIOLOGICAL RISKS

Parcel C Impacted Sites	Radiological Risk[b]	Chemical Risk[a,b,c]	Redevelopment Block	Parcel C Grid(s)	Risk Combination Results
Building 203	1.44×10^{-6}	5.00×10^{-4}	23	089040	5.01×10^{-4}
Building 205 and Discharge Channel	1.44×10^{-6}	4.00×10^{-6}	22	BB03	5.40×10^{-6}
Building 211	1.30×10^{-6}	5.00×10^{-5}	25 and COS-3	BE06	5.13×10^{-5}
Building 214	1.44×10^{-6}	5.00×10^{-5}	20B	BA09	5.14×10^{-5}
Building 224	1.48×10^{-6}	4.00×10^{-5}	25	BD08	4.14×10^{-5}
Building 241	8.70×10^{-7}	4.00×10^{-4}	18	079041	4.08×10^{-4}
Building 253	1.29×10^{-6}	4.00×10^{-4}	25	BD08	4.01×10^{-4}
Building 271	1.34×10^{-6}	4.00×10^{-4}	24	093035, 094035	4.01×10^{-4}
Building 272	3.09×10^{-6}	2.00×10^{-3}	24	088036	2.00×10^{-3}
Sanitary Sewer System	6.75×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.72×10^{-3}
Storm Water Sewer System	6.75×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.72×10^{-3}

Notes:

[a] Chemical risk was taken from Revised Feasibility Study Report for Parcel C, Tables 3-2 and 3-3.

[b] Excess lifetime carcinogenic risk.

[c.] The worst case chemical risk was chosen from the girds that the radiologically-impacted buildings or sites overlay.

TABLE 3-6

COMBINED INCREMENTAL RISK FROM CHEMICAL AND RADIOLOGICAL RISKS

Parcel C Impacted Sites	Radiological Risk[b]	Chemical Risk[a,b,c]	Redevelopment Block	Parcel C Grid(s)	Risk Combination Results
Building 203	1.44×10^{-6}	5.00×10^{-4}	23	089040	5.01×10^{-4}
Building 205 and Discharge Channel	1.44×10^{-6}	6.00×10^{-7}	22	BA03, BB03	2.00×10^{-6}
Building 211	1.30×10^{-6}	5.00×10^{-5}	25 and COS-3	BE06	5.13×10^{-5}
Building 214	1.44×10^{-6}	5.00×10^{-5}	20B	BA09	5.14×10^{-5}
Building 224	1.48×10^{-6}	3.00×10^{-5}	25	BD08	3.14×10^{-5}
Building 241	8.70×10^{-7}	4.00×10^{-4}	18	079041	4.00×10^{-4}
Building 253	1.29×10^{-6}	4.00×10^{-5}	25	BD08	4.12×10^{-5}
Building 271	1.34×10^{-6}	4.00×10^{-4}	24	093035, 094035	4.01×10^{-4}
Building 272	3.09×10^{-6}	2.00×10^{-3}	24	088036	2.00×10^{-3}
Sanitary Sewer System	4.54×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.04×10^{-3}
Storm Water Sewer System	4.54×10^{-5}	2.00×10^{-3}	All Blocks	088036	2.04×10^{-3}

Notes:

[a] Chemical risk was taken from Revised Feasibility Study Report for Parcel C, Tables 3-8 and 3-9.

[b] Excess lifetime carcinogenic risk.

[c.] The worst case chemical risk was chosen from the girds that the radiologically-impacted buildings overlay.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
34	Radionuclides of concern	Section 2.5.3	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Table 2-1.

TABLE 2-1

PARCEL C IMPACTED AREAS, RADIONUCLIDES OF CONCERN, HISTORICAL USES, AND PLANNED REUSE

Building Number or Area Title	Radionuclides of Concern	Building or Area Use	Planned Reuse
203	Strontium-90 Cesium-137 Radium-226 Plutonium-239	Power plant facility where contaminated fuel oil was potentially burned	Research and Development
205 and Discharge Channel	Strontium-90 Cesium-137 Radium-226 Plutonium-239	Pump house for Drydock 2	Educational/Cultural
211	Cesium-137 Radium-226 Thorium-232	Machinery and electrical test/repair facility and contractor LLRW storage	Educational/Cultural and Open Space
214	Strontium-90 Cesium-137 Radium-226 Plutonium-239	Combat Weapons System office, administrative offices, and NRDL Health Physics counting room	Educational/Cultural
224	Strontium-90 Cesium-137 Plutonium-239	Air raid shelter and OPERATION CROSSROADS and GREENHOUSE fallout sample storage	Educational/Cultural
241	Thorium-232	Forge shop with use of natural thorium fire brick and potassium nitrate	Research and Development
253	Strontium-90 Cesium-137 Radium-226 Plutonium-239 Thorium-232	Radiography and instrument calibration, storage of equipment from OPERATION CROSSROADS ships, and probable location of radium paint activities	Educational/Cultural
271	Radium-226	Spray painting, paint shop annex, equipment storage/barge service office	Research and Development
272	Cobalt-60 Cesium-137 Radium-226	Machine shop and possible radiography	Research and Development

TABLE 2-1

PARCEL C IMPACTED AREAS, RADIONUCLIDES OF CONCERN, HISTORICAL USES, AND PLANNED REUSE

Building Number or Area Title	Radionuclides of Concern	Building or Area Use	Planned Reuse
Sanitary Sewer System	Strontium-90 Cesium-137 Radium-226	Radiological liquid wastes from ship decontaminations and buildings	Educational/Cultural, Research and Development, Mixed Use, and Open Space
Storm Water Sewer System	Strontium-90 Cesium-137 Radium-226	Radiological liquid wastes from ship decontaminations and buildings	Educational/Cultural, Research and Development, Mixed Use, and Open Space

Abbreviations and Acronyms:

LLRW – low level radioactive waste
NRDL – Naval Radiological Defense Laboratory

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
35	RAOs	Section 2.7	Final Feasibility Study Report for Parcel C. Hunters Point Shipyard, San Francisco, California, SulTech. July 31, 2008. Section 4.1, page 4-1.

This section presents (1) site-specific RAOs, including remediation goals, for soil and groundwater at Parcel C based on the COCs derived in Section 3.0 (see Section 4.1); (2) identifies ARARs (see Section 4.2); and (3) presents a range of GRAs and associated process options that will satisfy the RAOs (see Section 4.3). The GRAs and process options retained through the screening process will then be used in later sections as the basis for developing remedial alternatives.

4.1 REMEDIAL ACTION OBJECTIVES

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

The RAO evaluation for this Final Parcel C FS Report is based on information from the 1997 RI Report, subsequent environmental investigations, and risk evaluations for human health and the environment. The NCP details the expectations for remedy selection in 40 CFR § 300.430 (a)(1)(iii). These expectations were used to evaluate RAOs for Parcel C. In addition, the Department of Defense integrates these NCP expectations with the objectives of the BRAC program for expediting transfer of Department of Defense property for reuse and development.

An important component of developing RAOs is the determination of future land use. According to EPA's land-use directive (EPA 1995), RAOs "should reflect the reasonably anticipated future land use or uses...," thereby allowing for the development of "alternatives that would achieve cleanup levels associated with the reasonably anticipated future land use..." of the site. The EPA land-use directive states that "in cases where future land use is relatively certain, the RAOs generally should reflect this land use..." and "...need not include alternative land use scenarios..." (EPA 1995). RAOs developed for Parcel C are based on the city's planned reuse for each redevelopment block, which are considered the reasonable anticipated end use of the property, as described in the HHRA. In accordance with the EPA land-use directive, this report develops remedial alternatives based on the planned reuse only. Other reuse scenarios were developed in the HHRA and are included in Appendix C. These additional reuse scenarios are provided as a basis for implementing the remedial design (RD) if the currently proposed land use changes before the final ROD and to aid in risk management decision-making.

4.1.1 Remedial Action Objectives for Soil

Separate RAOs are typically developed for human health receptors and for ecological receptors. No ecological RAOs were developed for soil at Parcel C because the parcel contains no identified terrestrial habitat (PRC 1994b). The proposed future land use is research and development, maritime/industrial, educational/cultural, mixed use, and active recreational open

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
36	Table 7 of the final soil gas memorandum	Section 2.7	Final Memorandum: Approach for Developing Soil Gas Action Levels for Vapor Intrusion Exposure at Hunters Point Shipyard, Hunters Point Shipyard, San Francisco, California. ChaduxTt. April 30, 2010. Table 7.

TABLE 7: PRELIMINARY SOIL GAS ACTION LEVELS

Approach for Developing Soil Gas Action Levels for Vapor Intrusion Exposure at Hunters Point Shipyard

Chemical	CAS Number	Soil Gas RBC (Lowest between Cancer- and Noncancer-Based RBC)				Soil Gas RBC Based on Surrogate Chemical for Toxicity Data	Soil Gas RBC Based on Oral Route Extrapolated Toxicity Data	Laboratory Reporting Limit		Reporting Limit Less Than Soil Gas RBC?		Preliminary Soil Gas Action Level (c)							
		Residential		Industrial								Residential				Industrial			
		Cal/EPA α_{sg} = 0.0009	EPA α_{sg} = 0.01	Cal/EPA α_{sg} = 0.0004	EPA α_{sg} = 0.001			Concentration (a)	Analytical Method (b)	Cal/EPA Res α_{sg} = 0.0009 Ind α_{sg} = 0.0004	EPA Res α_{sg} = 0.01 Ind α_{sg} = 0.001	Cal/EPA α_{sg} = 0.0009		EPA α_{sg} = 0.01		Cal/EPA α_{sg} = 0.0004		EPA α_{sg} = 0.001	
Metals																			
MERCURY	7439976	3.48E+02	3.13E+01	3.29E+03	1.31E+03			1.00E+00	NIOSH 6009	Yes	Yes	3.48E+02	nc	3.13E+01	nc	3.29E+03	nc	1.31E+03	nc
Polycyclic Aromatic Hydrocarbons																			
1-METHYLNAPHTHALENE	90120	3.26E+02	2.94E+01	3.70E+03	1.48E+03		X	1.60E+00	TO-13A	Yes	Yes	3.26E+02	ca	2.94E+01	ca	3.70E+03	ca	1.48E+03	ca
2-METHYLNAPHTHALENE	91576	1.62E+04	1.46E+03	1.53E+05	6.13E+04		X	1.60E+00	TO-13A	Yes	Yes	1.62E+04	nc	1.46E+03	nc	1.53E+05	nc	6.13E+04	nc
ACENAPHTHENE	83329	2.43E+05	2.19E+04	2.30E+06	9.20E+05		X	1.60E+00	TO-13A	Yes	Yes	2.43E+05	nc	2.19E+04	nc	2.30E+06	nc	9.20E+05	nc
ACENAPHTHYLENE	208968	2.43E+05	2.19E+04	2.30E+06	9.20E+05	X	X	1.60E+00	TO-13A	Yes	Yes	2.43E+05	nc	2.19E+04	nc	2.30E+06	nc	9.20E+05	nc
BENZO(B)FLUORANTHENE	205992	2.46E+01	2.21E+00	2.79E+02	1.11E+02			1.60E+00	TO-13A	Yes	Yes	2.46E+01	ca	2.21E+00	ca	2.79E+02	ca	1.11E+02	ca
CHRYSENE	218019	2.46E+02	2.21E+01	2.79E+03	1.11E+03			1.60E+00	TO-13A	Yes	Yes	2.46E+02	ca	2.21E+01	ca	2.79E+03	ca	1.11E+03	ca
FLUORENE	86737	1.62E+05	1.46E+04	1.53E+06	6.13E+05		X	1.60E+00	TO-13A	Yes	Yes	1.62E+05	nc	1.46E+04	nc	1.53E+06	nc	6.13E+05	nc
NAPHTHALENE	91203	7.95E+01	7.16E+00	9.02E+02	3.61E+02			1.60E+00	TO-13A	Yes	Yes	7.95E+01	ca	7.16E+00	ca	9.02E+02	ca	3.61E+02	ca
1,6,7-TRIMETHYL-NAPHTHALENE	2245387	1.62E+04	1.46E+03	1.53E+05	6.13E+04	X	X	NE	--	--	--	NE	--	NE	--	NE	--	NE	--
2,6-DIMETHYL-NAPHTHALENE	581420	1.62E+04	1.46E+03	1.53E+05	6.13E+04	X	X	NE	--	--	--	NE	--	NE	--	NE	--	NE	--
PHENANTHRENE	85018	1.22E+06	1.10E+05	1.15E+07	4.60E+06	X	X	1.60E+00	TO-13A	Yes	Yes	1.22E+06	nc	1.10E+05	nc	1.15E+07	nc	4.60E+06	nc
PYRENE	129000	1.22E+05	1.10E+04	1.15E+06	4.60E+05		X	1.60E+00	TO-13A	Yes	Yes	1.22E+05	nc	1.10E+04	nc	1.15E+06	nc	4.60E+05	nc
Pesticides																			
2,4'-DDE	3424826	2.79E+01	2.51E+00	3.16E+02	1.26E+02	X		NE	--	--	--	NE	--	NE	--	NE	--	NE	--
4,4'-DDE	72559	2.79E+01	2.51E+00	3.16E+02	1.26E+02			1.60E-01	TO-10A	Yes	Yes	2.79E+01	ca	2.51E+00	ca	3.16E+02	ca	1.26E+02	ca
ALDRIN	309002	5.52E-01	4.97E-02	6.26E+00	2.50E+00			1.60E-01	TO-10A	Yes	No (> Res)	5.52E-01	ca	1.60E-01	RL	6.26E+00	ca	2.50E+00	ca
ALPHA-BHC	319846	1.50E+00	1.35E-01	1.70E+01	6.81E+00			1.60E-01	TO-10A	Yes	No (> Res)	1.50E+00	ca	1.60E-01	RL	1.70E+01	ca	6.81E+00	ca
ALPHA-CHLORDANE	5103719	2.70E+01	2.43E+00	3.07E+02	1.23E+02	X		1.60E-01	TO-10A	Yes	Yes	2.70E+01	ca	2.43E+00	ca	3.07E+02	ca	1.23E+02	ca
BETA-BHC	319857	5.10E+00	4.59E-01	5.78E+01	2.31E+01			1.60E-01	TO-10A	Yes	Yes	5.10E+00	ca	4.59E-01	ca	5.78E+01	ca	2.31E+01	ca
DELTA-BHC	319868	5.10E+00	4.59E-01	5.78E+01	2.31E+01	X		1.60E-01	TO-10A	Yes	Yes	5.10E+00	ca	4.59E-01	ca	5.78E+01	ca	2.31E+01	ca
DIELDRIN	60571	5.88E-01	5.29E-02	6.67E+00	2.67E+00			1.60E-01	TO-10A	Yes	No (> Res)	5.88E-01	ca	1.60E-01	RL	6.67E+00	ca	2.67E+00	ca
ENDOSULFAN I	959988	2.43E+04	2.19E+03	2.30E+05	9.20E+04	X	X	1.60E-01	TO-10A	Yes	Yes	2.43E+04	nc	2.19E+03	nc	2.30E+05	nc	9.20E+04	nc
ENDOSULFAN II	33213659	2.43E+04	2.19E+03	2.30E+05	9.20E+04	X	X	1.60E-01	TO-10A	Yes	Yes	2.43E+04	nc	2.19E+03	nc	2.30E+05	nc	9.20E+04	nc
GAMMA-BHC (LINDANE)	58899	8.72E+00	7.85E-01	9.89E+01	3.96E+01			1.60E-01	TO-10A	Yes	Yes	8.72E+00	ca	7.85E-01	ca	9.89E+01	ca	3.96E+01	ca
GAMMA-CHLORDANE	5103742	2.70E+01	2.43E+00	3.07E+02	1.23E+02	X		1.60E-01	TO-10A	Yes	Yes	2.70E+01	ca	2.43E+00	ca	3.07E+02	ca	1.23E+02	ca
HEPTACHLOR	76448	2.08E+00	1.87E-01	2.36E+01	9.43E+00			1.60E-01	TO-10A	Yes	Yes	2.08E+00	ca	1.87E-01	ca	2.36E+01	ca	9.43E+00	ca
METHOXYCHLOR	72435	2.03E+04	1.83E+03	1.92E+05	7.67E+04		X	NE	--	--	--	NE	--	NE	--	NE	--	NE	--
Semivolatile Organic Compounds																			
2-CHLORONAPHTHALENE	91587	3.24E+05	2.92E+04	3.07E+06	1.23E+06		X	1.60E+00	TO-13A	Yes	Yes	3.24E+05	nc	2.92E+04	nc	3.07E+06	nc	1.23E+06	nc
2-CHLOROPHENOL	95578	2.03E+04	1.83E+03	1.92E+05	7.67E+04		X	8.00E+00	TO-13A	Yes	Yes	2.03E+04	nc	1.83E+03	nc	1.92E+05	nc	7.67E+04	nc
ACETOPHENONE	98862	4.06E+05	3.65E+04	3.83E+06	1.53E+06		X	NE	--	--	--	NE	--	NE	--	NE	--	NE	--
AZOBENZENE	103333	8.72E+01	7.85E+00	9.89E+02	3.96E+02			NE	--	--	--	NE	--	NE	--	NE	--	NE	--
BIPHENYL	92524	2.03E+05	1.83E+04	1.92E+06	7.67E+05		X	NE	--	--	--	NE	--	NE	--	NE	--	NE	--
DIBENZOFURAN	132649	4.06E+03	3.65E+02	3.83E+04	1.53E+04		X	1.60E+00	TO-13A	Yes	Yes	4.06E+03	nc	3.65E+02	nc	3.83E+04	nc	1.53E+04	nc
HEXACHLOROBENZENE	118741	5.88E+00	5.29E-01	6.67E+01	2.67E+01			1.60E+00	TO-13A	Yes	No (> Res)	5.88E+00	ca	1.60E+00	RL	6.67E+01	ca	2.67E+01	ca

TABLE 7: PRELIMINARY SOIL GAS ACTION LEVELS

Approach for Developing Soil Gas Action Levels for Vapor Intrusion Exposure at Hunters Point Shipyard

Chemical	CAS Number	Soil Gas RBC (Lowest between Cancer- and Noncancer-Based RBC)				Soil Gas RBC Based on Surrogate Chemical for Toxicity Data	Soil Gas RBC Based on Oral Route Extrapolated Toxicity Data	Laboratory Reporting Limit		Reporting Limit Less Than Soil Gas RBC?		Preliminary Soil Gas Action Level (c)					
		Residential		Industrial								Residential				Industrial			
		Cal/EPA α_{sg} = 0.0009	EPA α_{sg} = 0.01	Cal/EPA α_{sg} = 0.0004	EPA α_{sg} = 0.001			Concentration (a)	Analytical Method (b)	Cal/EPA Res α_{sg} = 0.0009 Ind α_{sg} = 0.0004	EPA Res α_{sg} = 0.01 Ind α_{sg} = 0.001	Cal/EPA α_{sg} = 0.0009		EPA α_{sg} = 0.01		Cal/EPA α_{sg} = 0.0004		EPA α_{sg} = 0.001	
Volatile Organic Compounds																			
1,1,1-TRICHLOROETHANE	71556	5.79E+06	5.21E+05	5.48E+07	2.19E+07			1.76E-01	TO-15	Yes	Yes	5.79E+06	nc	5.21E+05	nc	5.48E+07	nc	2.19E+07	nc
1,1,2,2-TETRACHLOROETHANE	79345	4.66E+01	4.20E+00	5.29E+02	2.11E+02			2.24E-01	TO-15	Yes	Yes	4.66E+01	ca	4.20E+00	ca	5.29E+02	ca	2.11E+02	ca
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76131	3.48E+07	3.13E+06	3.29E+08	1.31E+08			1.23E+00	TO-15	Yes	Yes	3.48E+07	nc	3.13E+06	nc	3.29E+08	nc	1.31E+08	nc
1,1,2-TRICHLOROETHANE	79005	1.69E+02	1.52E+01	1.92E+03	7.67E+02			1.76E-01	TO-15	Yes	Yes	1.69E+02	ca	1.52E+01	ca	1.92E+03	ca	7.67E+02	ca
1,1-DICHLOROETHANE	75343	1.69E+03	1.52E+02	1.92E+04	7.67E+03			1.30E-01	TO-15	Yes	Yes	1.69E+03	ca	1.52E+02	ca	1.92E+04	ca	7.67E+03	ca
1,1-DICHLOROETHENE	75354	2.32E+05	2.09E+04	2.19E+06	8.76E+05			6.40E-02	TO-15	Yes	Yes	2.32E+05	nc	2.09E+04	nc	2.19E+06	nc	8.76E+05	nc
1,1-DICHLOROPROPENE	542756	6.76E+02	6.08E+01	7.67E+03	3.07E+03			NA - NS	TO-15 (NS)	ND	ND	ND	--	ND	--	ND	--	ND	--
1,2,3-TRICHLOROBENZENE	87616	3.24E+03	2.92E+02	3.07E+04	1.23E+04		X	NA - NS	TO-15 (NS)	ND	ND	ND	--	ND	--	ND	--	ND	--
1,2,3-TRICHLOROPROPANE	96184	3.15E-01	2.84E-02	3.58E+00	1.43E+00		X	NA - NS	TO-15 (NS)	ND	ND	ND	--	ND	--	ND	--	ND	--
1,2,4-TRICHLOROBENZENE	120821	3.26E+02	2.94E+01	3.70E+03	1.48E+03		X	5.92E+00	TO-15	Yes	Yes	3.26E+02	ca	2.94E+01	ca	3.70E+03	ca	1.48E+03	ca
1,2,4-TRIMETHYLBENZENE	95636	8.11E+03	7.30E+02	7.67E+04	3.07E+04			7.84E-01	TO-15	Yes	Yes	8.11E+03	nc	7.30E+02	nc	7.67E+04	nc	3.07E+04	nc
1,2-DICHLOROBENZENE	95501	2.32E+05	2.09E+04	2.19E+06	8.76E+05			9.60E-01	TO-15	Yes	Yes	2.32E+05	nc	2.09E+04	nc	2.19E+06	nc	8.76E+05	nc
1,2-DICHLOROETHANE	107062	1.04E+02	9.36E+00	1.18E+03	4.72E+02			1.30E-01	TO-15	Yes	Yes	1.04E+02	ca	9.36E+00	ca	1.18E+03	ca	4.72E+02	ca
1,2-DICHLOROETHENE (TOTAL)	540590	3.65E+04	3.29E+03	3.45E+05	1.38E+05		X	4.79E-01	TO-15	Yes	Yes	3.65E+04	nc	3.29E+03	nc	3.45E+05	nc	1.38E+05	nc
1,2-DICHLOROPROPANE	78875	2.70E+02	2.43E+01	3.07E+03	1.23E+03			7.36E-01	TO-15	Yes	Yes	2.70E+02	ca	2.43E+01	ca	3.07E+03	ca	1.23E+03	ca
1,3,5-TRIMETHYLBENZENE	108678	4.06E+04	3.65E+03	3.83E+05	1.53E+05		X	7.84E-01	TO-15	Yes	Yes	4.06E+04	nc	3.65E+03	nc	3.83E+05	nc	1.53E+05	nc
1,3-DICHLOROBENZENE	541731	2.32E+05	2.09E+04	2.19E+06	8.76E+05	X		9.60E-01	TO-15	Yes	Yes	2.32E+05	nc	2.09E+04	nc	2.19E+06	nc	8.76E+05	nc
1,4-DICHLOROBENZENE	106467	2.46E+02	2.21E+01	2.79E+03	1.11E+03			9.60E-01	TO-15	Yes	Yes	2.46E+02	ca	2.21E+01	ca	2.79E+03	ca	1.11E+03	ca
1,4-DIOXANE	123911	3.51E+02	3.16E+01	3.98E+03	1.59E+03			8.00E+00	TO-15	Yes	Yes	3.51E+02	ca	3.16E+01	ca	3.98E+03	ca	1.59E+03	ca
2-BUTANONE	78933	5.79E+06	5.21E+05	5.48E+07	2.19E+07			4.64E-01	TO-15	Yes	Yes	5.79E+06	nc	5.21E+05	nc	5.48E+07	nc	2.19E+07	nc
2-HEXANONE	591786	3.48E+04	3.13E+03	3.29E+05	1.31E+05			3.20E+00	TO-15	Yes	Yes	3.48E+04	nc	3.13E+03	nc	3.29E+05	nc	1.31E+05	nc
4-METHYL-2-PENTANONE	108101	3.48E+06	3.13E+05	3.29E+07	1.31E+07			6.56E-01	TO-15	Yes	Yes	3.48E+06	nc	3.13E+05	nc	3.29E+07	nc	1.31E+07	nc
ACETONE	67641	3.59E+07	3.23E+06	3.39E+08	1.36E+08			1.92E+00	TO-15	Yes	Yes	3.59E+07	nc	3.23E+06	nc	3.39E+08	nc	1.36E+08	nc
BENZALDEHYDE	100527	4.06E+05	3.65E+04	3.83E+06	1.53E+06		X	NE	--	--	--	NE	--	NE	--	NE	--	NE	--
BENZENE	71432	3.47E+02	3.12E+01	3.93E+03	1.57E+03			2.56E-01	TO-15	Yes	Yes	3.47E+02	ca	3.12E+01	ca	3.93E+03	ca	1.57E+03	ca
BROMODICHLOROMETHANE	75274	7.31E+01	6.58E+00	8.29E+02	3.31E+02			1.07E+00	TO-15	Yes	Yes	7.31E+01	ca	6.58E+00	ca	8.29E+02	ca	3.31E+02	ca
BROMOFORM	75252	2.46E+03	2.21E+02	2.79E+04	1.11E+04			1.60E+00	TO-15	Yes	Yes	2.46E+03	ca	2.21E+02	ca	2.79E+04	ca	1.11E+04	ca
BROMOMETHANE	74839	5.79E+03	5.21E+02	5.48E+04	2.19E+04			6.24E-01	TO-15	Yes	Yes	5.79E+03	nc	5.21E+02	nc	5.48E+04	nc	2.19E+04	nc
CARBON DISULFIDE	75150	8.11E+05	7.30E+04	7.67E+06	3.07E+06			2.56E+00	TO-15	Yes	Yes	8.11E+05	nc	7.30E+04	nc	7.67E+06	nc	3.07E+06	nc
CARBON TETRACHLORIDE	56235	1.80E+02	1.62E+01	2.04E+03	8.18E+02			1.01E+00	TO-15	Yes	Yes	1.80E+02	ca	1.62E+01	ca	2.04E+03	ca	8.18E+02	ca
CHLOROBENZENE	108907	5.79E+04	5.21E+03	5.48E+05	2.19E+05			7.36E-01	TO-15	Yes	Yes	5.79E+04	nc	5.21E+03	nc	5.48E+05	nc	2.19E+05	nc
CHLOROETHANE	75003	1.16E+07	1.04E+06	1.10E+08	4.38E+07			4.16E-01	TO-15	Yes	Yes	1.16E+07	nc	1.04E+06	nc	1.10E+08	nc	4.38E+07	nc
CHLOROFORM	67663	1.18E+02	1.06E+01	1.33E+03	5.33E+02			7.84E-01	TO-15	Yes	Yes	1.18E+02	ca	1.06E+01	ca	1.33E+03	ca	5.33E+02	ca
CHLOROMETHANE	74873	1.04E+05	9.39E+03	9.86E+05	3.94E+05			3.36E-01	TO-15	Yes	Yes	1.04E+05	nc	9.39E+03	nc	9.86E+05	nc	3.94E+05	nc
CIS-1,2-DICHLOROETHENE	156592	4.06E+04	3.65E+03	3.83E+05	1.53E+05		X	1.26E-01	TO-15	Yes	Yes	4.06E+04	nc	3.65E+03	nc	3.83E+05	nc	1.53E+05	nc
CIS-1,3-DICHLOROPROPENE	10061015	6.76E+02	6.08E+01	7.67E+03	3.07E+03	X		7.20E-01	TO-15	Yes	Yes	6.76E+02	ca	6.08E+01	ca	7.67E+03	ca	3.07E+03	ca
CYCLOHEXANE	110827	6.95E+06	6.26E+05	6.57E+07	2.63E+07			5.44E-01	TO-15	Yes	Yes	6.95E+06	nc	6.26E+05	nc	6.57E+07	nc	2.63E+07	nc
DIBROMOCHLOROMETHANE	124481	1.00E+02	9.01E+00	1.14E+03	4.54E+02			1.36E+00	TO-15	Yes	Yes	1.00E+02	ca	9.01E+00	ca	1.14E+03	ca	4.54E+02	ca

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Chemical	CAS Number	Soil Gas RBC (Lowest between Cancer- and Noncancer-Based RBC)				Soil Gas RBC Based on Surrogate Chemical for Toxicity Data	Soil Gas RBC Based on Oral Route Extrapolated Toxicity Data	Laboratory Reporting Limit		Reporting Limit Less Than Soil Gas RBC?		Preliminary Soil Gas Action Level (c)					
		Residential		Industrial								Residential				Industrial			
		Cal/EPA α_{sg} = 0.0009	EPA α_{sg} = 0.01	Cal/EPA α_{sg} = 0.0004	EPA α_{sg} = 0.001			Concentration (a)	Analytical Method (b)	Cal/EPA Res α_{sg} = 0.0009 Ind α_{sg} = 0.0004	EPA Res α_{sg} = 0.01 Ind α_{sg} = 0.001	Cal/EPA α_{sg} = 0.0009		EPA α_{sg} = 0.01		Cal/EPA α_{sg} = 0.0004		EPA α_{sg} = 0.001	
DICHLORODIFLUOROMETHANE	75718	2.32E+05	2.09E+04	2.19E+06	8.76E+05			7.84E-01	TO-15	Yes	Yes	2.32E+05	nc	2.09E+04	nc	2.19E+06	nc	8.76E+05	nc
ETHYLBENZENE	100414	1.08E+03	9.73E+01	1.23E+04	4.91E+03			1.39E-01	TO-15	Yes	Yes	1.08E+03	ca	9.73E+01	ca	1.23E+04	ca	4.91E+03	ca
HEXACHLOROETHANE	67721	6.76E+02	6.08E+01	7.67E+03	3.07E+03			1.60E+00	TO-13A	Yes	Yes	6.76E+02	ca	6.08E+01	ca	7.67E+03	ca	3.07E+03	ca
ISOPROPYLBENZENE	98828	4.63E+05	4.17E+04	4.38E+06	1.75E+06			NA - NS	TO-15 (NS)	ND	ND	ND	--	ND	--	ND	--	ND	--
M,P-XYLENES	108383, 106423	8.11E+05	7.30E+04	7.67E+06	3.07E+06	X		2.72E-01	TO-15	Yes	Yes	8.11E+05	nc	7.30E+04	nc	7.67E+06	nc	3.07E+06	nc
METHYL ACETATE	79209	4.06E+06	3.65E+05	3.83E+07	1.53E+07		X	NA - NS	TO-15 (NS)	ND	ND	ND	--	ND	--	ND	--	ND	--
METHYLCYCLOHEXANE	108872	6.95E+06	6.26E+05	6.57E+07	2.63E+07	X		3.20E+00	TO-15	Yes	Yes	6.95E+06	nc	6.26E+05	nc	6.57E+07	nc	2.63E+07	nc
METHYLENE CHLORIDE	75092	5.75E+03	5.18E+02	6.52E+04	2.61E+04			1.10E+00	TO-15	Yes	Yes	5.75E+03	ca	5.18E+02	ca	6.52E+04	ca	2.61E+04	ca
N-BUTYLBENZENE	104518	4.63E+05	4.17E+04	4.38E+06	1.75E+06	X		4.32E+00	TO-15	Yes	Yes	4.63E+05	nc	4.17E+04	nc	4.38E+06	nc	1.75E+06	nc
O-XYLENE	95476	8.11E+05	7.30E+04	7.67E+06	3.07E+06			1.39E-01	TO-15	Yes	Yes	8.11E+05	nc	7.30E+04	nc	7.67E+06	nc	3.07E+06	nc
PARA-ISOPROPYL TOLUENE	99876	4.63E+05	4.17E+04	4.38E+06	1.75E+06	X		NE	--	--	--	NE	--	NE	--	NE	--	NE	--
PROPYLBENZENE	103651	1.16E+06	1.04E+05	1.10E+07	4.38E+06			7.84E-01	TO-15	Yes	Yes	1.16E+06	nc	1.04E+05	nc	1.10E+07	nc	4.38E+06	nc
SEC-BUTYLBENZENE	135988	4.63E+05	4.17E+04	4.38E+06	1.75E+06	X		NA - NS	TO-15 (NS)	ND	ND	ND	--	ND	--	ND	--	ND	--
STYRENE	100425	1.16E+06	1.04E+05	1.10E+07	4.38E+06			6.72E-01	TO-15	Yes	Yes	1.16E+06	nc	1.04E+05	nc	1.10E+07	nc	4.38E+06	nc
TERT-BUTYL METHYL ETHER	1634044	1.04E+04	9.36E+02	1.18E+05	4.72E+04			NE	--	--	--	NE	--	NE	--	NE	--	NE	--
TERT-BUTYLBENZENE	98066	4.63E+05	4.17E+04	4.38E+06	1.75E+06	X		NA - NS	TO-15 (NS)	ND	ND	ND	--	ND	--	ND	--	ND	--
TETRACHLOROETHENE	127184	4.58E+02	4.12E+01	5.20E+03	2.08E+03			2.24E-01	TO-15	Yes	Yes	4.58E+02	ca	4.12E+01	ca	5.20E+03	ca	2.08E+03	ca
TOLUENE	108883	5.79E+06	5.21E+05	5.48E+07	2.19E+07			1.20E-01	TO-15	Yes	Yes	5.79E+06	nc	5.21E+05	nc	5.48E+07	nc	2.19E+07	nc
TRANS-1,2-DICHLOROETHENE	156605	6.95E+04	6.26E+03	6.57E+05	2.63E+05			6.40E-01	TO-15	Yes	Yes	6.95E+04	nc	6.26E+03	nc	6.57E+05	nc	2.63E+05	nc
TRANS-1,3-DICHLOROPROPENE	10061026	6.76E+02	6.08E+01	7.67E+03	3.07E+03	X		7.20E-01	TO-15	Yes	Yes	6.76E+02	ca	6.08E+01	ca	7.67E+03	ca	3.07E+03	ca
TRICHLOROETHENE	79016	1.35E+03	1.22E+02	1.53E+04	6.13E+03			1.76E-01	TO-15	Yes	Yes	1.35E+03	ca	1.22E+02	ca	1.53E+04	ca	6.13E+03	ca
TRICHLOROFLUOROMETHANE	75694	8.11E+05	7.30E+04	7.67E+06	3.07E+06			8.96E-01	TO-15	Yes	Yes	8.11E+05	nc	7.30E+04	nc	7.67E+06	nc	3.07E+06	nc
VINYL ACETATE	108054	2.32E+05	2.09E+04	2.19E+06	8.76E+05			2.88E+00	TO-15	Yes	Yes	2.32E+05	nc	2.09E+04	nc	2.19E+06	nc	8.76E+05	nc
VINYL CHLORIDE	75014	6.14E+02	5.53E+01	6.97E+03	2.79E+03			4.16E-02	TO-15	Yes	Yes	6.14E+02	ca	5.53E+01	ca	6.97E+03	ca	2.79E+03	ca
XYLENE (TOTAL)	1330207	1.16E+05	1.04E+04	1.10E+06	4.38E+05			2.57E-01	TO-15	Yes	Yes	1.16E+05	nc	1.04E+04	nc	1.10E+06	nc	4.38E+05	nc

Notes:

All concentrations are in microgram per cubic meter.

a Reporting limits were adjusted by a factor of 1.6 to account for dilution from pressurization of a 6-liter Summa canister

b The analytical methods listed are a few among several possible methods for soil gas analysis; final analytical methods will be identified in the sampling and analysis plan.

c The prelminary SGAL is based on the lowest concentration between the cancer- and noncancer-based soil gas RBC. If the soil gas RBC is less than the laboratory RL, then the laboratory RL is used as the SGAL.

-- Not applicable
α_{sg} Soil gas-to-indoor air attenuation factor
>Res Exceeds residential soil gas RBC
BHC Benzene hexachloride
ca Cancer risk
Cal/EPA California Environmental Protection Agency
CAS Chemical Abstract Service
DDE Dichlorodiphenyldichloroethene
EPA U.S. Environmental Protection Agency
Ind Industrial
NA Not available
nc Noncancer effects
ND Not determined
NE Not evaluated; analysis not available for analytical method shown
NS Non-standard analysis
RBC Risk-based concentration
Res Residential
RL Reporting limit
SGAL Soil gas action level

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
37	General response actions (GRA)	Section 2.8	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 4.3, page 4-18.

4.3 GENERAL RESPONSE ACTIONS AND PROCESS OPTIONS ANALYSES

GRAs are categories of actions that are made up of technologies. More than process options may be available for each technology. These GRAs are responses or remedies that would meet the RAOs to protect human health and the environment from the known contamination at Parcel C. Process options are specific technologies used to carry out a GRA. Section 4.3.1 describes the GRAs for Parcel C soil and groundwater, and Section 4.3.2 presents the results of the analysis for the proposed GRAs. Options related to remediation of soil gas are discussed together with the other options for soil because of the similarity of the actions and technologies.

4.3.1 Development of General Response Actions

GRAs were derived from engineering judgment and experience with response actions proven successful for the COCs at Parcel C. Because the RAOs were developed based on the planned future land use, the GRAs were also developed considering the planned future land use of each redevelopment block. The GRAs and the process options for Parcel C are presented in Table 4-6 for soil and in Table 4-7 for groundwater. The following GRAs were identified to ensure that the RAOs for soil and groundwater are met.

4.3.1.1 Soil

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use restrictions and access restrictions
- Removal – Includes excavation and off-site disposal of excavated soil
- Treatment – Includes in-situ and/or ex-situ treatment of soil to reduce the toxicity, mobility and/or volume of the chemicals
- Containment – Includes covering contaminated soil to prevent direct exposure of receptors through the dermal contact, inhalation, and ingestion exposure pathways

4.3.1.2 Groundwater

- No action – Required GRA for CERCLA evaluation
- Institutional controls – Includes land use restrictions and access restrictions
- Treatment – Includes in-situ and/or on-site ex-situ treatment of contaminated groundwater
- Removal – Includes pumping to remove the groundwater and off-site treatment or disposal
- Containment – Includes installing a barrier to control groundwater flow and/or barriers or controls to prevent vapor intrusion

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
38	Preliminary remedial alternatives	Section 2.8	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Sections 5.0 and 5.1, page 5-1.

5.0 DEVELOPMENT AND DESCRIPTION OF REMEDIAL ALTERNATIVES

This section presents potential remedial alternatives developed for soil and groundwater at Parcel C based on the technologies and process options retained in Section 4.0. The NCP states that development and evaluation of remedial alternatives will reflect the scope and complexity of the response actions under consideration concerning the environmental issues defined at the site. The number and types of alternatives to be analyzed will be identified for each site by taking into account these scope and characteristics of the environmental issues at Parcel C.

5.1 DEVELOPMENT OF REMEDIAL ALTERNATIVES

Technologies and process options were developed and screened as described in Section 4.0. The retained process options were combined into remedial alternatives to meet RAOs and to satisfy ARARs. The remedial alternatives were derived using experience and engineering judgment to formulate process options into the most plausible site-specific response actions. The alternatives developed for further analysis for both soil and groundwater are presented in the following sections.

5.2 DESCRIPTION OF SOIL REMEDIAL ALTERNATIVES

Soil at Parcel C presents a potential unacceptable risk to human health under the anticipated future land-use scenario evaluated in the HHRA for this Final FS Report (see Appendix C and Section 3.0). Five remedial alternatives were developed for soil:

- Alternative S-1: No Action
- Alternative S-2: Institutional Controls and Maintained Landscaping
- Alternative S-3: Excavation, Disposal, Institutional Controls, and Maintained Landscaping
- Alternative S-4: Covers and Institutional Controls
- Alternative S-5: Excavation, Disposal Covers, Soil Vapor Extraction, and Institutional Controls

All of these alternatives are designed to address potential unacceptable risk associated with the planned reuse for each of the redevelopment blocks in the HHRA. These alternatives are described in the following sections, including notes on the major design assumptions that were used to estimate costs and action-specific ARARs unique to each alternative. Appendix F contains a more complete description of design assumptions and detailed estimates of alternative costs. Table 5-1 presents the major components of each alternative to be implemented in each redevelopment block.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
39	Nine evaluation criteria	Section 2.8.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 6.0, pages 6-1 and 6-2.

This section provides a detailed analysis of each remedial alternative developed in Section 5.0, followed by comparative analysis. This information will be used to help select a final remedy for Parcel C. The alternatives are evaluated using criteria based on statutory requirements of CERCLA as amended by the Superfund Amendments and Reauthorization Act, Section 121; the NCP; and "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA 1988).

The NCP specifies nine criteria to be used in the detailed analysis. The first two criteria are threshold criteria that must be satisfied in order for a remedy to be eligible for selection; the next five criteria are balancing criteria used to evaluate the comparative advantages and disadvantages of the remedial alternatives; and the final two criteria are modifying criteria generally considered after regulatory agency and public comments are received on the Proposed Plan. The nine criteria are listed below.

Overall Protection of Human Health and the Environment: This criterion describes how each alternative, as a whole, protects human health and the environment and indicates how each hazardous substance source is to be eliminated, reduced, or controlled.

Compliance with ARARs: This criterion evaluates each alternative's compliance with ARARs, or, if an ARAR waiver is required, how the waiver is justified. ARARs consider location-specific, chemical-specific, and cleanup action-specific concerns.

Long-Term Effectiveness and Permanence: This criterion evaluates the effectiveness of each alternative in protecting human health and the environment after the response action is complete. Factors considered include magnitude of residual risks and adequacy and reliability of release controls.

Reduction of Toxicity, Mobility, or Volume Through Treatment: This criterion evaluates the anticipated capability of each alternative's specific treatment technology to reduce the toxicity, mobility, or volume of hazardous substances.

Short-Term Effectiveness: This criterion addresses the effectiveness of each alternative in protecting human health and the environment during the construction and implementation phase. Factors considered include:

- Exposure of the community during implementation
- Exposure of the workers during construction
- Effects to the environment
- Time required to meet the RAOs

Implementability: This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of the required services and materials during its implementation. Factors considered include:

- Ability to construct the technology
- Reliability of the technology
- Monitoring considerations
- Availability of equipment and specialists

Cost: This criterion evaluates the capital and operation and maintenance (O&M) costs for each alternative. Capital and O&M cost estimates are order-of-magnitude-level estimates and have an expected accuracy of minus 30 to plus 50 percent (EPA 2000b). Table 6-1 summarizes the capital cost for each alternative.

Community Acceptance: This criterion evaluates issues and concerns the public may have regarding each alternative. This criterion will be assessed following receipt of public comments on the FS Report and the Proposed Plan.

State Acceptance: This criterion evaluates technical and administrative issues and concerns the state regulatory agencies may have about each alternative. This criterion will be assessed following receipt of regulatory agency comments on the FS Report and the Proposed Plan.

In the following sections, each remedial alternative is compared with the two threshold and five balancing NCP criteria, and subsequently compared with the other alternatives to assess their relative performance with respect to the NCP criteria. Comparison with the two modifying criteria of community and state acceptance will be included in the Proposed Plan; further discussion of these criteria is not included in this Final FS Report. Soil remedial alternatives are evaluated individually in Section 6.1 and compared with each other in Section 6.2. Groundwater remedial alternatives are evaluated individually in Section 6.3 and compared with each other in Section 6.4.

6.1 INDIVIDUAL ANALYSIS OF SOIL REMEDIAL ALTERNATIVES

This section evaluates each soil alternative in comparison with the two threshold and five balancing NCP evaluation criteria. Table 6-1 presents the cost summary for each alternative, and Table 6-2 provides a summary of each alternative's rating under the seven evaluation criteria. The ranking categories used in Table 6-2 and in the discussion of the alternatives are: (1) protective or not protective, and meets ARARs or does not meet ARARs, for the two threshold criteria; and (2) excellent, very good, good, poor, and not acceptable for the five balancing criteria.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
40	Present-Worth Cost: $1,580,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-2A.

TABLE F-1: SOIL ALTERNATIVES COST ESTIMATE SUMMARY

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

Description	Alternative S-1 No Action	Alternative S-2 Institutional Controls and Maintained Landscaping	Alternative S-3 Excavation, Disposal, Institutional Controls, and Maintained Landscaping	Alternative S-4 Covers and Institutional Controls	Alternative S-5 Excavation, Disposal, Covers, Soil Vapor Extraction, and Institutional Controls
Total Project Duration (Years)	**30**	**30**	**30**	**30**	**30**
Capital and Labor Cost	$0	$645,121	$12,833,170	$4,042,751	$17,236,479
Present Value of Periodic Costs	$0	$673,653	$854,494	$1,734,236	$3,552,364
20% Contingency	$0	$263,755	$2,737,533	$1,155,397	$4,157,769
Total Present Value of Alternative	**$0**	**$1,582,528**	**$16,425,197**	**$6,932,384**	**$24,946,612**
(Rounded)	**$0**	**$1,580,000**	**$16,430,000**	**$6,930,000**	**$24,950,000**

TABLE F-2A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE S-2

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

Alternative S-2: Institutional Controls and Maintained Landscaping

Location Factors

Assembly:	124.0%	
Professional Labor Multiplier:	1.6	(RACER 2006)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(RACER 2006)
Project Duration:	2.0 Months or 44 working days	

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site Wide Costs													
Distributive Costs										**Distributive Costs Subtotal =**		**$ 105,292**	
1 Project Manager 50% on project; location factor N/A	176	hour	$ 34.00	$ 9,574	$ -	$ -	$ -	$ -	$ -	$ -	$ 54.40	$ 9,574	
1 Superintendent 100% on project; location factor N/A	352	hour	$ 34.00	$ 19,149	$ -	$ -	$ -	$ -	$ -	$ -	$ 54.40	$ 19,149	
1 Engineer 100% on project; location factor N/A	352	hour	$ 34.00	$ 19,149	$ -	$ -	$ -	$ -	$ -	$ -	$ 54.40	$ 19,149	
1 Health & Safety Office 100% on project; location factor N/A	352	hour	$ 34.00	$ 19,149	$ -	$ -	$ 200.00 /day	$ 9,548	$ -	$ -	$ 81.53	$ 28,697	
1 Quality Control Office 100% on project; location factor N/A	352	hour	$ 34.00	$ 19,149	$ -	$ -	$ -	$ -	$ -	$ -	$ 54.40	$ 19,149	
1 Procurement Spec. 50% on project; location factor N/A	176	hour	$ 34.00	$ 9,574	$ -	$ -	$ -	$ -	$ -	$ -	$ 54.40	$ 9,574	
Mobilization										**Mobilization Subtotal =**		**$ 1,271**	***Assume that these will be used overall (not calculated for every excavation).**
Tractor Loader	1	each	$ 55.00	$ 94	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 637.00	$ 637	Estimate based on United Rentals quote
Graders	1	each	$ 53.00	$ 91	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 634.00	$ 634	Means 2004 Heavy Construction. Pg. 139. 03110 420 1000
Demobilization										**Demobilization Subtotal =**		**$ 1,271**	***Assume that these will be used overall (not calculated for every excavation).**
Tractor Loader	1	each	$ 55.00	$ 94	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 637.00	$ 637	Estimate based on United Rentals quote
Graders	1	each	$ 53.00	$ 91	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 634.00	$ 634	Estimate based on United Rentals quote
Landscaping										**Landscaping Subtotal =**		**$ 57,885**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Soil Cover Borrow, Fill, Compact 6" cover	2,260	cubic yard	$ 1.68	$ 6,500	$ 2.63	$ 6,449	$ 7.15	$ 17,533	$ -	$ -	$ 13.49	$ 30,482	2 ft. thick, Means 17, 03, 04, 23
Soil Cover Sampling and Analytical	10	each	$ 170.00	$ 2,910	$ -	$ -	$ 150.00	$ 1,628	$ -	$ -	$ -	$ 4,538	Assumes 0.5 hours Engineer for each sample (1 per 1,000 cubic yards)
Hydroseeding	2.8	acre	$ 1,002.02	$ 4,803	$ 610.97	$ 1,856	$ 2,157.79	$ 6,555	$ -	$ -	$ 4,719.29	$ 13,214	2006 RACER
Hydrofertilizer	2.8	acre	$ 205.01	$ 983	$ 38.37	$ 117	$ 151.61	$ 461	$ -	$ -	$ 557.50	$ 1,561	2006 RACER
Water - 12 times	33.6	acre	$ 92.95	$ 5,347	$ 73.86	$ 2,693	$ 1.37	$ 50	$ -	$ -	$ 240.77	$ 8,090	2006 RACER
Temporary Facilities										**Temporary Facilities Subtotal =**		**$ 9,888**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Portable Toilets (2)	2	month	$ -	$ -	$ -	$ -	$ 1,006.40	$ 2,184	$ -	$ -	$ 1,092.00	$ 2,184	Means 2004 Constructio 01590 400 6410
Rental Trucks (5) (for supervisory staff)	2	month	$ -	$ -	$ -	$ -	$ 3,550.00	$ 7,704	$ -	$ -	$ 3,852.00	$ 7,704	Assuming rental from Enterprise
Oversight										**Oversight Subtotal =**		**$ 28,697**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
1 Engineer 100% on project; location factor N/A	352	hour	$ 34.00	$ 19,149	$ -	$ -	$ 200.00 /day	$ 9,548	$ -	$ -	$ 81.53	$ 28,697	
Total Site-Wide Costs										**Total Site-Wide Costs Subtotal =**		**$ 204,304**	
Construction Cost Summary													
Total Construction Capital Costs										**Total Construction Capital Costs Subtotal =**		**$ 204,304**	
Design Cost										**Design Cost Subtotal =**		**$ 24,516**	*Calculated as overall cost - not per individual excavation. Unit cost numbers same as previous.
Assume 12% of construction cost													
Access Restrictions													
Signage and Fencing Capital Costs										**Signage and Fencing Capital Costs Subtotal =**		**$ 295,590**	
Signage	157	each	$ 33.88	$ 9,117	$ -	$ -	$ 30.66	$ 5,229	$ -	$ -	$ 91.27	$ 14,346	One sign per 50 ft perimeter of excavation areas; Means 18, 01, 04, 11
5' Galvanized Chain Link Fence - High Fabric Security Fence	10,000	lf	$ 1.49	$ 25,509	$ -	$ -	$ 23.57	$ 255,735	$ -	$ -	$ 28.12	$ 281,244	2006 ECHOS. 18 04 0106
Total Access Restrictions Capital Costs										**Total Access Restrictions Capital Costs Subtotal =**		**$ 295,590**	
Institutional Controls													
Land Use Control Implementation and Certification										**Land Use Control Implementation and Certification Subtotal =**		**$74,566.00**	
LUCIP scoping meeting	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for subsistence.
Prepare draft LUCIP	120	hour	$ 75.00	$ 15,408	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 15,408	Tetra Tech 2002.
Submit draft LUCIP	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for printing.
BCT review period	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
BCT comments due	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
RTC meeting and BCT concurrence	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ 500	$ 8,680	$ -		$ 670.88	$ 10,734	Tetra Tech 2002. ODCs for printing.
Prepare draft final LUCIP	72	hour	$ 75.00	$ 9,245	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 9,245	Tetra Tech 2002.
Submit draft final LUCIP	8	hour	$ 75.00	$ 1,027	$ -	$ -	$ 100	$ 868	$ -		$ 236.88	$ 1,895	Tetra Tech 2002. ODCs for printing.
BCT review and concurrence period	48	hour	$ 75.00	$ 6,163	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 6,163	Tetra Tech 2002.
BCT concurrence letters due	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ -	$ -	$ -		$ 128.41	$ 4,109	Tetra Tech 2002.
Prepare final LUCIP with RTC	40	hour	$ 75.00	$ 5,136	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 5,136	Tetra Tech 2002.
Submit final LUCIP with RTC	11	hour	$ 75.00	$ 1,412	$ -	$ -	$ 100	$ 1,194	$ -		$ 236.91	$ 2,606	Tetra Tech 2002. ODCs for printing.
Covenant to Restrict Use of Property										**Covenant to Restrict Use of Property Subtotal =**		**$40,061.00**	
Prepare draft covenant	80	hour	$ 234.00	$ 32,049	$ -	$ -	$ -	$ -	$ -		$ 400.61	$ 32,049	Tetra Tech 2002. ODCs for printing.
File covenant	20	hour	$ 234.00	$ 8,012	$ -	$ -	$ -	$ -	$ -		$ 400.60	$ 8,012	Tetra Tech 2002. ODCs for travel fees.
Deed Restrictions										**Deed Restrictions Subtotal =**		**$23,400.00**	
Prepare draft deed restrictions	80	hour	$ 234.00	$ 18,720	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 18,720	
File deed restrictions	20	hour	$ 234.00	$ 4,680	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 4,680	
Risk Management Plan										**Risk Management Plan Subtotal =**		**$7,200.00**	

Alternative S-2: Institutional Controls and Maintained Landscaping

Location Factors

Assembly:	124.0%	
Professional Labor Multiplier:	1.6	(RACER 2006)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(RACER 2006)
Project Duration:	2.0	Months or
	44	working days

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Navy review draft RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Navy review draft final RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft final RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Total Institutional Controls Capital Costs										**Total Legal Controls Capital Costs Subtotal**		**$145,227.00**	
Total Institutional Controls Capital Costs										**Total Institutional Controls Capital Costs Subtotal =**		**$440,817.00**	

Total Project Capital Cost =	**$ 645,121**
Present Value of 30 Years of Periodic Costs =	**$ 673,653**
SubTotal =	**$ 1,318,774**
20% Contingency =	**$ 263,755**
Total Project Cost =	**$ 1,582,528**

Notes: Unloaded costs taken from Means and adjusted for San Francisco labor, materials and equipment costs as well as Class D Safety Requirements

"	Inch
BCT	Base Realignment and Closure Cleanup Team
ea	Each
FOST	Finding of suitability to transfer
hr	Hour
LUCIP	Land Use Control Implementation Plan
Means	RS Means Company, Inc.
mo	Month
N/A	Not applicable
O&P	Overhead and profit
ODC	Other direct cost
Pg	Page
RACER	Remedial Action Cost Engineering and Requirements System
RMP	Risk Management Plan
RTC	Responses to comments
t/hr	Ton per hour
Tetra Tech	Tetra Tech EM Inc.

Sources:

Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.

Means. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.

Tetra Tech. 2002. "Draft Revised Parcel D Feasibility Study Report, Hunters Point Shipyard San Francisco, California." March 8.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
41	Present-Worth Cost: $16,430,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-4A.

TABLE F-1: SOIL ALTERNATIVES COST ESTIMATE SUMMARY

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

Description	Alternative S-1 No Action	Alternative S-2 Institutional Controls and Maintained Landscaping	Alternative S-3 Excavation, Disposal, Institutional Controls, and Maintained Landscaping	Alternative S-4 Covers and Institutional Controls	Alternative S-5 Excavation, Disposal, Covers, Soil Vapor Extraction, and Institutional Controls
Total Project Duration (Years)		**30**	**30**	**30**	**30**
Capital and Labor Cost	$0	$645,121	$12,833,170	$4,042,751	$17,236,479
Present Value of Periodic Costs	$0	$673,653	$854,494	$1,734,236	$3,552,364
20% Contingency	$0	$263,755	$2,737,533	$1,155,397	$4,157,769
Total Present Value of Alternative	**$0**	**$1,582,528**	**$16,425,197**	**$6,932,384**	**$24,946,612**
(Rounded)	**$0**	**$1,580,000**	**$16,430,000**	**$6,930,000**	**$24,950,000**

TABLE F-4A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE S-3

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

Alternative S-3: Excavation, Disposal, Institutional Controls, and Maintained Landscaping

Location Factors
Assembly: 124.0%
Professional Labor Multiplier: 1.6 (RACER 2006)
Labor Overhead & Profit Multiplier.: 1.712
Material and Equipment Profit: 9% (RACER 2006)

Project Duration: 24.0 Months or 531 working days

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site-Wide Costs													
Distributive Costs										**Distributive Costs Subtotal =**		**$ 146,746**	
1 Project Manager 50% on project; location factor N/A	180	hour	$ 34.00	$ 9,792	$ -	$ -	$ 200.00 /day	$ 4,883	$ -	$ -	$ 81.53	$ 14,675	Includes $200 per day per diem
1 Superintendent 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Engineer 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Health & Safety Office 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Quality Control Office 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Procurement Spec. 50% on project; location factor N/A	180	hour	$ 34.00	$ 9,792	$ -	$ -	$ 200.00 /day	$ 4,883	$ -	$ -	$ 81.53	$ 14,675	Includes $200 per day per diem
Mobilization										**Mobilization Subtotal =**		**$ 9,972**	***Assume that these will be used overall (not calculated for every excavation).**
Crawler Mounted Backhoes	5	each	$ 55.00	$ 471	$ 500.00	$ 2,713	$ -	$ -	$ -	$ -	$ 636.80	$ 3,184	RACER 2006
Tractor Loader	5	each	$ 55.00	$ 471	$ 500.00	$ 2,713	$ -	$ -	$ -	$ -	$ 636.80	$ 3,184	
Graders	5	each	$ 53.00	$ 454	$ 500.00	$ 2,713	$ -	$ -	$ -	$ -	$ 633.40	$ 3,167	Means 2004 Heavy Construction. Pg. 139. 03110 420 1000
100,000 Gallon Modular Storage Tank	3	each	$ 85.00	$ 437	$ -	$ -	$ -	$ -	$ -	$ -	$ 145.67	$ 437	Baker Tanks vendor quote
	1	each	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	*Means 33, 18, 04, 02
Demobilization										**Demobilization Subtotal =**		**$ 9,972**	***Assume that these will be used overall (not calculated for every excavation).**
Crawler Mounted Backhoes	5	each	$ 55.00	$ 471	$ 500.00	$ 2,713	$ -	$ -	$ -	$ -	$ 636.80	$ 3,184	RACER 2006
Tractor Loader	5	each	$ 55.00	$ 471	$ 500.00	$ 2,713	$ -	$ -	$ -	$ -	$ 636.80	$ 3,184	
Graders	5	each	$ 53.00	$ 454	$ 500.00	$ 2,713	$ -	$ -	$ -	$ -	$ 633.40	$ 3,167	
100,000 Gallon Modular Storage Tank	3	each	$ 85.00	$ 437	$ -	$ -	$ -	$ -	$ -	$ -	$ 145.67	$ 437	Baker Tanks vendor quote
Radiological Screening	0	each	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	*Means 33, 18, 04, 03 per Jim H
Equipment										**Equipment Subtotal =**		**$ 196,363**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Tractor Loader	55	days	$ 260.00	$ 24,677	$ 850.00	$ 51,128	$ -	$ -	$ -	$ -	$ 1,367.37	$ 75,805	Cat 966G daily rate obtained from United Rentals, labor rate based on $32.50/hour for 8 hour field days
Grader	45	days	$ 260.00	$ 20,030	$ 875.00	$ 42,722	$ -	$ -	$ -	$ -	$ 1,394.49	$ 62,752	Deere 670D daily rate obtained from United Rentals, labor rate based on $32.50/hour for 8 hour field days
20 ton Dump Truck	55	days	$ 200.00	$ 18,982	$ 400.00	$ 24,060	$ -	$ -	$ -	$ -	$ 776.39	$ 43,042	Labor rate based on $25.00/hour for 8 hour field days
100,000 gallon Modular Storage Tank	55	days	$ -	$ -	$ 175.00	$ 10,526	$ -	$ -	$ -	$ -	$ 189.87	$ 10,526	Baker Tanks vendor quote
Radiological Screening		month	$ -	$ -	$ -	$ -		$ -	$ -	$ -		$ -	*Means 33, 18, 04, 04
Trash Pump	55	days	$ 15.64	$ 1,484	$ 45.78	$ 2,754	$ -	$ -	$ -	$ -	$ 76.44	$ 4,238	RACER 2006 for dewatering excavations
Temporary Facilities										**Temporary Facilities Subtotal =**		**$ 118,649**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Portable Toilets (2)	24	month	$ -	$ -	$ -	$ -	$ 1,006.40	$ 26,207	$ -	$ -	$ 1,091.96	$ 26,207	Means 2004 Constructio 01590 400 6410
Rental Trucks (5) (for supervisory staff)	24	month	$ -	$ -	$ -	$ -	$ 3,550.00	$ 92,442	$ -	$ -	$ 3,851.75	$ 92,442	Assuming rental from Enterprise
Oversight										**Oversight Subtotal =**		**$ 29,349**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
1 Engineer 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	
Total Site Wide Costs										**Total Site Wide Costs Subtotal =**		**$ 511,051**	
Excavation Costs													
Concrete Cutting and Repaving										**Concrete Cutting and Repaving Subtotal =**		**$ 38,209**	
Saw Cutting Asphalt	6515	linear feet	0.53	$ 5,911	0.3	$ 2,121	0.44	$ 3,110	$ -	$ -	$ 1.71	$ 11,142	Up to 3" deep
Paving 4" Asphalt	12505	square yard	$ 0.32	$ 6,851	$ 0.24	$ 3,256	$ 1.25	$ 16,960	$ -	$ -	$ 2.16	$ 27,067	Means 2004 Heavy Construction. Pg. 105. 02785 250 1910
Excavation and Backfill										**Excavation and Backfill Subtotal =**		**$ 3,421,478**	
Tarpaulins	12,505	square feet	$ -	$ -	$ -	$ -	0.54	$ 7,327	$ -	$ -	$ 0.59	$ 7,327	reinforced woven polyethylene, 6 mils thick
Excavation	41683	cubic yard	$ 1.35	$ 96,338	$ 1.71	$ 77,337	$ -	$ -	$ -	$ -	$ 4.17	$ 173,675	Means 2004 17, 03, 02, 77
Excavation With Building Shoring	7245	cubic yard	$ 34.93	$ 433,257	$ 4.14	$ 32,544	$ 10.76	$ 84,583	$ -	$ -	$ 75.97	$ 550,384	Means 2004 17, 03, 09, 01
Excavation With Utility Shoring	1764	cubic yard	$ 34.05	$ 102,835	$ 2.47	$ 4,728	$ 5.22	$ 9,991	$ -	$ -	$ 66.64	$ 117,554	Means 2004 17, 03, 09, 01
Boundary Fence	6515	linear feet	$ 4.78	$ 53,315	2.34	$ 16,541	1.78	$ 12,582	$ 1	$ 8,079	$ 13.89	$ 90,517	2006 RACER (5' galvanized)
Erosion Control, Drainage Filter Fabric	12505	square yard	$ 0.83	$ 17,769	0.03	$ 407	0.82	$ 11,126	$ 2	$ 31,012	$ 4.82	$ 60,314	2006 RACER, 8oz/syd
Dewatering	55	days	$ 113.00	$ 10,725	$ 23.00	$ 1,383	$ 136.00	$ 8,181	$ -	$ -	$ 365.97	$ 20,289	Means 2006 312319200650, attended 2 hours per day, 4" discharge pump used for 8 hours, includes 20 linear feet of suction hose and 100 linear feet of discharge hose
Confirmation Sampling	1385	each	$ 23,545.00	$ 40,309	$ -	$ -	$ 1,048.00	$ 1,574,856	$ -	$ -	$ 1,166.18	$ 1,615,165	Means 33, 02, 06. Sample minimum of 2 on each side plus 1 at bottom; otherwise every 15 ft along perimeter and every 225 feet at bottom
Disposal of Water	1,250	100 cubic feet	$ -	$ -	$ -	$ -	$ 16.54	$ 22,432	$ -	$ -	$ 17.95	$ 22,432	Highest non-resident cost cited on San Francisco Public Utilities website.
Gravel Delivered and Dumped	4168	cubic yard	$ 3.52	$ 25,119	$ 1.72	$ 7,779	$ 23.74	$ 107,367	$ -	$ -	$ 33.65	$ 140,265	2006 RACER, 1 ft of drain rock
Dry Roll Gravel, Steel Roller	12505	square yard	$ 0.82	$ 17,555	$ 0.28	$ 3,799	$ -	$ -	$ -	$ -	$ 1.71	$ 21,354	2006 RACER
Unclassified Fill Delivered, Spread and Compacted	37515	cubic yard	$ 2.42	$ 155,426	$ 1.92	$ 78,151	$ 6.82	$ 277,599	$ 1.00	$ 46,518	$ 14.87	$ 557,694	2006 RACER, 6" lifts
Nuclear Density Gauge Soil Compaction Testing	160	hour	$ 82.00	$ 22,461	$ 2.92	$ 507	$ 7.82	$ 1,358	$ 1.00	$ 198	$ 153.28	$ 24,524	Earth Systems vendor quote
Compaction Reports	21	each	$ -	$ -	$ -	$ -	$ 350.00	$ 7,975	$ 1.00	$ 26	$ 381.00	$ 8,001	Earth Systems vendor quote
Signs	130	each	$ 30.63	$ 6,833	$ -	$ -	$ 36.43	$ 5,150	$ -	$ -	$ 91.96	$ 11,983	2006 RACER (Stock, reflectorize, UTMCD standard, guide and directional, 12" x 18", with posts)
Storm Water Control										**Storm Water Control Subtotal =**		**$ 12,947**	
2 -foot high (and 2-feet wide) berm around open excavation	931	cubic yard	$ -	$ -	$ -	$ -	$ -	$ -	$ 6.12	$ 7,063	$ 7.59	$ 7,063	Means 2004 17, 0, 99, 11

Alternative S-3: Excavation, Disposal, Institutional Controls, and Maintained Landscaping

Location Factors
Assembly: 124.0%
Professional Labor Multiplier: 1.6 (RACER 2006)
Labor Overhead & Profit Multiplier.: 1.712
Material and Equipment Profit: 9% (RACER 2006)

Project Duration: 24.0 Months or 531 working days

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Erosion Control, Silt Fence	1600	linear feet	0.3	$ 822	$ -	$ -	0.63	$ 1,094	$ 2	$ 3,968	$ 3.68	$ 5,884	2006 RACER Polypropylene, ideal conditions, 3' high
Waste Hauling and Disposal										**Waste Hauling and Disposal Subtotal =**		**$ 7,025,221**	
Characterization Sampling and Analysis	35	each	$17.00	$ 1,019	$ -	$ -	$ 200.00	$ 7,595				$ 8,614	
Bulk Waste Loading	41683	cubic yard	$ 1.27	$ 90,629	$ 1.64	$ 74,171	$ -	$ -	$ -	$ -	$ 3.95	$ 164,800	2006 RACER
Non-hazardous Material Transportation and Disposal	29178	cubic yard	$ -	$ -	$ -	$ -	$ 111.35	$ 3,525,161	$ -	$ -	$ 120.81	$ 3,525,161	Nonhazardous disposal rate at $22/ton + $1610/load, plus 11% tax and recovery fee transportation to Buttonwillow Landfill (quote by Clean Harbors)
RCRA-Hazardous Material Haul (20 cyd Dump, 200 miles)	16632	cubic yard	$ -	$ -	$ -	$ -	$ 89.35	$ 1,612,345	$ -	$ -	$ 96.94	$ 1,612,345	Transportation to Buttonwillow Landfill @ $1610/load plus 11% tax and recovery fee
RCRA-Hazardous Material Disposal	16632	cubic yard	$ -	$ -	$ -	$ -	$ 95.00	$ 1,714,301	$ -	$ -	$ -	$ 1,714,301	RCRA-hazazardous disposal cost for treatment of metals (standard recipe)
Total Excavation Costs										**Total Excavation Costs Subtotal =**		**$ 10,497,855**	
Cover Costs													
Cover													
Soil Cover Borrow, Fill, Compact 6" cover	2,260	cubic yard	$ 1.68	$ 6,500	$ 2.63	$ 6,449	$ 7.15	$ 17,533	$ -	$ -	$ 13.49	$ 30,482	2 ft. thick, Means 17, 03, 04, 23
Soil Cover Sampling and Analytical	10	each	$ 170.00	$ 2,910	$ -	$ -	$ 150.00	$ 1,628	$ -	$ -	$ -	$ 4,538	Assumes 0.5 hours Engineer for each sample (1 per 1,000 cubic yards)
Hydroseeding	2.8	acre	$ 1,002.02	$ 4,803	$ 610.97	$ 1,856	$ 2,157.79	$ 6,555	$ -	$ -	$ 4,719.29	$ 13,214	2006 RACER
Hydrofertilizer	2.8	acre	$ 205.01	$ 983	$ 38.37	$ 117	$ 151.61	$ 461	$ -	$ -	$ 557.50	$ 1,561	2006 RACER
Water - 12 times	33.6	acre	$ 92.95	$ 5,347	$ 73.86	$ 2,693	$ 1.37	$ 50	$ -	$ -	$ 240.77	$ 8,090	2006 RACER
Total Covering Capital Costs										**Total Covering Capital Costs Subtotal =**		**$ 57,885**	
Construction Cost Summary													
Total Construction Capital Costs										**Total Construction Capital Costs Subtotal =**		**$ 11,066,791**	
Design Cost										**Design Cost Subtotal =**		**$ 1,328,015**	*Calculated as overall cost - not per individual excavation. Unit cost numbers same as previous.
Assume 12% of construction cost													
Access Restrictions													
Signage and Fencing Capital Costs										**Signage and Fencing Capital Costs Subtotal =**		**$ 293,137**	
Signage	130	each	$ 33.88	$ 7,558	$ -	$ -	$ 30.66	$ 4,335	$ -	$ -	$ 91.27	$ 11,893	One sign per 50 ft perimeter of excavation areas; Means 18, 01, 04, 11
5' Galvanized Chain Link Fence - High Fabric Security Fence	10,000	lf	$ 1.49	$ 25,509	$ -	$ -	$ 23.57	$ 255,735	$ -	$ -	$ 28.12	$ 281,244	2006 ECHOS. 18 04 0106
Total Access Restrictions Capital Costs										**Total Access Restrictions Capital Costs Subtotal =**		**$ 293,137**	
Institutional Controls													
Land Use Control Implementation and Certification										**Land Use Control Implementation and Certification Subtotal =**		**$74,566.00**	
LUCIP scoping meeting	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for subsistence.
Prepare draft LUCIP	120	hour	$ 75.00	$ 15,408	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 15,408	Tetra Tech 2002.
Submit draft LUCIP	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for printing.
BCT review period	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
BCT comments due	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
RTC meeting and BCT concurrence	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ 500	$ 8,680	$ -		$ 670.88	$ 10,734	Tetra Tech 2002. ODCs for printing.
Prepare draft final LUCIP	72	hour	$ 75.00	$ 9,245	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 9,245	Tetra Tech 2002.
Submit draft final LUCIP	8	hour	$ 75.00	$ 1,027	$ -	$ -	$ 100	$ 868	$ -		$ 236.88	$ 1,895	Tetra Tech 2002. ODCs for printing.
BCT review and concurrence period	48	hour	$ 75.00	$ 6,163	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 6,163	Tetra Tech 2002.
BCT concurrence letters due	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ -	$ -	$ -		$ 128.41	$ 4,109	Tetra Tech 2002.
Prepare final LUCIP with RTC	40	hour	$ 75.00	$ 5,136	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 5,136	Tetra Tech 2002.
Submit final LUCIP with RTC	11	hour	$ 75.00	$ 1,412	$ -	$ -	$ 100	$ 1,194	$ -		$ 236.91	$ 2,606	Tetra Tech 2002. ODCs for printing.
Covenant to Restrict Use of Property										**Covenant to Restrict Use of Property Subtotal =**		**$40,061.00**	
Prepare draft covenant	80	hour	$ 234.00	$ 32,049	$ -	$ -	$ -	$ -	$ -		$ 400.61	$ 32,049	Tetra Tech 2002. ODCs for printing.
File covenant	20	hour	$ 234.00	$ 8,012	$ -	$ -	$ -	$ -	$ -		$ 400.60	$ 8,012	Tetra Tech 2002. ODCs for travel fees.
Deed Restrictions										**Deed Restrictions Subtotal =**		**$23,400.00**	
Prepare draft deed restrictions	80	hour	$ 234.00	$ 18,720	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 18,720	
File deed restrictions	20	hour	$ 234.00	$ 4,680	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 4,680	
Risk Management Plan										**Risk Management Plan Subtotal =**		**$7,200.00**	
Navy review draft RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Navy review draft final RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft final RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Total Institutional Controls Capital Costs										**Total Legal Controls Capital Costs Subtotal**		**$145,227.00**	
Total Institutional Controls and Access Restrictions Capital Costs										**Total Institutional Controls and Access Restrictions Capital Costs Subtotal =**		**$438,364.00**	

Total Project Capital Cost =	**$**	**12,833,170**
Present Value of 30 Years of Periodic Costs =	**$**	**854,494**
SubTotal =	**$**	**13,687,664**
20% Contingency =	**$**	**2,737,533**
Total Project Cost =	**$**	**16,425,197**

TABLE F-4A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE S-3 (CONTINUED)

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

Alternative S-3: Excavation, Disposal, Institutional Controls, and Maintained Landscaping														
Location Factors Assembly: 124.0% Professional Labor Multiplier: 1.6 (RACER 2006) Labor Overhead & Profit Multiplier.: 1.712 Material and Equipment Profit: 9% (RACER 2006) Project Duration: 24.0 Months or 531 working days														
Description	**Quantity**	**Unit**	**Unloaded Labor Unit Cost**	**Total Labor (including O&P)**	**Unloaded Equipment Unit Cost**	**Total Equipment (including profit)**	**Unloaded Material Unit Cost**	**Total Material (including Profit)**	**Unloaded Assembly Unit Cost**	**Total Assembly Cost (including profit)**	**Total Unit Cost (including O&P)**	**Total Cost (including O&P)**	**Comments**

Notes: Unloaded costs taken from Means and adjusted for San Francisco labor, materials and equipment costs as well as Class D Safety Requirements

"	Inch
BCT	Base Realignment and Closure Cleanup Team
FOST	Finding of suitability to transfer
LUCIP	Land Use Control Implementation Plan
Means	RS Means Company, Inc.
N/A	Not applicable
O&P	Overhead and profit
ODC	Other direct cost
RACER	Remedial Action Cost Engineering and Requirements System
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
RTC	Responses to comments
Tetra Tech	Tetra Tech EM Inc.

Sources:

Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.

RS Means Company, Inc. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.

Tetra Tech. 2002. "Draft Revised Parcel D Feasibility Study Report, Hunters Point Shipyard San Francisco, California." March 8.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
42	Present-Worth Cost: $6,930,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-6A.

TABLE F-1: SOIL ALTERNATIVES COST ESTIMATE SUMMARY

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

Description	Alternative S-1 No Action	Alternative S-2 Institutional Controls and Maintained Landscaping	Alternative S-3 Excavation, Disposal, Institutional Controls, and Maintained Landscaping	Alternative S-4 Covers and Institutional Controls	Alternative S-5 Excavation, Disposal, Covers, Soil Vapor Extraction, and Institutional Controls
Total Project Duration (Years)	**30**	**30**	**30**	**30**	**30**
Capital and Labor Cost	$0	$645,121	$12,833,170	$4,042,751	$17,236,479
Present Value of Periodic Costs	$0	$673,653	$854,494	$1,734,236	$3,552,364
20% Contingency	$0	$263,755	$2,737,533	$1,155,397	$4,157,769
Total Present Value of Alternative	**$0**	**$1,582,528**	**$16,425,197**	**$6,932,384**	**$24,946,612**
(Rounded)	**$0**	**$1,580,000**	**$16,430,000**	**$6,930,000**	**$24,950,000**

TABLE F-6A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE S-4

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

Alternative S-4: Covers and Institutional Controls

Location Factors

Assembly:	124.0%	122.0% Level D	
Professional Labor Multiplier:	1.6	(RACER 2006)	
Labor Overhead & Profit Multiplier.:	1.712		
Material and Equipment Profit:	9%	(RACER 2006)	
Project Duration:	12.0	Months or	
	266	working days	

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site-Wide Costs													
Distributive Costs										**Distributive Costs Subtotal =**		**$ 146,746**	
1 Project Manager 50% on project; location factor N/A	180	hour	$ 34.00	$ 9,792	$ -	$ -	$ 200.00 /day	$ 4,883	$ -	$ -	$ 81.53	$ 14,675	Includes $200 per day per diem
1 Superintendent 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Engineer 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Health & Safety Offic 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Quality Control Office 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Procurement Spec. 50% on project; location factor N/A	180	hour	$ 34.00	$ 9,792	$ -	$ -	$ 200.00 /day	$ 4,883	$ -	$ -	$ 81.53	$ 14,675	Includes $200 per day per diem
Mobilization										**Mobilization Subtotal =**		**$ 2,537**	***Assume that these will be used overall (not calculated for every excavation).**
Tractor Loader	1	each	$ 55.00	$ 94	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 637.00	$ 637	
Graders	1	each	$ 53.00	$ 91	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 634.00	$ 634	Means 2004 Heavy Construction. Pg. 139. 03110 420 1000
Misc. Equipment	2	each	$ 53.00	$ 181	$ 500.00	$ 1,085	$ -	$ -	$ -	$ -	$ 633.00	$ 1,266	
		each	$ -	$ -	$ -	$ -		$ -	$ -	$ -		$ -	*Means 33, 18, 04, 02
Demobilization										**Demobilization Subtotal =**		**$ 1,271**	***Assume that these will be used overall (not calculated for every excavation).**
Tractor Loader	1	each	$ 55.00	$ 94	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 637.00	$ 637	
Graders	1	each	$ 53.00	$ 91	$ 500.00	$ 543	$ -	$ -	$ -	$ -	$ 634.00	$ 634	
		each	$ -	$ -	$ -	$ -		$ -	$ -	$ -		$ -	*Means 33, 18, 04, 03 per Jim H
Equipment										**Equipment Subtotal =**		**$ 3,666**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Tractor Loader	7	day	$ 100.00	$ 1,198	$ 325.00	$ 2,468	$ -	$ -	$ -	$ -	$ 523.71	$ 3,666	Cat 966G daily rate obtained from United Rentals, labor rate based on $32.50/hour for 8 hour field days
		day		$ -	$ -	$ -		$ -	$ -	$ -		$ -	*Means 33, 18, 04, 04
Temporary Facilities										**Temporary Facilities Subtotal =**		**$ 59,324**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Portable Toilets (2)	12	month	$ -	$ -	$ -	$ -	$ 1,006.40	$ 13,103	$ -	$ -	$ 1,091.92	$ 13,103	Means 2004 Construction 01590 400 6410
Rental Trucks (5) (for supervisory staff)	12	month	$ -	$ -	$ -	$ -	$ 3,550.00	$ 46,221	$ -	$ -	$ 3,851.75	$ 46,221	Assuming rental from Enterprise
Oversight										**Oversight Subtotal =**		**$ 29,349**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
1 Engineer 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	
Total Site Wide Costs										**Total Site Wide Costs Subtotal =**		**$ 242,893**	
Cover Costs													
Cover													
Sealcoating, Rubberized Asphalt	99220	square yard	$ 0.10	$ 16,986	$ 0.11	$ 11,842	$ 0.44	$ 47,368	$ -	$ -	$ 0.77	$ 76,196	Means 2004 Heavy Construction. Pg. 105. 02785 250 0012
Rough grade	1250	square yard	$ 0.29	$ 621	$ 0.51	$ 692	$ -	$ -	$ -	$ -	$ 1.05	$ 1,313	Means 200417, 03, 01, 03
Fine grade	1250	square yard	$ 0.20	$ 428	$ 0.21	$ 285	$ -	$ -	$ -	$ -	$ 0.57	$ 713	2006 Means CSI 312216109100 Machine grading, includes compaction, minimum labor/equipment charge
Asphalt cover - bituminous (4 inch thick)	1707552	square feet	$ 0.15	$ 438,499.00	$ 0.18	$ 333,485.00	$ 1.21	$ 2,241,760	$ -	$ -	$ 1.76	$ 3,013,744	Means 18 03 03 06, adjusted for 4-inch thickness
Soil Cover Borrow, Fill, Compact	9,026	cubic yard	$ 1.68	$ 25,959	$ 2.63	$ 25,755	$ 7.15	$ 70,019	$ -	$ -	$ 13.49	$ 121,733	2 feet thick, Means 17, 03, 04, 23
Soil Cover Sampling and Analytical	10	each	$ 170.00	$ 2,910	$ -	$ -	$ 150.00	$ 1,628	$ -	$ -	$ -	$ 4,538	Assumes 0.5 hours Engineer for each sample (1 per 1,000 cubic yards)
Hydroseeding	136	00 cubic yard	$ 2.59	$ 601	$ 2.25	$ 331	$ 9.37	$ 1,378	$ -	$ -	$ 17.05	$ 2,310	Means 18, 05, 04, 01
Hydrofertilizer	136	00 cubic yard	$ 1.03	$ 239	$ 0.75	$ 110	$ 2.18	$ 321	$ -	$ -	$ 4.94	$ 670	Means 18, 05, 04, 08
Water - 10 times	136	00 cubic yard	$ 8.89	$ 2,063	$ 7.69	$ 1,131	$ 0.98	$ 144	$ -	$ -	$ 24.63	$ 3,338	Means 18, 05, 04, 13
Total Covering Capital Costs										**Total Covering Capital Costs Subtotal =**		**$ 3,224,555**	
Construction Cost Summary													
Total Construction Capital Costs										**Total Construction Capital Costs Subtotal =**		**$ 3,467,448**	
Design Cost										**Design Cost Subtotal =**		**$ 416,094**	*Calculated as overall cost - not per individual excavation. Unit cost numbers same as previous.
Assume 12% of construction cost													
Access Restrictions													
Signage Capital Costs										**Signage Capital Costs Subtotal =**		**$ 13,982**	
Signage	153	each	$ 33.88	$ 8,886	$ -	$ -	$ 30.66	$ 5,096	$ -	$ -	$ 91.27	$ 13,982	One sign per 50 feet perimeter of excavation areas; Means 18, 01, 04, 11
Total Access Restrictions Capital Costs										**Total Access Restrictions Capital Costs Subtotal =**		**$ 13,982**	

TABLE F-6A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE S-4 (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Alternative S-4: Covers and Institutional Controls

Location Factors
Assembly: 124.0% (122.0% Level D)
Professional Labor Multiplier: 1.6 (RACER 2006)
Labor Overhead & Profit Multiplier.: 1.712
Material and Equipment Profit: 9% (RACER 2006)

Project Duration: 12.0 Months or 266 working days

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Institutional Controls													
Land Use Control Implementation and Certification											**Land Use Control Implementation and Certification Subtotal =**	**$74,566.00**	
LUCIP scoping meeting	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for subsistence.
Prepare draft LUCIP	120	hour	$ 75.00	$ 15,408	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 15,408	Tetra Tech 2002.
Submit draft LUCIP	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for printing.
BCT review period	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
BCT comments due	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
RTC meeting and BCT concurrence	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ 500	$ 8,680	$ -		$ 670.88	$ 10,734	Tetra Tech 2002. ODCs for printing.
Prepare draft final LUCIP	72	hour	$ 75.00	$ 9,245	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 9,245	Tetra Tech 2002.
Submit draft final LUCIP	8	hour	$ 75.00	$ 1,027	$ -	$ -	$ 100	$ 868	$ -		$ 236.88	$ 1,895	Tetra Tech 2002. ODCs for printing.
BCT review and concurrence period	48	hour	$ 75.00	$ 6,163	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 6,163	Tetra Tech 2002.
BCT concurrence letters due	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ -	$ -	$ -		$ 128.41	$ 4,109	Tetra Tech 2002.
Prepare final LUCIP with RTC	40	hour	$ 75.00	$ 5,136	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 5,136	Tetra Tech 2002.
Submit final LUCIP with RTC	11	hour	$ 75.00	$ 1,412	$ -	$ -	$ 100	$ 1,194	$ -		$ 236.91	$ 2,606	Tetra Tech 2002. ODCs for printing.
Covenant to Restrict Use of Property											**Covenant to Restrict Use of Property Subtotal =**	**$40,061.00**	
Prepare draft covenant	80	hour	$ 234.00	$ 32,049	$ -	$ -	$ -	$ -	$ -		$ 400.61	$ 32,049	Tetra Tech 2002. ODCs for printing.
File covenant	20	hour	$ 234.00	$ 8,012	$ -	$ -	$ -	$ -	$ -		$ 400.60	$ 8,012	Tetra Tech 2002. ODCs for travel fees.
Deed Restrictions											**Deed Restrictions Subtotal =**	**$23,400.00**	
Prepare draft deed restrictions	80	hour	$ 234.00	$ 18,720	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 18,720	
File deed restrictions	20	hour	$ 234.00	$ 4,680	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 4,680	
Risk Management Plan											**Risk Management Plan Subtotal =**	**$7,200.00**	
Navy review draft RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Navy review draft final RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft final RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Total Institutional Controls Capital Costs											**Total Legal Controls Capital Costs Subtotal**	**$145,227.00**	
Total Institutional Controls and Access Restrictions Capital Costs											**Total Institutional Controls and Access Restrictions Capital Costs Subtotal =**	**$159,209.00**	

Total Project Capital Cost =	**$**	**4,042,751**
Present Value of 30 Years of Periodic Costs =	**$**	**1,734,236**
SubTotal =	**$**	**5,776,986**
20% Contingency =	**$**	**1,155,397**
Total Project Cost =	**$**	**6,932,384**

Notes:

BCT	Base Realignment and Closure Cleanup Team
csy	Hundred square yards
FOST	Finding of suitability to transfer
LUCIP	Land Use Control Implementation Plan
Means	RS Means Company, Inc.
N/A	Not applicable
O&P	Overhead and profit
ODC	Other direct cost
RACER	Remedial Action Cost Engineering and Requirements System
RMP	Risk Management Plan
RTC	Responses to comments
t/hr	Ton per hour
Tetra Tech	Tetra Tech EM Inc.

Sources:

Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.
Means. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.
Tetra Tech. 2002. "Draft Revised Parcel D Feasibility Study Report, Hunters Point Shipyard San Francisco, California." March 8.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
43	Present-Worth Cost: $24,950,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-1 and F-8A.

TABLE F-1: SOIL ALTERNATIVES COST ESTIMATE SUMMARY

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

Description	Alternative S-1 No Action	Alternative S-2 Institutional Controls and Maintained Landscaping	Alternative S-3 Excavation, Disposal, Institutional Controls, and Maintained Landscaping	Alternative S-4 Covers and Institutional Controls	Alternative S-5 Excavation, Disposal, Covers, Soil Vapor Extraction, and Institutional Controls
Total Project Duration (Years)	**30**	**30**	**30**	**30**	**30**
Capital and Labor Cost	$0	$645,121	$12,833,170	$4,042,751	$17,236,479
Present Value of Periodic Costs	$0	$673,653	$854,494	$1,734,236	$3,552,364
20% Contingency	$0	$263,755	$2,737,533	$1,155,397	$4,157,769
Total Present Value of Alternative	**$0**	**$1,582,528**	**$16,425,197**	**$6,932,384**	**$24,946,612**
(Rounded)	**$0**	**$1,580,000**	**$16,430,000**	**$6,930,000**	**$24,950,000**

TABLE F-8A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE S-5

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

Alternative S-5: Excavation, Disposal, Covers, SVE, and Institutional Controls

Location Factors

Assembly:	124.0%	
Professional Labor Multiplier:	1.6	(RACER 2006)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(RACER 2006)
Project Duration:	24.0	
	531	

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site-Wide Costs													
Distributive Costs											**Distributive Costs Subtotal =**	**$ 146,746**	
1 Project Manager 50% on project; location factor N/A	180	hour	$ 34.00	$ 9,792	$ -	$ -	$ 200.00 /day	$ 4,883	$ -	$ -	$ 81.53	$ 14,675	Includes $200 per day per diem
1 Superintendent 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Engineer 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Health & Safety Offic 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Quality Control Office 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
1 Procurement Spec. 50% on project; location factor N/A	180	hour	$ 34.00	$ 9,792	$ -	$ -	$ 200.00 /day	$ 4,883	$ -	$ -	$ 81.53	$ 14,675	Includes $200 per day per diem
Mobilization											**Mobilization Subtotal =**	**$ 3,960**	***Assume that these will be used overall (not calculated for every excavation).**
Crawler Mounted Backhoes	5	each	$ 55.00	$ 471	$ 112.00	$ 608	$ -	$ -	$ -	$ -	$ 215.80	$ 1,079	RACER 2006
Tractor Loader	5	each	$ 55.00	$ 471	$ 112.00	$ 608	$ -	$ -	$ -	$ -	$ 215.80	$ 1,079	
Graders	5	each	$ 53.00	$ 454	$ 168.00	$ 911	$ -	$ -	$ -	$ -	$ 273.00	$ 1,365	Means 2004 Heavy Construction. Pg. 139. 03110 420 1000
100,000-Gallon Modular Storage Tank	3	each	$ 85.00	$ 437	$ -	$ -	$ -	$ -	$ -	$ -	$ 145.67	$ 437	Baker Tanks vendor quote
13 t/hr Radiological Screening	0	each	$ -	$ -	$ -	$ -		$ -	$ -	$ -	$ --	$ -	*Means 33, 18, 04, 02
Demobilization											**Demobilization Subtotal =**	**$ 3,960**	***Assume that these will be used overall (not calculated for every excavation).**
Crawler Mounted Backhoes	5	each	$ 55.00	$ 471	$ 112.00	$ 608	$ -	$ -	$ -	$ -	$ 215.80	$ 1,079	RACER 2006
Tractor Loader	5	each	$ 55.00	$ 471	$ 112.00	$ 608	$ -	$ -	$ -	$ -	$ 215.80	$ 1,079	
Graders	5	each	$ 53.00	$ 454	$ 168.00	$ 911	$ -	$ -	$ -	$ -	$ 273.00	$ 1,365	
100,000-Gallon Modular Storage Tank	3	each	$ 85.00	$ 437	$ -	$ -	$ -	$ -	$ -	$ -	$ 145.67	$ 437	Baker Tanks vendor quote
	0	each	$ -	$ -	$ -	$ -		$ -	$ -	$ -		$ -	*Means 33, 18, 04, 03 per Jim H
Equipment											**Equipment Subtotal =**	**$ 41,505**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Tractor Loader	55	day	$ 100.00	$ 9,491	$ 58.00	$ 3,489	$ -	$ -	$ -	$ -	$ 234.13	$ 12,980	
20-ton Dump Truck	55	day	$ 83.00	$ 7,878	$ 92.00	$ 5,534	$ -	$ -	$ -	$ -	$ 241.93	$ 13,412	
100,000-gallon Modular Storage Tank	55	day	$ -	$ -	$ 175.00	$ 10,526	$ -	$ -	$ -	$ -	$ 189.87	$ 10,526	Baker Tanks vendor quote
		month		$ -	$ -	$ -		$ -	$ -	$ -		$ -	*Means 33, 18, 04, 04
Trash Pump	60	day	$ 15.64	$ 1,607	$ 45.78	$ 2,980	$ -	$ -	$ -	$ -	$ 76.45	$ 4,587	RACER 2006 for dewatering excavations. Assumes additional 15 days for backfilling.
Temporary Facilities											**Temporary Facilities Subtotal =**	**$ 118,649**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
Portable Toilets (2)	24	month	$ -	$ -	$ -	$ -	$ 1,006.40	$ 26,207	$ -	$ -	$ 1,091.96	$ 26,207	Means 2004 Constructio 01590 400 6410
Rental Trucks (5) (for supervisory staff)	24	month	$ -	$ -	$ -	$ -	$ 3,550.00	$ 92,442	$ -	$ -	$ 3,851.75	$ 92,442	Assuming rental from Enterprise
Oversight											**Oversight Subtotal =**	**$ 29,349**	***Assume that we will not be setting up buildings/work areas/etc. Numbers same as previous.**
1 Engineer 100% on project; location factor N/A	360	hour	$ 34.00	$ 19,584	$ -	$ -	$ 200.00 /day	$ 9,765	$ -	$ -	$ 81.53	$ 29,349	Includes $200 per day per diem
Total Site Wide Costs											**Total Site Wide Costs Subtotal =**	**$ 344,169**	
Excavation Costs													
Concrete Cutting and Repaving											**Concrete Cutting and Repaving Subtotal =**	**$ 38,209**	
Saw Cutting Asphalt	6515	linear feet	0.53	$ 5,911	0.3	$ 2,121	0.44	$ 3,110	$ -	$ -	$ 1.71	$ 11,142	Up to 3" deep
Paving 4" Asphalt	12505	square yard	$ 0.32	$ 6,851	$ 0.24	$ 3,256	$ 1.25	$ 16,960	$ -	$ -	$ 2.16	$ 27,067	Means 2004 Heavy Construction. Pg. 105. 02785 250 1910
Excavation and Backfill											**Excavation and Backfill Subtotal =**	**$ 3,422,792**	
Tarpaulins	12,505	square feet	$ -	$ -	$ -	$ -	0.54	$ 7,327	$ -	$ -	$ 0.59	$ 7,327	reinforced woven polyethylene, 6 mils thick
Excavation	41683	cubic yard	$ 1.35	$ 96,338	$ 1.71	$ 77,337	$ -	$ -	$ -	$ -	$ 4.17	$ 173,675	Means 2004 17, 03, 02, 77
Excavation With Building Shoring	7245	cubic yard	$ 34.93	$ 433,257	$ 4.14	$ 32,544	$ 10.76	$ 84,583	$ -	$ -	$ 75.97	$ 550,384	Means 2004 17, 03, 09, 01
Excavation With Utility Shoring	1764	cubic yard	$ 34.05	$ 102,835	$ 2.47	$ 4,728	$ 5.22	$ 9,991	$ -	$ -	$ 66.64	$ 117,554	Means 2004 17, 03, 09, 01
Boundary Fence	6515	linear feet	$ 4.78	$ 53,315	2.34	$ 16,541	1.78	$ 12,582	$ 1	$ 8,079	$ 13.89	$ 90,517	2006 RACER (5' galvanized)
Erosion Control, Drainage Filter Fabric	12505	square yard	$ 0.83	$ 17,769	0.03	$ 407	0.82	$ 11,126	$ 2	$ 31,012	$ 4.82	$ 60,314	2006 RACER, 8oz/syd
Dewatering	55	day	$ 113.00	$ 10,725	$ 23.00	$ 1,383	$ 136.00	$ 8,181	$ -	$ -	$ 365.97	$ 20,289	Means 2006 312319200650, attended 2 hours per day, 4" discharge pump used for 8 hours, includes 20 L.F. of suction hose and 100 L.F. of discharge hose
Confirmation Sampling	1385	each	$ 17.00	$ 40,309	$ -	$ -	$ 1,048.00	$ 1,574,856	$ -	$ -	$ 1,166.18	$ 1,615,165	Means 33, 02, 06. Sample minimum of 2 on each side plus 1 at bottom; otherwise every 15 ft along perimeter and every 225 ft at bottom. Assumes 0.5 hours per confirmation sample for Engineer.
Disposal Of Water	1,250	100 cubic feet	$ -	$ -	$ -	$ -	$ 16.54	$ 22,432	$ -	$ -	$ 17.95	$ 22,432	Highest non-resident cost cited on San Francisco Public Utilities website.
Sampling and Analysis of Water	6	each	$ 17.00	$ 175	$ -	$ -	$ 175.00	$ 1,139	$ -	$ -	$ -	$ 1,314	
Gravel Delivered and Dumped	4168	cubic yard	$ 3.52	$ 25,119	$ 1.72	$ 7,779	$ 23.74	$ 107,367	$ -	$ -	$ 33.65	$ 140,265	2006 RACER, 1 ft of drain rock
Dry Roll Gravel, Steel Roller	12505	square yard	$ 0.82	$ 17,555	$ 0.28	$ 3,799	$ -	$ -	$ -	$ -	$ 1.71	$ 21,354	2006 RACER
Unclassified Fill Delivered, Spread and Compacted	37515	cubic yard	$ 2.42	$ 155,426	$ 1.92	$ 78,151	$ 6.82	$ 277,599	$ 1.00	$ 46,518	$ 14.87	$ 557,694	2006 RACER, 6" lifts
Nuclear Density Gauge Soil Compaction Testing	160	hour	$ 82.00	$ 22,461	$ 2.92	$ 507	$ 7.82	$ 1,358	$ 1.00	$ 198	$ 153.28	$ 24,524	Earth Systems vendor quote
Compaction Reports	21	each	$ -	$ -	$ -	$ -	$ 350.00	$ 7,975	$ 1.00	$ 26	$ 381.00	$ 8,001	Earth Systems vendor quote
Signs	130	each	$ 30.63	$ 6,833	$ -	$ -	$ 36.43	$ 5,150	$ -	$ -	$ 91.96	$ 11,983	2006 RACER (Stock, reflectorize, UTMCD standard, guide and directional, 12" x 18", with posts)
Storm Water Control											**Storm Water Control Subtotal =**	**$ 12,947**	
2 -foot high (and 2 feet wide) berm around open excavation	931	cubic yard	$ -	$ -	$ -	$ -	$ -	$ -	$ 6.12	$ 7,063	$ 7.59	$ 7,063	Means 2004 17, 0, 99, 11
Erosion Control, Silt Fence	1600	linear feet	0.3	$ 822	$ -	$ -	0.63	$ 1,094	$ 2	$ 3,968	$ 3.68	$ 5,884	2006 RACER Polypropylene, ideal conditions, 3' high
Waste Hauling and Disposal											**Waste Hauling and Disposal Subtotal =**	**$ 8,188,523**	
Characterization Sampling and Analysis	35	each	$17.00	$ 1,019	$ -	$ -	$ 200.00	$ 7,595				$ 8,614	
Bulk Waste Loading	41683	cubic yard	$ 1.27	$ 90,629	$ 1.64	$ 74,171	$ -	$ -	$ -	$ -	$ 3.95	$ 164,800	2006 RACER
Nonhazardous Material Transportation and Disposal	38807	cubic yard	$ -	$ -	$ -	$ -	$ 111.35	$ 4,688,463	$ -	$ -	$ 120.81	$ 4,688,463	Nonhazardous disposal rate at $22/ton + $1610/load, plus 11% tax and recovery fee transportation to Buttonwillow Landfill (quote by Clean Harbors)
RCRA-Hazardous Material Haul (20 cubic yards Dump, 200 miles)	16632	cubic yard	$ -	$ -	$ -	$ -	$ 89.35	$ 1,612,345	$ -	$ -	$ 96.94	$ 1,612,345	Transportation to Buttonwillow Landfill @ $1610/load plus 11% tax and recovery fee
RCRA-Hazardous Material Disposal	16632	cubic yard	$ -	$ -	$ -	$ -	$ 95.00	$ 1,714,301	$ -	$ -	$ -	$ 1,714,301	RCRA-hazardous disposal cost for treatment of metals (standard recipe)
Total Excavation Costs											**Total Excavation Costs Subtotal =**	**$ 11,662,471**	

TABLE F-8A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE S-5 (CONTINUED)

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

Alternative S-5: Excavation, Disposal, Covers, SVE, and Institutional Controls

Location Factors

Assembly:	124.0%	
Professional Labor Multiplier:	1.6	(RACER 2006)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(RACER 2006)
Project Duration:	24.0	
	531	

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including Profit)	Unloaded Assembly Unit Cost	Total Assembly Cost (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Cover Costs													
Cover													
Sealcoating, Rubberized Asphalt	99220	square yard	$ 0.10	$ 16,986	$ 0.11	$ 11,842	$ 0.44	$ 47,368	$ -	$ -	$ 0.77	$ 76,196	Means 2004 Heavy Construction. Pg. 105. 02785 250 0012
Rough grade	12505	square yard	$ 0.29	$ 6,208	$ 0.51	$ 6,920	$ -	$ -	$ -	$ -	$ 1.05	$ 13,128	Means 200417, 03, 01, 03
Fine grade	12505	square yard	$ 0.20	$ 4,282	$ 0.21	$ 2,849	$ -	$ -	$ -	$ -	$ 0.57	$ 7,131	2006 Means CSI 312216109100 Machine grading, includes compaction, minimum labor/equipment charge
Asphalt cover - bituminous (4 " thick)	1707552	square feet	$ 0.15	$ 438,499.00	$ 0.18	$ 333,485.00	$ 1.21	$ 2,241,760	$ -	$ -	$ 1.76	$ 3,013,744	Means 18 03 03 06, adjusted for 4-" thickness
Soil Cover Borrow, Fill, Compact	9,026	cubic yard	$ 1.68	$ 25,959	$ 2.63	$ 25,755	$ 7.15	$ 70,019	$ -	$ -	$ 13.49	$ 121,733	2 ft. thick, Means 17, 03, 04, 23
Soil Cover Sampling and Analytical	10	each	$ 170.00	$ 2,910	$ -	$ -	$ 150.00	$ 1,628	$ -	$ -	$ -	$ 4,538	Assumes 0.5 hours Engineer for each sample (1 per 1,000 cubic yards)
Hydroseeding	136	100 square yards	$ 2.59	$ 601	$ 2.25	$ 331	$ 9.37	$ 1,378	$ -	$ -	$ 17.05	$ 2,310	Means 18, 05, 04, 01
Hydrofertilizer	136	100 square yards	$ 1.03	$ 239	$ 0.75	$ 110	$ 2.18	$ 321	$ -	$ -	$ 4.94	$ 670	Means 18, 05, 04, 08
Water - 10 times	136	100 square yards	$ 8.89	$ 2,063	$ 7.69	$ 1,131	$ 0.98	$ 144	$ -	$ -	$ 24.63	$ 3,338	Means 18, 05, 04, 13
Total Covering Capital Costs										**Total Covering Capital Costs Subtotal =**		**$ 3,242,788**	
Construction Cost Summary													
Total Construction Capital Costs										**Total Construction Capital Costs Subtotal =**		**$ 15,249,428**	
Design Cost										**Design Cost Subtotal =**		**$ 1,829,931**	*Calculated as overall cost - not per individual excavation. Unit cost numbers same as previous.
Assume 12% of construction cost													
Access Restrictions													
Signage Capital Costs										**Signage Capital Costs Subtotal =**		**$ 11,893**	
Signage	130	each	$ 33.88	$ 7,558	$ -	$ -	$ 30.66	$ 4,335	$ -	$ -	$ 91.27	$ 11,893	One sign per 50 ft perimeter of excavation areas; Means 18, 01, 04, 11
Total Access Restrictions Capital Costs										**Total Access Restrictions Capital Costs Subtotal =**		**$ 11,893**	
Institutional Controls													
Land Use Control Implementation and Certification										**Land Use Control Implementation and Certification Subtotal =**		**$74,566.00**	
LUCIP scoping meeting	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for subsistence.
Prepare draft LUCIP	120	hour	$ 75.00	$ 15,408	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 15,408	Tetra Tech 2002.
Submit draft LUCIP	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ 100	$ 3,472	$ -		$ 236.91	$ 7,581	Tetra Tech 2002. ODCs for printing.
BCT review period	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
BCT comments due	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ -	$ -	$ -		$ 128.38	$ 2,054	Tetra Tech 2002.
RTC meeting and BCT concurrence	16	hour	$ 75.00	$ 2,054	$ -	$ -	$ 500	$ 8,680	$ -		$ 670.88	$ 10,734	Tetra Tech 2002. ODCs for printing.
Prepare draft final LUCIP	72	hour	$ 75.00	$ 9,245	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 9,245	Tetra Tech 2002.
Submit draft final LUCIP	8	hour	$ 75.00	$ 1,027	$ -	$ -	$ 100	$ 868	$ -		$ 236.88	$ 1,895	Tetra Tech 2002. ODCs for printing.
BCT review and concurrence period	48	hour	$ 75.00	$ 6,163	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 6,163	Tetra Tech 2002.
BCT concurrence letters due	32	hour	$ 75.00	$ 4,109	$ -	$ -	$ -	$ -	$ -		$ 128.41	$ 4,109	Tetra Tech 2002.
Prepare final LUCIP with RTC	40	hour	$ 75.00	$ 5,136	$ -	$ -	$ -	$ -	$ -		$ 128.40	$ 5,136	Tetra Tech 2002.
Submit final LUCIP with RTC	11	hour	$ 75.00	$ 1,412	$ -	$ -	$ 100	$ 1,194	$ -		$ 236.91	$ 2,606	Tetra Tech 2002. ODCs for printing.
Covenant to Restrict Use of Property										**Covenant to Restrict Use of Property Subtotal =**		**$40,061.00**	
Prepare draft covenant	80	hour	$ 234.00	$ 32,049	$ -	$ -	$ -	$ -	$ -		$ 400.61	$ 32,049	Tetra Tech 2002. ODCs for printing.
File covenant	20	hour	$ 234.00	$ 8,012	$ -	$ -	$ -	$ -	$ -		$ 400.60	$ 8,012	Tetra Tech 2002. ODCs for travel fees.
Deed Restrictions										**Deed Restrictions Subtotal =**		**$23,400.00**	
Prepare draft deed restrictions	80	hour	$ 234.00	$ 18,720	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 18,720	
File deed restrictions	20	hour	$ 234.00	$ 4,680	$ -	$ -	$ -	$ -	$ -	$ -	$ 234.00	$ 4,680	
Risk Management Plan										**Risk Management Plan Subtotal =**		**$7,200.00**	
Navy review draft RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Navy review draft final RMP	40	hour	$ 75.00	$ 3,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 3,000	
Discuss comments on draft final RMP	8	hour	$ 75.00	$ 600	$ -	$ -	$ -	$ -	$ -	$ -	$ 75.00	$ 600	
Total Institutional Controls Capital Costs										**Total Legal Controls Capital Costs Subtotal**		**$145,227.00**	
Total Institutional Controls and Access Restrictions Capital Costs										**Total Institutional Controls and Access Restrictions Capital Costs Subtotal =**		**$157,120.00**	

Total Project Capital Cost =	**$ 17,236,479**
Present Value of 30 Years of Periodic Costs =	**$ 3,552,364**
SubTotal =	**$ 20,788,844**
20% Contingency =	**$ 4,157,769**
Total Project Cost =	**$ 24,946,612**

Notes:

BCT	Base Realignment and Closure Cleanup Team	Means	RS Means Company, Inc.	RACER	Remedial Action Cost Engineering and Requirements System	t/hr	Ton per hour
csy	Hundred square yards	N/A	Not applicable	RCRA	Resource Conservation and Recovery Act	TCLP	Toxicity characteristic leaching procedure
FOST	Finding of suitability to transfer	O&P	Overhead and profit	RMP	Risk Management Plan	Tetra Tech	Tetra Tech EM Inc.
GAC	Granular activated carbon	ODC	Other direct cost	RTC	Responses to comments	VOC	Volatile organic compound
Hg	Mercury	PCB	Polychlorinated biphenyl	SVE	Soil vapor extraction	WET	Waste extraction test
LUCIP	Land Use Control Implementation Plan	PVC	Polyvinyl chloride	SVOC	Semivolatile organic compound		

Sources:

Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.

Means. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.

Tetra Tech. 2002. "Draft Revised Parcel D Feasibility Study Report, Hunters Point Shipyard San Francisco, California." March 8.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
44	Present-Worth Cost: $12,240,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Tables F-9 and F-11A.

TABLE F-9: GROUNDWATER ALTERNATIVES COST ESTIMATE SUMMARY

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

Site: Parcel C
Location: Hunters Point Shipyard, San Francisco, California
Phase: Feasibility Study
Base Year: 2006

Description	Alternative 1	Alternative 2	Alternative 3		Alternative 4
	No Action	Long-Term Groundwater Monitoring and Institutional Controls	Alternative GW-3A: In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls	Alternative GW-3B: In Situ Zero-Valent Iron Reduction, Bioremediation, Monitored Natural Attenuation, and Institutional Controls	Alternative GW-4: In-Situ Zero Valent Iron Reduction, Plume-Wide Bioremediation, Monitored Natural Attenuation, and Institutional Controls
	GW-1	GW-2	GW-3A	GW-3B	GW-4
Total Project Duration (Years)		30	30	30	25
Capital and Labor Cost	$0	$948,431	$3,611,722	$4,573,382	$5,507,893
Total O&M and Periodic Cost	$0	$9,531,750	$14,644,227	$18,984,904	$33,823,131
Contingency	$0	$2,096,036	$3,651,190	$4,711,657	$7,866,205
Total Present Value of Alternative	**$0**	**$12,576,218**	**$21,907,139**	**$28,269,944**	**$47,197,229**
(Rounded)	**$0**	**$12,580,000**	**$21,910,000**	**$28,270,000**	**$47,200,000**

TABLE F-11A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE GW-2

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

Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring

Professional Labor Multiplier:	1.6	(2006 RACER)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(2006 RACER)
Project Duration:	31	working days

Description		Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site-Wide Costs												
A- Aquifer, B-Aquifer and Deep Well Monitoring Well Installation										**Subtotal =**	**$ 890,685**	Rounded average based on typical loaded professional unit costs
Subcontracting and Procurement												
Project Manager		20	hour	$ 34.00	$ 1,088	$ -	$ -	$ -	$ -	$ 54.40	$ 1,088	
Health & Safety Officer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Engineer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Equipment											$ 310,685.00	
Drill Rig Mobilization/Demobilization		3	LS	$ 1,640.29	$ 8,425	$ 990.00	$ 3,237	$ -	$ -	$ 3,887.33	$ 11,662	2006 RACER
Move Rig/Equipment Around Site		97	each	$ 235.79	$ 39,156	$ 142.31	$ 15,046	$ 64.09	$ 6,776	$ 628.64	$ 60,978	2006 RACER
Air Rotary, 6-inch Diameter Borehole		3,393	linear feet	$ 18.94	$ 110,019	$ 29.96	$ 110,803	$ -	$ -	$ 65.08	$ 220,822	2006 RACER, consolidated, Depth <= 100 ft
Drill Rig Decontamination		11	day	$ 640.10	$ 12,054	$ -	$ -	$ 19.24	$ 231	$ 1,116.82	$ 12,285	2006 RACER, assume once per week.
Vehicles (2)		31	day	$ -	$ -	$ -	$ -	$ 40.00	$ 1,352	$ 43.61	$ 1,352	
Organic Vapor Analyzer		11	day	$ -	$ -	$ 132.08	$ 1,584.00	$ -	$ -	$ 144.00	$ 1,584	RACER 2006
Well Development Equipment		3	week	$ 78.20	$ 375.00	$ -	$ -	$ 497.60	$ 1,627	$ 667.33	$ 2,002	RACER 2006
Materials												
Well Plug		97	each	$ 6.91	$ 1,148	$ 10.93	$ 1,156	$ 6.32	$ 668	$ 30.64	$ 2,972	2006 RACER
Well Casing		2,286	linear feet	$ 4.60	$ 18,003	$ 7.28	$ 18,140	$ 1.30	$ 3,239	$ 17.23	$ 39,382	2006 RACER
2-inch PVC Well Screen		1,010	linear feet	$ 5.94	$ 10,271	$ 9.40	$ 10,348	$ 3.00	$ 3,303	$ 23.69	$ 23,922	2006 RACER
Filter Pack		1,204	linear feet	$ 3.91	$ 8,059	$ 6.19	$ 8,124	$ 3.37	$ 4,423	$ 17.11	$ 20,606	2006 RACER
Portland Cement Grout		2,035	linear feet	$ -	$ -	$ -	$ -	$ 1.26	$ 2,795	$ 1.37	$ 2,795	2006 RACER
Bentonite Seal		97	each	$ 15.54	$ 2,581	$ 24.59	$ 2,600	$ 10.02	$ 1,059	$ 64.33	$ 6,240	2006 RACER
PVC bailers, disposable		97	each	$ -	$ -	$ -	$ -	$ 6.92	$ 732	$ 7.55	$ 732	2006 RACER
Surface Pad, Concrete, 2' x 2' x 4"		97	each	$ 21.58	$ 3,584	$ 1.80	$ 190	$ 41.82	$ 4,422	$ 84.49	$ 8,196	2006 RACER
DOT Steel Drums, 55 gallon (Soil Cuttings)		53	each	$ -	$ -	$ -	$ -	$ 94.49	$ 5,407	$ 102.99	$ 5,407	2006 RACER
DOT Steel Drums, 55 gallon (Purge Water)		50	each	$ -	$ -	$ -	$ -	$ 94.49	$ 5,143	$ 102.98	$ 5,143	2006 RACER
Oversight												
Project Manager	50% on project; location factor N/A	124	hour	$ 34.00	$ 6,746	$ -	$ -	$ -	$ -	$ 54.40	$ 6,746	
Superintendent	50% on project; location factor N/A	124	hour	$ 34.00	$ 6,746	$ -	$ -	$ -	$ -	$ 54.40	$ 6,746	
Engineer	50% on project; location factor N/A	124	hour	$ 34.00	$ 6,746	$ -	$ -	$ -	$ -	$ 54.40	$ 6,746	
Health & Safety Officer	25% on project; location factor N/A	62	hour	$ 34.00	$ 3,373	$ -	$ -	$ -	$ -	$ 54.40	$ 3,373	
Quality Control Officer	25% on project; location factor N/A	62	hour	$ 34.00	$ 3,373	$ -	$ -	$ -	$ -	$ 54.40	$ 3,373	
Field Technician	100% on project; location factor N/A	744	hour	$ 34.00	$ 40,474	$ -	$ -	$ 200.00 /day	$ 20,274	$ 81.65	$ 60,748	
Geologist	100% on project; location factor N/A	744	hour	$ 34.00	$ 40,474	$ -	$ -	$ 200.00 /day	$ 20,274	$ 81.65	$ 60,748	
Monitoring Well Installation Waste Handling and Disposal Costs												
Waste Handling and Disposal										**Subtotal =**	**$ 57,746**	
5,000 Gallon Bulk Tank Truck Secondary Containment, Storage and Loading Waste Liquid		3	each	$ 559.30	$ 2,685	$ 253.34	$ 828	$ -	$ -	$ 1,171.14	$ 3,513	2006 RACER, Well development water
Transport of 5,000-Gallons Nonhazardous Liquid		50	mile	$ -	$ -	$ -	$ -	$ 3.26	$ 178	$ 3.56	$ 178	2006 RACER, Well development water
Liquid Waste Stream Evaluation		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER, Well development water
Liquid Nonhazardous Disposal, Commercial RCRA Landfill		11,165	gallon	$ -	$ -	$ -	$ -	$ 2.39	$ 29,086	$ 2.61	$ 29,086	2006 RACER, Well development water
Soil Waste Characterization		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER
Nonhazardous Drummed Soil Transport		187	each	$ -	$ -	$ -	$ -	$ 50.00	$ 10,192	$ 54.50	$ 10,192	2006 RACER
Nonhazardous Drummed Soil Waste Disposal		187	each	$ -	$ -	$ -	$ -	$ 67.00	$ 13,657	$ 73.03	$ 13,657	2006 RACER

TABLE F-11A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE GW-2 (CONTINUED)

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

Alternative GW-2: Institutional Controls and Long-Term Groundwater Monitoring

Professional Labor Multiplier:	1.6	(2006 RACER)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(2006 RACER)
Project Duration:	31	working days

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Institutional Controls (no additional cost; included in Soil Alternatives)											

Total Project Capital Cost =	**$**	**948,431**
Present Value of 30 Years of Periodic Costs =	**$**	**9,531,750**
SubTotal =	**$**	**10,480,182**
20% Contingency =	**$**	**2,096,036**
Total Project Cost =	**$**	**12,576,218**

Notes:

BCT	Base Realignment and Closure Cleanup Team
DOT	U.S. Department of Transportation
LUC RD	Land Use Control Remedial Design
LS	Lump Sum
Means	RS Means Company, Inc.
N/A	Not applicable
O&P	Overhead and profit
ODC	Other direct cost
PVC	Polyvinyl chloride
RACER	Remedial Action Cost Engineering and Requirements System
RCRA	Resource Conservation and Recovery Act
RTC	Responses to comments

Sources:

Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.

Means. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
45	Present-Worth Cost: $21,910,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Table F-13A.

TABLE F-13A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE GW-3A

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

Alternative GW-3A: In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Professional Labor Multiplier:	1.6 (2006 RACER)
Labor Overhead & Profit Multiplier.:	1.712
Material and Equipment Profit:	9% (2006 RACER)
Project Duration:	46 working days

Description		Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site-Wide Costs												
A-Aquifer and B-Aquifer Monitoring Well Installation									**A-Aquifer and B-Aquifer Monitoring Well Installation Subtotal =**		**$ 978,500**	Rounded average based on typical loaded professional unit costs
Subcontracting and Procurement												
Project Manager		20	hour	$ 34.00	$ 1,088	$ -	$ -	$ -	$ -	$ 54.40	$ 1,088	
Health & Safety Officer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Engineer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Equipment												
Drill Rig Mobilization/Demobilization		3	LS	$ 1,640.29	$ 8,425	$ 990.00	$ 3,237	$ -	$ -	$ 3,887.33	$ 11,662	2006 RACER
Move Rig/Equipment Around Site		182	each	$ 235.79	$ 73,468	$ 142.31	$ 28,231	$ 64.09	$ 12,714	$ 628.64	$ 114,413	2006 RACER
Air Rotary, 6-Inch-Diameter Borehole		7,089	linear feet	$ 18.94	$ 229,863	$ 29.96	$ 231,501	$ -	$ -	$ 65.08	$ 461,364	2006 RACER, consolidated, Depth <= 100 ft
Drill Rig Decontamination		26	day	$ 640.10	$ 28,492	$ -	$ -	$ 19.24	$ 545	$ 1,116.81	$ 29,037	2006 RACER, assume once per week.
Vehicles (2)		46	day	$ -	$ -	$ -	$ -	$ 40.00	$ 4,012	$ 87.22	$ 4,012	
Organic Vapor Analyzer		26	day	$ -	$ -	$ 132.08	$ 3,743.00	$ -	$ -	$ 143.96	$ 3,743	RACER 2006
Well Development Equipment		6	week	$ 78.20	$ 751	$ -	$ -	$ 497.60	$ 3,254	$ 667.50	$ 4,005	RACER 2006
Materials												
Well Plug		182	each	$ 6.91	$ 2,153	$ 10.93	$ 2,168	$ 6.32	$ 1,254	$ 30.63	$ 5,575	2006 RACER
Well Casing		5,087	linear feet	$ 4.60	$ 40,061	$ 7.28	$ 40,366	$ 1.30	$ 7,208	$ 17.23	$ 87,635	2006 RACER
2-Inch PVC Well Screen		1,820	linear feet	$ 5.94	$ 18,508	$ 9.40	$ 18,648	$ 3.00	$ 5,951	$ 23.69	$ 43,107	2006 RACER
Filter Pack		2,184	linear feet	$ 3.91	$ 14,620	$ 6.19	$ 14,736	$ 3.37	$ 8,022	$ 17.11	$ 37,378	2006 RACER
Portland Cement Grout		4,541	linear feet	$ -	$ -	$ -	$ -	$ 1.26	$ 6,237	$ 1.37	$ 6,237	2006 RACER
Bentonite Seal		182	each	$ 15.54	$ 4,842	$ 24.59	$ 4,878	$ 10.02	$ 1,988	$ 64.33	$ 11,708	2006 RACER
PVC bailers, disposable		182	each	$ -	$ -	$ -	$ -	$ 6.92	$ 1,373	$ 7.54	$ 1,373	2006 RACER
Surface Pad, Concrete, 2 feet x 2 feet x 4 inches		182	each	$ 21.58	$ 6,724	$ 1.80	$ 357	$ 41.82	$ 8,296	$ 84.49	$ 15,377	2006 RACER
DOT Steel Drums, 55 gallons (Soil Cuttings)		109	each	$ -	$ -	$ -	$ -	$ 94.49	$ 11,175	$ 103.00	$ 11,175	2006 RACER
DOT Steel Drums, 55 gallons (Purge Water)		50	each	$ -	$ -	$ -	$ -	$ 94.49	$ 5,143	$ 102.98	$ 5,143	2006 RACER
Oversight												
Project Manager	50% on project; location factor N/A	184	hour	$ 34.00	$ 10,010	$ -	$ -	$ -	$ -	$ 54.40	$ 10,010	
Superintendent	100% on project; location factor N/A	368	hour	$ 34.00	$ 20,019	$ -	$ -	$ -	$ -	$ 54.40	$ 20,019	
Health & Safety Officer	100% on project; location factor N/A	368	hour	$ 34.00	$ 20,019	$ -	$ -	$ -	$ -	$ 54.40	$ 20,019	
Quality Control Officer	50% on project; location factor N/A	184	hour	$ 34.00	$ 10,010	$ -	$ -	$ -	$ -	$ 54.40	$ 10,010	
Geologist (3)	100% on project; location factor N/A	1,104	hour	$ 34.00	$ 60,058	$ -	$ -	$ -	$ -	$ 54.40	$ 60,058	
Source Zone Delineation									**Source Zone Delineation Subtotal =**		**$ 84,465**	Rounded average based on typical loaded professional unit costs
Passive Gas Sampling												
Equipment												
Handheld drill		1	each	$ -	$ -	$ 990.00	$ 1,079	$ -	$ -	$ 1,079.00	$ 1,079	2006 RACER
Vehicle		2	day	$ -	$ -	$ -	$ -	$ 40.00	$ 174	$ 87.00	$ 174	
Analytical												
Passive Gas Samplers		173	each	$ -	$ -	$ -	$ -	$ 50.00	$ 9,411	$ 54.50	$ 9,411	Cost Estimate from Gore Surveys
Shipping		1	LS	$ -	$ -	$ 32.00	$ 35	$ -	$ -	$ 35.00	$ 35	Cost Estimate from Gore Surveys
Analysis and Reporting		50	each	$ 210.00	$ 17,976	$ -	$ -	$ -	$ -	$ 359.52	$ 17,976	Cost Estimate from Gore Surveys
Sampling labor												
Geologist	0.5 hrs per location	86	hour	$ 34.00	$ 4,697	$ -	$ -	$ -	$ -	54.40435513	$ 4,697	
Membrane Interface Probe (MIP)												
Lumpsum charges (reporting, coring mob/demob,)		1	ls	$ 4,500.00	$ 7,200						$ 7,200	2007. Quote from Frank Stolfi, Vironex. Jan 2.
MIP Services (incl. mob/demob)		3	day	$ 5,190.00	$ 23,874						$ 23,874	2007. Quote from Frank Stolfi, Vironex. Jan 2.
Oversight (geologist)	100% on project; location factor N/A	368	hour	$ 34.00	$ 20,019	$ -	$ -	$ -	$ -	$ 54.40	$ 20,019	
Bioremediation												
Remedial Design									**Remedial Design Subtotal =**		**$ 194,752**	
Project Manager		700	hour	$ 34.00	$ 38,080	$ -	$ -	$ -	$ -	$ 54.40	$ 38,080	
Health & Safety Officer		80	hour	$ 34.00	$ 4,352	$ -	$ -	$ -	$ -	$ 54.40	$ 4,352	
Engineer (2), Geologist and CAD		2,800	hour	$ 34.00	$ 152,320	$ -	$ -	$ -	$ -	$ 54.40	$ 152,320	

Alternative GW-3A: In-Situ Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Professional Labor Multiplier: 1.6 (2006 RACER)
Labor Overhead & Profit Multiplier.: 1.712
Material and Equipment Profit: 9% (2006 RACER)
Project Duration: 46 working days

Description		Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site-Wide Distributive Costs									**Site-Wide Distributive Costs Subtotal =**		**$ 131,485**	
Project Manager	25% on project; location factor N/A	247	hour	$ 34.00	$ 13,437	$ -	$ -	$ -	$ -	$ 54.40	$ 13,437	
Superintendent	0% on project; location factor N/A	0	hour	$ 34.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Health & Safety Officer	100% on project; location factor N/A	986	hour	$ 34.00	$ 53,638	$ -	$ -	$ -	$ -	$ 54.40	$ 53,638	
Quality Control Officer	10% on project; location factor N/A	99	hour	$ 34.00	$ 5,386	$ -	$ -	$ -	$ -	$ 54.40	$ 5,386	
Procurement Spec.	10% on project; location factor N/A	99	hour	$ 34.00	$ 5,386	$ -	$ -	$ -	$ -	$ 54.40	$ 5,386	
Oversight geologist (1)	100% on project; location factor N/A	986	hour	$ 34.00	$ 53,638	$ -	$ -	$ -	$ -	$ 54.40	$ 53,638	
Pilot Tests									**Pilot Tests Subtotal =**		**$ 28,870**	
Injection Pilot Testing, Soil ROI Coring and Sampling (Includes Mobe/Demobe)		3	day		$ -	$ -	$ -	$ 5,885.00	$ 19,244	$ 6,414.67	$ 19,244	Vendor Quote: Vironex, John MacAssey (510)568-7676
HRC-A		19,725	lb	$ -	$ -	$ -	$ -	$ 0.24	$ 5,160	$ 0.26	$ 5,160	Vendor Quote: Regenesis
ORC-A		15	lb	$ -	$ -	$ -	$ -	$ 7.00	$ 114	$ 7.60	$ 114	Vendor Quote: Regenesis
Data Summary Tables		80	hour	$ 34.00	$ 4,352	$ -	$ -	$ -	$ -	$ 54.40	$ 4,352	
Reagent Injection									**Reagent Injection Subtotal =**		**$ 1,374,331**	
RU-C1 HRC-A Injection	2 DPT rigs, 1 rig with 2 injection pumps	59	day	$ -	$ -	$ -	$ -	$ 6,405.00	$ 414,320	$ 6,981.46	$ 414,320	Vendor Quote: Vironex, Eliot Cooper (303) 277-9776
RU-C2 HRC-A Injection	2 DPT rigs, 1 rig with 2 injection pumps	12	day	$ -	$ -	$ -	$ -	$ 5,880.00	$ 78,991	$ 6,409.20	$ 78,991	Mobe/demobe, coring, waste handling, decon, per diems included
RU-C4 HRC-A Injection	2 DPT rigs, 1 rig with 2 injection pumps	37	day	$ -	$ -	$ -	$ -	$ 6,425.00	$ 256,328	$ 7,003.26	$ 256,328	2 DPT rigs, 1 rig with 2 injection pumps
RU-C5 HRC-A Injection	2 DPT rigs, 1 rig with 2 injection pumps	12	day	$ -	$ -	$ -	$ -	$ 5,710.00	$ 74,290	$ 6,223.88	$ 74,290	
RU-C5 ORC-A Injection	2 DPT rigs, 1 rig with 2 injection pumps	1	day	$ -	$ -	$ -	$ -	$ 5,710.00	$ 4,168	$ 6,224.21	$ 4,168	
HRC-A		1,788,130	lb	$ -	$ -	$ -	$ -	$ 0.24	$ 467,775	$ 0.26	$ 467,775	Vendor Quote: JRW Technologies, Donovan Smith (913)438-5544
Process Water, Supplied by Water Line KGAL		1,401	Kgal					$ 3.56	$ 5,437	$ 3.88	$ 5,437	
ORC-A		9,000	lb	$ -	$ -	$ -	$ -	$ 7.00	$ 68,670	$ 7.63	$ 68,670	
Data Summary Tables		80	hour	$ 34.00	$ 4,352	$ -	$ -	$ -	$ -	$ 54.40	$ 4,352	
Bioaugmentation									**Bioaugmentation Subtotal =**		**$ 784,800**	
Injection (no separate injection cost; will be injected along with substrate during second event)		0	day		$ -	$ -	$ -	$ -	$ -	$ -	$ -	Vendor Quote: Vironex, John MacAssey (510)568-7676
BDI		4,800	liter	$ -	$ -	$ -	$ -	$ 150.00	$ 784,800	$ 163.50	$ 784,800	Vendor Quote: Regenesis
Monitoring Well Installation Waste Handling and Disposal Costs												
Waste Handling and Disposal									**Waste Handling and Disposal Subtotal =**		**$ 34,519**	
5,000 Gallon Bulk Tank Truck Secondary Containment, Storage and Loading Waste Liquid		1	each	$ 559.30	$ 895	$ 253.34	$ 276.00	$ -	$ -	$ 1,171.00	$ 1,171	2006 RACER, Well development water
Transport of 5,000-Gallons Nonhazardous Liquid		50	mile	$ -	$ -	$ -	$ -	$ 3.26	$ 178	$ 3.56	$ 178	2006 RACER, Well development water
Liquid Waste Stream Evaluation		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER, Well development water
Liquid Non Hazardous Disposal, Commercial RCRA Landfill		50	drum	$ -	$ -	$ -	$ -	$ 150.66	$ 8,201	$ 164.22	$ 8,201	2006 ECHOS. 33 19 7214
Soil Waste Characterization		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER
Nonhazardous Drummed Soil Transport		187	each	$ -	$ -	$ -	$ -	$ 50.00	$ 10,192	$ 54.50	$ 10,192	2006 RACER
Nonhazardous Drummed Soil Waste Disposal		187	each	$ -	$ -	$ -	$ -	$ 67.00	$ 13,657	$ 73.03	$ 13,657	2006 RACER
Institutional Controls (no additional cost; included in Soil Alternatives)												

Total Project Capital Cost =	**$ 3,611,722**
Present Value of 30 Years of Periodic Costs =	**$ 14,644,227**
SubTotal =	**$ 18,255,949**
20% Contingency =	**$ 3,651,190**
Total Project Cost =	**$ 21,907,139**

Notes:

BCT	Base Realignment and Closure Cleanup Team	O&P	Overhead and profit
CAD	Computer-aided design	ODC	Other direct cost
DOT	U.S. Department of Transportation	ORC	Oxygen-reducing compound
DPT	Direct-push technology	PVC	Polyvinyl chloride
HRC	Hydrogen-reducing compound	RACER	Remedial Action Cost Engineering and Requirements System
LS	Lump Sum	RCRA	Resource Conservation and Recovery Act
LUC RD	Land Use Control Remedial Design	ROI	Radius of influence
Means	RS Means Company, Inc.	RTC	Responses to comments
N/A	Not applicable	RU	Remedial Unit

Sources:
Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.
Means. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
46	Present-Worth Cost: $28,290,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Table F-15A.

TABLE F-15A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE GW-3B
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Alternative GW-3B: In-Situ Zero-Valent Iron Reduction, Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Professional Labor Multiplier: 1.6 (2006 RACER)
Labor Overhead & Profit Multiplier.: 1.712
Material and Equipment Profit: 9% (2006 RACER)
Project Duration: 46 working days

Description		Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site Wide Costs												
A- Aquifer and B-Aquifer Monitoring Well Installation										**Subtotal =**	**$ 981,542**	Rounded average based on typical loaded professional unit costs
Subcontracting and Procurement												
Project Manager		20	hour	$ 34.00	$ 1,088	$ -	$ -	$ -	$ -	$ 54.40	$ 1,088	
Health & Safety Officer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Engineer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Equipment												
Drill Rig Mobilization/Demobilization		3	LS	$ 1,640.29	$ 8,425	$ 990.00	$ 3,237	$ -	$ -	$ 3,887.33	$ 11,662	2006 RACER
Move Rig/Equipment Around Site		183	each	$ 235.79	$ 73,872	$ 142.31	$ 28,387	$ 64.09	$ 12,784	$ 628.65	$ 115,043	2006 RACER
Air Rotary, 6-inch-diameter Borehole		7,122	linear feet	$ 18.94	$ 230,933	$ 29.96	$ 232,579	$ -	$ -	$ 65.08	$ 463,512	2006 RACER, consolidated, Depth <= 100 ft
Drill Rig Decontamination		26	day	$ 640.10	$ 28,492	$ -	$ -	$ 19.24	$ 545	$ 1,116.81	$ 29,037	2006 RACER, assume once per week.
Vehicles (2)		46	day	$ -	$ -	$ -	$ -	$ 40.00	$ 4,011	$ 87.20	$ 4,011	
Organic Vapor Analyzer		26	day	$ -	$ -	$ 132.08	$ 3,743.00	$ -	$ -	$ 143.96	$ 3,743	RACER 2006
Well Development Equipment		6	week	$ 78.20	$ 751	$ -	$ -	$ 497.60	$ 3,254	$ 667.50	$ 4,005	RACER 2006
Materials												
Well Plug		183	each	$ 6.91	$ 2,165	$ 10.93	$ 2,180	$ 6.32	$ 1,261	$ 30.63	$ 5,606	2006 RACER
Well Casing		5,109	linear feet	$ 4.60	$ 40,234	$ 7.28	$ 40,541	$ 1.30	$ 7,239	$ 17.23	$ 88,014	2006 RACER
2-inch PVC Well Screen		1,830	linear feet	$ 5.94	$ 18,610	$ 9.40	$ 18,750	$ 3.00	$ 5,984	$ 23.69	$ 43,344	2006 RACER
Filter Pack		2,148	linear feet	$ 3.91	$ 14,379	$ 6.19	$ 14,493	$ 3.37	$ 7,890	$ 17.11	$ 36,762	2006 RACER
Portland Cement Grout		4,560	linear feet	$ -	$ -	$ -	$ -	$ 1.26	$ 6,263	$ 1.37	$ 6,263	2006 RACER
Bentonite Seal		183	each	$ 15.54	$ 4,869	$ 24.59	$ 4,905	$ 10.02	$ 1,999	$ 64.33	$ 11,773	2006 RACER
PVC bailers, disposable		183	each	$ -	$ -	$ -	$ -	$ 6.92	$ 1,380	$ 7.54	$ 1,380	2006 RACER
Surface Pad, Concrete, 2' x 2' x 4"		183	each	$ 21.58	$ 6,761	$ 1.80	$ 359	$ 41.82	$ 8,342	$ 84.49	$ 15,462	2006 RACER
DOT Steel Drums, 55 gal. (Soil Cuttings)		109	each	$ -	$ -	$ -	$ -	$ 94.49	$ 11,226	$ 102.99	$ 11,226	2006 RACER
DOT Steel Drums, 55 gal. (Purge Water)		50	each	$ -	$ -	$ -	$ -	$ 94.49	$ 5,143	$ 102.98	$ 5,143	2006 RACER
Oversight												
Project Manager	50% on project; location factor N/A	184	hour	$ 34.00	$ 10,010	$ -	$ -	$ -	$ -	$ 54.40	$ 10,010	
Superintendent	100% on project; location factor N/A	368	hour	$ 34.00	$ 20,019	$ -	$ -	$ -	$ -	$ 54.40	$ 20,019	
Health & Safety Officer	100% on project; location factor N/A	368	hour	$ 34.00	$ 20,019	$ -	$ -	$ -	$ -	$ 54.40	$ 20,019	
Quality Control Officer	50% on project; location factor N/A	184	hour	$ 34.00	$ 10,010	$ -	$ -	$ -	$ -	$ 54.40	$ 10,010	
Geologist (3)	100% on project; location factor N/A	1,104	hour	$ 34.00	$ 60,058	$ -	$ -	$ -	$ -	$ 54.40	$ 60,058	
Source Zone Delineation										**Source Zone Delineation Subtotal =**	**$ 203,976**	Rounded average based on typical loaded
Passive Gas Sampling												
Equipment												
Handheld drill		1	each	$ -	$ -	$ 990.00	$ 1,079	$ -	$ -	$ 1,079.00	$ 1,079	2006 RACER
Vehicle		2	day	$ -	$ -	$ -	$ -	$ 40.00	$ 174	$ 87.00	$ 174	
Analytical												
Passive Gas Samplers		173	each	$ -	$ -	$ -	$ -	$ 50.00	$ 9,411	$ 54.50	$ 9,411	Cost Estimate from Gore Surveys
Shipping		1	LS	$ -	$ -	$ 32.00	$ 35	$ -	$ -	$ 35.00	$ 35	Cost Estimate from Gore Surveys
Analysis and Reporting		50	each	$ 210.00	$ 17,976	$ -	$ -	$ -	$ -	$ 359.52	$ 17,976	Cost Estimate from Gore Surveys
Sampling labor												
Geologist	0.5 hrs per location	86	hour	$ 34.00	$ 4,697	$ -	$ -	$ -	$ -	54.40435513	$ 4,697	
Membrane Interface Probe (MIP)												
Mobilization/Demobilization		1	LS	$ 4,500.00	$ 7,200						$ 7,200	2007. Quote from Frank Stolfi, Vironex. Jan 2.
MIP Subcontractor		17	day	$ 5,190.00	$ 143,385						$ 143,385	2007. Quote from Frank Stolfi, Vironex. Jan 2.
Oversight (geologist)	100% on project; location factor N/A	368	hour	$ 34.00	$ 20,019	$ -	$ -	$ -	$ -	$ 54.40	$ 20,019	
Total Site Wide Capital Costs										**Total Site Wide Capital Costs Subtotal =**	**$ 1,185,518**	

Alternative GW-3B: In-Situ Zero-Valent Iron Reduction, Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Professional Labor Multiplier:	1.6	(2006 RACER)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(2006 RACER)
Project Duration:	46	working days

Description		Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
ZVI Injection												
Remedial Design										**Subtotal =**	**$ 113,152**	
Project Manager		400	hour	$ 34.00	$ 21,760	$ -	$ -	$ -	$ -	$ 54.40	$ 21,760	
Health & Safety Officer		80	hour	$ 34.00	$ 4,352	$ -	$ -	$ -	$ -	$ 54.40	$ 4,352	
Engineer (2), Geologist and CAD		1,600	hour	$ 34.00	$ 87,040	$ -	$ -	$ -	$ -	$ 54.40	$ 87,040	
ZVI Injection Distributive Costs										**Subtotal =**	**$ 134,910**	
Project Manager	25% on project; location factor N/A	226	hour	$ 34.00	$ 12,294	$ -	$ -	$ -	$ -	$ 54.40	$ 12,294	
Superintendent	0% on project; location factor N/A	0	hour	$ 34.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Health & Safety Officer	100% on project; location factor N/A	901	hour	$ 34.00	$ 49,014	$ -	$ -	$ -	$ -	$ 54.40	$ 49,014	
Quality Control Officer	25% on project; location factor N/A	226	hour	$ 34.00	$ 12,294	$ -	$ -	$ -	$ -	$ 54.40	$ 12,294	
Procurement Specialist	25% on project; location factor N/A	226	hour	$ 34.00	$ 12,294	$ -	$ -	$ -	$ -	$ 54.40	$ 12,294	
Oversight Geologist (1)	100% on project; location factor N/A	901	hour	$ 34.00	$ 49,014	$ -	$ -	$ -	$ -	$ 54.40	$ 49,014	
Pilot Tests										**Subtotal =**	**$ 486,764**	
RU-C1		5	point	$ -	$ -	$ -	$ -	$ 23,016.00	$ 125,437	$ 25,087.40	$ 125,437	
RU-C2		5	point	$ -	$ -	$ -	$ -	$ 26,921.40	$ 146,722	$ 29,344.40	$ 146,722	
RU-C4		5	point	$ -	$ -	$ -	$ -	$ 23,069.70	$ 125,730	$ 25,146.00	$ 125,730	
RU-C5 (TCE)		5	point	$ -	$ -	$ -	$ -	$ 15,908.00	$ 86,699	$ 17,339.80	$ 86,699	
Data Summary Tables		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
ZVI Injection										**Subtotal =**	**$ 2,633,959**	
RU-C1		61	point	$ -	$ -	$ -	$ -	$ 23,016.00	$ 1,530,334	$ 25,087.44	$ 1,530,334	Vendor Quote: ARS Technologies
RU-C2		11	point	$ -	$ -	$ -	$ -	$ 26,921.40	$ 322,788	$ 29,344.36	$ 322,788	Vendor Quote: ARS Technologies
RU-C4		26	point	$ -	$ -	$ -	$ -	$ 23,069.70	$ 653,795	$ 25,145.96	$ 653,795	Vendor Quote: ARS Technologies
RU-C5		5	point	$ -	$ -	$ -	$ -	$ 22,611.83	$ 123,234	$ 24,646.80	$ 123,234	Vendor Quote: ARS Technologies
Data Summary Tables		70	hour	$ 34.00	$ 3,808	$ -	$ -	$ -	$ -	$ 54.40	$ 3,808	
Total ZVI Injection Capital Costs									**Total ZVI Injection Capital Costs**	**Subtotal =**	**$ 3,368,785**	
Monitoring Well Installation Waste Handling and Disposal Costs												
Waste Handling and Disposal									**Waste Handling and Disposal**	**Subtotal =**	**$ 34,529**	
5,000-Gallon Bulk Tank Truck Secondary Containment, Storage and Loading Waste Liquid		1	each	$ 559.30	$ 895	$ 253.34	$ 276.00	$ -	$ -	$ 1,171.00	$ 1,171	2006 RACER, Well development water
Transport of 5,000-Gallons Nonhazardous Liquid		50	mile	$ -	$ -	$ -	$ -	$ 3.26	$ 178	$ 3.56	$ 178	2006 RACER, Well development water
Liquid Waste Stream Evaluation		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER, Well development water
Liquid Nonhazardous Disposal, Commercial RCRA Landfill		50	drum	$ -	$ -	$ -	$ -	$ 150.66	$ 8,211	$ 164.22	$ 8,211	2006 ECHOS. 33 19 7214
Soil Waste Characterization		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER
Nonhazardous Drummed Soil Transport		187	each	$ -	$ -	$ -	$ -	$ 50.00	$ 10,192	$ 54.50	$ 10,192	2006 RACER
Nonhazardous Drummed Soil Waste Disposal		187	each	$ -	$ -	$ -	$ -	$ 67.00	$ 13,657	$ 73.03	$ 13,657	2006 RACER
Monitoring Well Installation Waste Handling and Disposal Costs									**Monitoring Well Installation Waste Handling and Disposal Costs**	**Subtotal =**	**$ 34,529**	

TABLE F-15A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE GW-3B (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Alternative GW-3B: In-Situ Zero-Valent Iron Reduction, Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Professional Labor Multiplier:	1.6	(2006 RACER)
Labor Overhead & Profit Multiplier.:	1.712	
Material and Equipment Profit:	9%	(2006 RACER)
Project Duration:	46	working days

Description	Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Institutional Controls (no additional cost; included in Soil Alternatives)											
									Total Project Capital Cost =	**$ 4,588,832**	
									Present Value of 30 Years of Periodic Costs =	**$ 18,986,334**	
									SubTotal =	**$ 23,575,166**	
									20% Contingency =	**$ 4,715,033**	
									Total Project Cost =	**$ 28,290,199**	

Notes:

BCT	Base Realignment and Closure Cleanup Team	ORC	Oxygen-reducing compound
CAD	Computer-aided design	PVC	Polyvinyl chloride
DOT	U.S. Department of Transportation	RACER	Remedial Action Cost Engineering and Requirements System
HRC	Hydrogen-reducing compound	RCRA	Resource Conservation and Recovery Act
LUC RD	Land Use Control Remedial Design	ROI	Radius of influence
Means	RS Means Company, Inc.	RTC	Responses to comments
N/A	Not applicable	RU	Remedial Unit
O&P	Overhead and profit	ZVI	Zero-valent iron
ODC	Other direct cost		

Sources:
Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.
Means. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
47	Present-Worth Cost: $48,450,000	Table 6	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Appendix F, Table F-17A.

TABLE F-17A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE GW-4

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

Alternative GW-4: Zero-Valent Iron Reduction, Plume-Wide Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Professional Labor Multiplier:	1.6 (2006 RACER)
Labor Overhead & Profit Multiplier.:	1.712
Material and Equipment Profit:	9% (2006 RACER)
Project Duration:	71 working days

Description		Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
Site Wide Costs												
A- Aquifer and B-Aquifer Monitoring Well Installation										**Subtotal =**	**$ 1,944,992**	Rounded average based on typical loaded professional unit costs
Subcontracting and Procurement												
Project Manager		20	hour	$ 34.00	$ 1,088	$ -	$ -	$ -	$ -	$ 54.40	$ 1,088	
Health & Safety Officer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Engineer		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
Equipment												
Drill Rig Mobilization/Demobilization		3	LS	$ 1,640.29	$ 8,425	$ 990.00	$ 3,237	$ -	$ -	$ 3,887.33	$ 11,662	2006 RACER
Move Rig/Equipment Around Site		406	each	$ 235.79	$ 163,891	$ 142.31	$ 62,978	$ 64.09	$ 28,362	$ 628.65	$ 255,231	2006 RACER
Air Rotary, 6-inch-diameter Borehole		14,481	near fee	$ 18.94	$ 469,550	$ 29.96	$ 472,897	$ -	$ -	$ 65.08	$ 942,447	2006 RACER, consolidated, Depth <= 100 ft
Drill Rig Decontamination		51	day	$ 640.10	$ 55,888	$ -	$ -	$ 19.24	$ 1,070	$ 1,116.82	$ 56,958	2006 RACER, assume once per week.
Vehicles (2)		71	day	$ -	$ -	$ -	$ -	$ 40.00	$ 6,191	$ 87.20	$ 6,191	
Organic Vapor Analyzer		51	day	$ -	$ -	$ 132.08	$ 7,342.00	$ -	$ -	$ 143.96	$ 7,342	RACER 2006
Well Development Equipment		11	week	$ 78.20	$ 1,376	$ -	$ -	$ 497.60	$ 5,966	$ 667.45	$ 7,342	RACER 2006
Materials												
Well Plug		406	each	$ 6.91	$ 4,803	$ 10.93	$ 4,837	$ 6.32	$ 2,797	$ 30.63	$ 12,437	2006 RACER
Well Casing		10,015	near fee	$ 4.60	$ 78,870	$ 7.28	$ 79,471	$ 1.30	$ 14,191	$ 17.23	$ 172,532	2006 RACER
2-inch PVC Well Screen		4,020	near fee	$ 5.94	$ 40,881	$ 9.40	$ 41,189	$ 3.00	$ 13,145	$ 23.69	$ 95,215	2006 RACER
Filter Pack		4,872	near fee	$ 3.91	$ 32,613	$ 6.19	$ 32,872	$ 3.37	$ 17,896	$ 17.11	$ 83,381	2006 RACER
Portland Cement Grout		8,797	near fee	$ -	$ -	$ -	$ -	$ 1.26	$ 12,082	$ 1.37	$ 12,082	2006 RACER
Bentonite Seal		406	each	$ 15.54	$ 10,801	$ 24.59	$ 10,882	$ 10.02	$ 4,434	$ 64.33	$ 26,117	2006 RACER
PVC bailers, disposable		406	each	$ -	$ -	$ -	$ -	$ 6.92	$ 3,062	$ 7.54	$ 3,062	2006 RACER
Surface Pad, Concrete, 2' x 2' x 4"		406	each	$ 21.58	$ 15,000	$ 1.80	$ 797	$ 41.82	$ 18,507	$ 84.49	$ 34,304	2006 RACER
DOT Steel Drums, 55 gal. (Soil Cuttings)		221	each	$ -	$ -	$ -	$ -	$ 94.49	$ 22,710	$ 102.99	$ 22,710	2006 RACER
DOT Steel Drums, 55 gal. (Purge Water)		50	each	$ -	$ -	$ -	$ -	$ 94.49	$ 5,143	$ 102.98	$ 5,143	2006 RACER
Oversight												
Project Manager	50% on project; location factor N/A	284	hour	$ 34.00	$ 15,450	$ -	$ -	$ -	$ -	$ 54.40	$ 15,450	
Superintendent	100% on project; location factor N/A	568	hour	$ 34.00	$ 30,899	$ -	$ -	$ -	$ -	$ 54.40	$ 30,899	
Health & Safety Officer	100% on project; location factor N/A	568	hour	$ 34.00	$ 30,899	$ -	$ -	$ -	$ -	$ 54.40	$ 30,899	
Quality Control Officer	50% on project; location factor N/A	284	hour	$ 34.00	$ 15,450	$ -	$ -	$ -	$ -	$ 54.40	$ 15,450	
Geologist (3)	100% on project; location factor N/A	1,704	hour	$ 34.00	$ 92,698	$ -	$ -	$ -	$ -	$ 54.40	$ 92,698	
Source Zone Delineation										**Source Zone Delineation Subtotal =**	**$ 214,856**	Rounded average based on typical loaded
Passive Gas Sampling												
Equipment												
Handheld drill		1	each	$ -	$ -	$ 990.00	$ 1,079	$ -	$ -	$ 1,079.00	$ 1,079	2006 RACER
Vehicle		2	day	$ -	$ -	$ -	$ -	$ 40.00	$ 174	$ 87.00	$ 174	
Analytical												
Passive Gas Samplers		173	each	$ -	$ -	$ -	$ -	$ 50.00	$ 9,411	$ 54.50	$ 9,411	Cost Estimate from Gore Surveys
Shipping		1	LS	$ -	$ -	$ 32.00	$ 35	$ -	$ -	$ 35.00	$ 35	Cost Estimate from Gore Surveys
Analysis and Reporting		50	each	$ 210.00	$ 17,976	$ -	$ -	$ -	$ -	$ 359.52	$ 17,976	Cost Estimate from Gore Surveys
Sampling labor												
Geologist	0.5 hrs per location	86	hour	$ 34.00	$ 4,697	$ -	$ -	$ -	$ -	54.40435513	$ 4,697	
Membrane Interface Probe (MIP)												
Lumpsum charges (reporting, coring mob/demob,)		1	LS	$ 4,500.00	$ 7,200						$ 7,200	2007. Quote from Frank Stolfi, Vironex. Jan 2.
MIP Services (incl. mob/demob)		17	day	$ 5,190.00	$ 143,385						$ 143,385	2007. Quote from Frank Stolfi, Vironex. Jan 2.
Oversight (geologist)	100% on project; location factor N/A	568	hour	$ 34.00	$ 30,899	$ -	$ -	$ -	$ -	$ 54.40	$ 30,899	
Total Site Wide Capital Costs										**Total Site Wide Capital Costs Subtotal =**	**$ 2,159,848**	

TABLE F-17A: CAPITAL AND LABOR COST ESTIMATE, ALTERNATIVE GW-4 (CONTINUED)
Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California

Alternative GW-4: Zero-Valent Iron Reduction, Plume-Wide Bioremediation, Monitored Natural Attenuation, and Institutional Controls

Professional Labor Multiplier: 1.6 (2006 RACER)
Labor Overhead & Profit Multiplier.: 1.712
Material and Equipment Profit: 9% (2006 RACER)
Project Duration: 71 working days

Description		Quantity	Unit	Unloaded Labor Unit Cost	Total Labor (including O&P)	Unloaded Equipment Unit Cost	Total Equipment (including profit)	Unloaded Material Unit Cost	Total Material (including profit)	Total Unit Cost (including O&P)	Total Cost (including O&P)	Comments
ZVI Injection												
Remedial Design										**Subtotal =**	**$ 113,152**	
Project Manager		400	hour	$ 34.00	$ 21,760	$ -	$ -	$ -	$ -	$ 54.40	$ 21,760	
Health & Safety Officer		80	hour	$ 34.00	$ 4,352	$ -	$ -	$ -	$ -	$ 54.40	$ 4,352	
Engineer (2), Geologist and CAD		1,600	hour	$ 34.00	$ 87,040	$ -	$ -	$ -	$ -	$ 54.40	$ 87,040	
ZVI Injection Distributive Costs										**Subtotal =**	**$ 134,910**	
Project Manager	25% on project; location factor N/A	226	hour	$ 34.00	$ 12,294	$ -	$ -	$ -	$ -	$ 54.40	$ 12,294	
Superintendent	0% on project; location factor N/A	0	hour	$ 34.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Health & Safety Officer	100% on project; location factor N/A	901	hour	$ 34.00	$ 49,014	$ -	$ -	$ -	$ -	$ 54.40	$ 49,014	
Quality Control Officer	25% on project; location factor N/A	226	hour	$ 34.00	$ 12,294	$ -	$ -	$ -	$ -	$ 54.40	$ 12,294	
Procurement Specialist	25% on project; location factor N/A	226	hour	$ 34.00	$ 12,294	$ -	$ -	$ -	$ -	$ 54.40	$ 12,294	
Oversight Geologist (1)	100% on project; location factor N/A	901	hour	$ 34.00	$ 49,014	$ -	$ -	$ -	$ -	$ 54.40	$ 49,014	
Pilot Tests										**Subtotal =**	**$ 486,764**	
RU-C1		5	point	$ -	$ -	$ -	$ -	$ 23,016.00	$ 125,437	$ 25,087.40	$ 125,437	
RU-C2		5	point	$ -	$ -	$ -	$ -	$ 26,921.40	$ 146,722	$ 29,344.40	$ 146,722	
RU-C4		5	point	$ -	$ -	$ -	$ -	$ 23,069.70	$ 125,730	$ 25,146.00	$ 125,730	
RU-C5 (TCE)		5	point	$ -	$ -	$ -	$ -	$ 15,908.00	$ 86,699	$ 17,339.80	$ 86,699	
Data Summary Tables		40	hour	$ 34.00	$ 2,176	$ -	$ -	$ -	$ -	$ 54.40	$ 2,176	
ZVI Injection										**Subtotal =**	**$ 2,633,959**	
RU-C1		61	point	$ -	$ -	$ -	$ -	$ 23,016.00	$ 1,530,334	$ 25,087.44	$ 1,530,334	Vendor Quote: ARS Technologies
RU-C2		11	point	$ -	$ -	$ -	$ -	$ 26,921.40	$ 322,788		$ 322,788	Vendor Quote: ARS Technologies
RU-C4		26	point	$ -	$ -	$ -	$ -	$ 23,069.70	$ 653,795	$ 25,145.96	$ 653,795	Vendor Quote: ARS Technologies
RU-C5		5	point	$ -	$ -	$ -	$ -	$ 22,611.83	$ 123,234	$ 24,646.80	$ 123,234	Vendor Quote: ARS Technologies
Data Summary Tables		70	hour	$ 34.00	$ 3,808	$ -	$ -	$ -	$ -	$ 54.40	$ 3,808	
Total ZVI Injection Capital Costs										**Total ZVI Injection Capital Costs Subtotal =**	**$ 3,368,785**	
Monitoring Well Installation Waste Handling and Disposal Costs												
Waste Handling and Disposal										**Waste Handling and Disposal Subtotal =**	**$ 34,529**	
5,000-Gallon Bulk Tank Truck Secondary Containment, Storage and Loading Waste Liquid		1	each	$ 559.30	$ 895	$ 253.34	$ 276.00	$ -	$ -	$ 1,171.00	$ 1,171	2006 RACER, Well development water
Transport of 5,000-Gallons Nonhazardous Liquid		50	mile	$ -	$ -	$ -	$ -	$ 3.26	$ 178	$ 3.56	$ 178	2006 RACER, Well development water
Liquid Waste Stream Evaluation		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER, Well development water
Liquid Nonhazardous Disposal, Commercial RCRA Landfill		50	drum	$ -	$ -	$ -	$ -	$ 150.66	$ 8,211	$ 164.22	$ 8,211	2006 ECHOS. 33 19 7214
Soil Waste Characterization		1	each	$ -	$ -	$ -	$ -	$ 513.39	$ 560	$ 560.00	$ 560	2006 RACER
Nonhazardous Drummed Soil Transport		187	each	$ -	$ -	$ -	$ -	$ 50.00	$ 10,192	$ 54.50	$ 10,192	2006 RACER
Nonhazardous Drummed Soil Waste Disposal		187	each	$ -	$ -	$ -	$ -	$ 67.00	$ 13,657	$ 73.03	$ 13,657	2006 RACER
Monitoring Well Installation Waste Handling and Disposal Costs										**Monitoring Well Installation Waste Handling and Disposal Costs Subtotal =**	**$ 34,529**	
Institutional Controls (no additional cost; included in Soil Alternatives)												

Total Project Capital Cost =	**$ 5,563,162**
Present Value of 30 Years of Periodic Costs =	**$ 34,811,670**
SubTotal =	**$ 40,374,832**
20% Contingency =	**$ 8,074,966**
Total Project Cost =	**$ 48,449,799**

Notes:

BCT	Base Realignment and Closure Cleanup Team	N/A	Not applicable	RCRA	Resource Conservation and Recovery Act
CAD	Computer-aided design	O&P	Overhead and profit	ROI	Radius of influence
DOT	U.S. Department of Transportation	ODC	Other direct cost	RTC	Responses to comments
HRC	Hydrogen-reducing compound	ORC	Oxygen-reducing compound	RU	Remedial Unit
LUC RD	Land Use Control Remedial Design	PVC	Polyvinyl chloride	ZVI	Zero-valent iron
Means	RS Means Company, Inc.	RACER	Remedial Action Cost Engineering and Requirements System		

Sources:
Earth Tech. 2006. "Remedial Action Cost Engineering and Requirements System Parametric Cost-Estimating Software for Remediation and Restoration Projects". RACER. Version 8.1.
Means. 2004. "Environmental Remediation Cost Data – Unit Price, 10th Annual Edition, Environmental Cost Handling Options and Solutions." Kingston, Massachusetts. October.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
48	Present-Worth Cost: $29,698,000	Table 6	Final Radiological Addendum to the Revised Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC, Inc. June 20, 2008. Appendix B, Section 6.9, pages B.6-5 and B.6-6.

6.9 COST ASSUMPTION ASSOCIATED WITH ALTERNATIVE R-2: SURVEY, DECONTAMINATION, DISPOSAL, RELEASE, AND INSTITUTIONAL CONTROLS

Alternative R-2 consists of decontamination of radiologically-impacted buildings and dismantlement if necessary. Surveys would be performed on buildings except Building 205, trenches resulting from sewer and storm line removal, and remediated storm drain and sanitary sewer piping to meet the remedial action objectives and use of ICs.

The above-grade portions of Building 205, the discharge tunnel, and the first 10 feet of the Building 205 shaft would be surveyed to verify that no residual radioactivity is present above the remediation goals. The Building 205 Shaft below 10 feet would be abandoned as is due to the unsound condition of the building, health and safety hazards associated with field conditions, as well as many other unknowns. Institutional controls would be implemented to minimize inadvertent contact with radiologically-impacted media.

The following assumptions apply to Alternative R-2:

1. Each building (203, 211, 214, 224, 241, 253, 271, and 272) will be divided into 31 Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (Department of Defense et al., 2000) survey units. The cost for developing the survey plans, performing the survey, and drafting the report is $6,500 per survey unit. This cost is based on the San Francisco 49ers Parcel D proposal summary.
2. Each building (203, 211, 214, 224, 241, 253, 271, and 272) is assumed to generate one waste disposal bin of material (e.g., flooring, ventilation piping, etc.). The assumed disposal cost of $11,880 per bin results in a total cost of $95,040. It is assumed that one-half of a disposal bin is filled when surveying Building 205 for a total of $5,940 plus $95,040 or $100,980.
3. Building 205 will be divided into 15 MARSSIM survey units, except for the shaft below 10 feet. The Building 205 shaft below 10 feet will not be surveyed due to the unsound condition of the building, health and safety hazards, as well as many other unknowns. This portion of the building will be abandoned in-place and ICs will be implemented to minimize inadvertent contact with radiologically-impacted media. The ICs for Building 205 are assumed to add no additional cost to the ICs already proposed for Parcel C. The cost for developing the survey plans, performing the survey, and drafting the report is $6,500 per survey unit for a total of $97,500.
4. Removal of the Parcel C sewer and storm drain system piping is estimated to result in 60,000 cy of material to be excavated at an estimated cost of $330 per cy. This results in a total excavation cost of $19,800,000.
5. It is assumed that 5 percent of the material excavated during the Parcel C sewer and storm drain system removal will be radiologically-impacted resulting in approximately 3,000 cy of impacted material. The cost of disposal is assumed to be $11,880 per bin, and based on 14 cy of soil per bin; the total disposal cost is estimated to be $2,542,714. Note this does not include cost associated with disposal of

Comprehensive Environmental Restoration and Compensation Liability Act (CERCLA)-impacted materials.

The table below provides a breakdown of the derivation of the estimated cost for Alternative R-2.

Legal Controls	**Cost**
Impacted Parcel C Building Surveys/Release	$ 1,709,500
Radiological waste disposal for building sites	$ 100,980
Parcel C sewer and storm drain removal and disposal	**$** 22,345,714
20% Contingency	**$** 4,831,239
Total Estimated Cost for Alternative R-2	**$ 28,987,000***

Notes:

* Total estimated additional cost has been rounded to the nearest thousand.

6.10 COST ASSUMPTIONS ASSOCIATED WITH ALTERATIVE R-3: SURVEY, DECONTAMINATION, DISPOSAL, RELEASE, CLOSE IN-PLACE, AND INSTITUTIONAL CONTROLS

Alternative R-3 consists of decontamination of impacted buildings, except for Building 205, dismantlement if necessary, and radiological surveys to ensure the remedial action objectives are met. This alternative assumes that the Building 205 shaft below 10 feet would be closed in-place with backfilled stone and a concrete cap and ICs will be assigned. This alternative assumes that trenches resulting from sewer and storm line removal, and remediated storm drain and sanitary sewer piping will be surveyed to meet the remediation goals.

The following assumptions apply to Alternative R-3:

1. Each building (203, 211, 214, 224, 241, 253, 271, and 272) will be divided into 31 MARSSIM survey units. Building 205 will be divided into 15 MARSSIM survey units except for the shaft below 10 feet. The Building 205 shaft below 10 feet will not be released. It will be closed in-place with stone and a concrete cap with ICs implemented. The ICs for Building 205 are assumed to add no additional cost to the ICs already proposed for Parcel C. The cost for developing the survey plans, performing the survey, and drafting the report is $6,500 per survey unit.
2. Each building (203, 211, 214, 224, 241, 253, 271, and 272) is assumed to generate one disposal bin of material (e.g., flooring, ventilation piping, etc.). The assumed disposal cost of $11,880 per bin results in a total cost of $95,400.

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
49	2010 soil data gap investigation	Section 2.9.2	Draft Technical Memorandum for Data Gap Investigation of Soil Under Buildings on Parcel C, Hunters Point Shipyard, San Francisco, California. CH2M HILL Kleinfelder, A Joint Venture (KCH). July 2010. Section 7 and Appendix B.

7. Recommendations

7.1 Building 134

Contaminants of concern were not detected in soil samples collected from under Building 134 at concentrations exceeding Parcel C remedial goals for soil. No further action is recommended for the locations investigated. TPH CAP recommendations are not included as part of this scope of work.

7.2 Building 203

Contaminants of concern were not detected in soil samples collected from under Building 203 at concentrations exceeding Parcel C remedial goals or TPH CAP Tier 1 criteria for soil. No further action is recommended for the locations investigated. TPH CAP recommendations are not included as part of this scope of work.

7.3 Building 214

Contaminants of concern were detected in soil samples collected from two of the four borings advanced under and adjacent to Building 214 at concentrations that exceeded the Parcel C remedial goals and CAP Tier 1 criteria for soil. Remediation of the underlying soils at these two locations to levels consistent with other removal actions in Parcel C is recommended if the building is demolished and the foundation removed.

7.4 Building 231E

Contaminants of concern were detected in soil samples collected from one of three borings advanced under Building 231E at concentrations that exceeded the Parcel C remedial goals for soil. However, the analytical result from the exceedance was below the action limit of 2X the RG, therefore no further action is recommended for the locations investigated. TPH CAP recommendations are not included as part of this scope of work.

Appendix B
Summary of Selection Process for Additional Soil Removal Areas Identified in Parcel C

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APPENDIX B

Summary of Selection Process for Additional Soil Removal Areas Identified in Parcel C

The Department of the Navy (Navy) conducted a comprehensive evaluation of soil chemical analysis data in the vicinity of existing buildings at Parcel C of Hunters Point Shipyard in 2009, to address BCT concerns that chemicals of concern (COCs) may not be adequately characterized beneath the buildings at Parcel C. To address this concern, the Navy conducted a comprehensive database and GIS evaluation of all removed and non-removed soil analytical results for all COCs within a 40-foot buffer of the buildings and including the footprint of the buildings, to a depth of 10 feet below ground surface. The evaluation was conducted as a step-wise screening process as shown in **Figure B-1**. Soil analytical results were compared to the applicable remedial goals for the redevelopment block. For buildings where at least one COC exceeded the applicable remediation goal by a factor of two or more, the building was retained for further detailed evaluation. Initially, a total of 12 buildings (Buildings 134, 203, 217, 231E, 231W, 241, 251, 253, 258, 272, 275 and 281) were retained for detailed evaluation. Building 214 was later added, for a total of 13 buildings which were evaluated in detail. The evaluation entailed spatial evaluation of soil analytical results within each building and in the perimeter of the building, to determine if soil contamination was adequately bounded beneath the building footprint. Based on the detailed evaluation, the Navy recommended additional soil sampling within the footprint of Buildings 134, 203, 214, and the eastern portion of Building 231.

A meeting was held on May 27, 2009 between the Navy, U.S. Environmental Protection Agency (USEPA), California Department of Toxic Substances Control (DTSC), California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), and City and County of San Francisco in Oakland, California to discuss the evaluation data set for the 13 buildings, and Navy's recommendation for additional data gap sampling within four of the buildings. The following agreements were reached as a result of this meeting:

- The Navy will conduct a soil data gap investigation beneath Buildings 134, 203, 214 and eastern portion of Building 231 as follows:
    - Two soil borings within Building 134, to collect soil samples for copper and polynuclear aromatic hydrocarbons (PAHs)
    - Eight soil borings within Building 203, to collect soil samples for copper, lead, manganese, mercury, organic lead, naphthalene, PAHs, Aroclor-1260, total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylenes (BTEX)
    - One soil boring within Building 214, to collect soil samples for lead and PAHs

  - Three soil borings within the eastern portion of Building 231, to collect soil samples for lead and PAHs.

- While the building foundations serve as adequate cover remedy throughout Parcel C, the footprint of Buildings 134, 272 and 281, and the western portion of Building 231 are designated as areas requiring institutional controls (ARICs) where further action such as additional investigation and/or remedy will be required if the foundation is to be removed or modified in the future. The footprint of Buildings 203, 214 and 231 may also be designated as ARICs depending on the results of the soil data gap investigation.
- The Navy will conduct a soil investigation to address the data gap prior to issuing the draft record of decision. The Navy will develop a sampling and analysis plan for agency review and approval.

During the process of evaluating the need for additional soil sampling under the buildings, the Navy and the agencies also reviewed the adequacy of proposed removal areas within the footprint of, or adjacent to, the 13 buildings evaluated in detail. The Navy and the agencies agreed to the following adjustments to increase the area of two excavations (20A-1 and 24-4) in Parcel C as follows:

- Excavation 20A-1 (Building 258): Expand excavation area to include removal of adjacent sample locations 280601W3D (zinc) and 280601W3C (PAHs).
- Excavation 24-4 (Building 272): Expand excavation area to include removal of adjacent sample location 280301W9B (manganese).

The changes to the excavation footprint of Excavations 20A-1 and 24-4 are shown in **Figure B-2** and in Figure 10 of the Draft Parcel C Record of Decision (ChaduxTt, 2010).

The Navy issued the Final Work Plan and Sampling and Analysis Plan for the data gap investigation in December 2009 (CH2M HILL Kleinfelder [KCH], 2009a; 2009b). The field work was completed in January and February 2010.

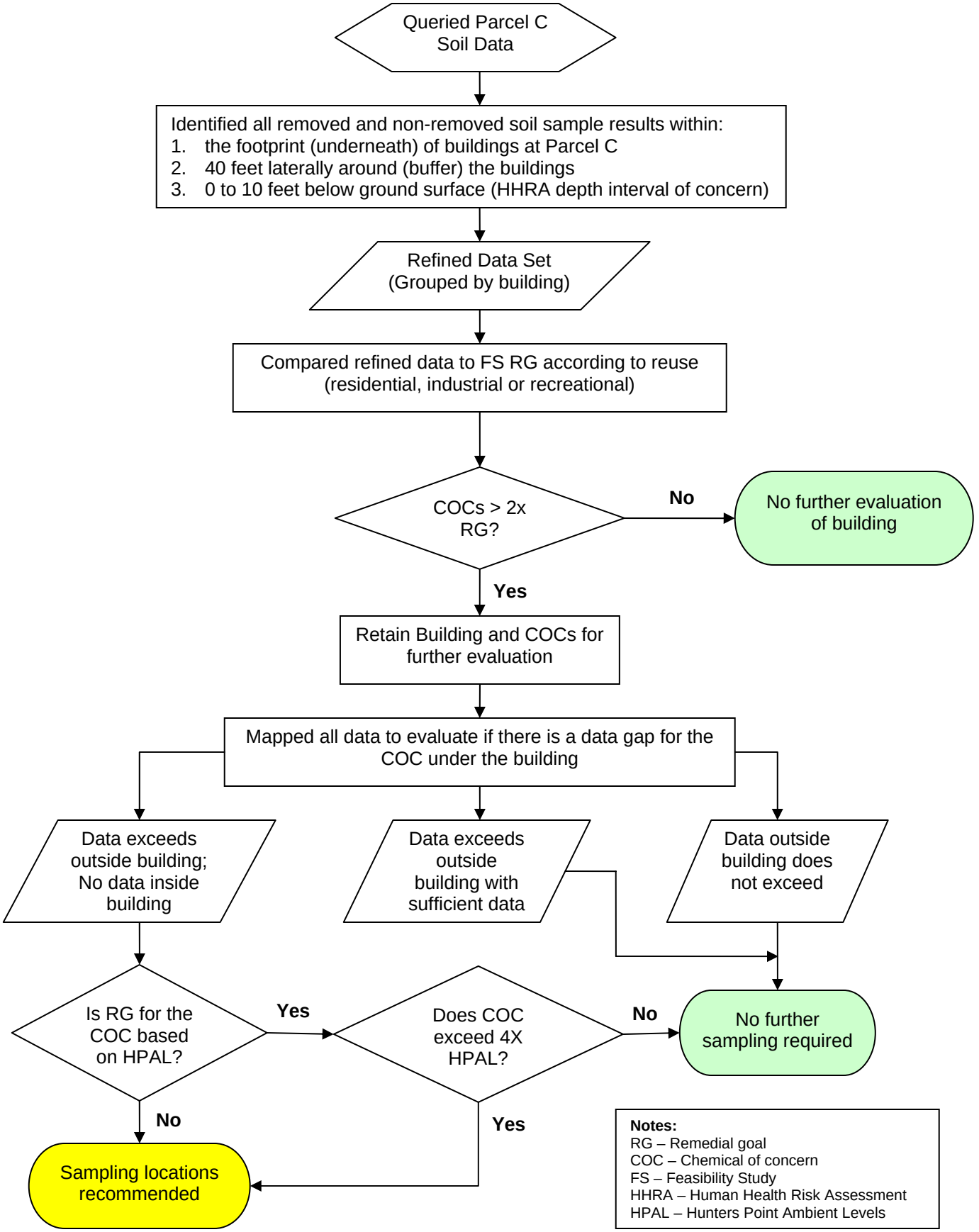
References:

CH2M HILL Kleinfelder (KCH). 2009a. Final Work Plan Data Gap Investigation of Soil Under Buildings on Parcel C, Hunters Point Shipyard, San Francisco, California. December.

CH2M HILL Kleinfelder (KCH). 2009b. Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Data Gaps Investigation of Soil Under Buildings on Parcel C. December.

ChaduxTt. 2010. Draft Record of Decision for Parcel C, Hunters Point Shipyard, San Francisco, California. April.

FIGURE B-1: DECISION TREE FOR EVALUATION OF SOIL DATA UNDER PARCEL C BUILDINGS
EVALUATION OF SOIL UNDER BUILDING COVER, PARCEL C, HUNTERS POINT SHIPYARD



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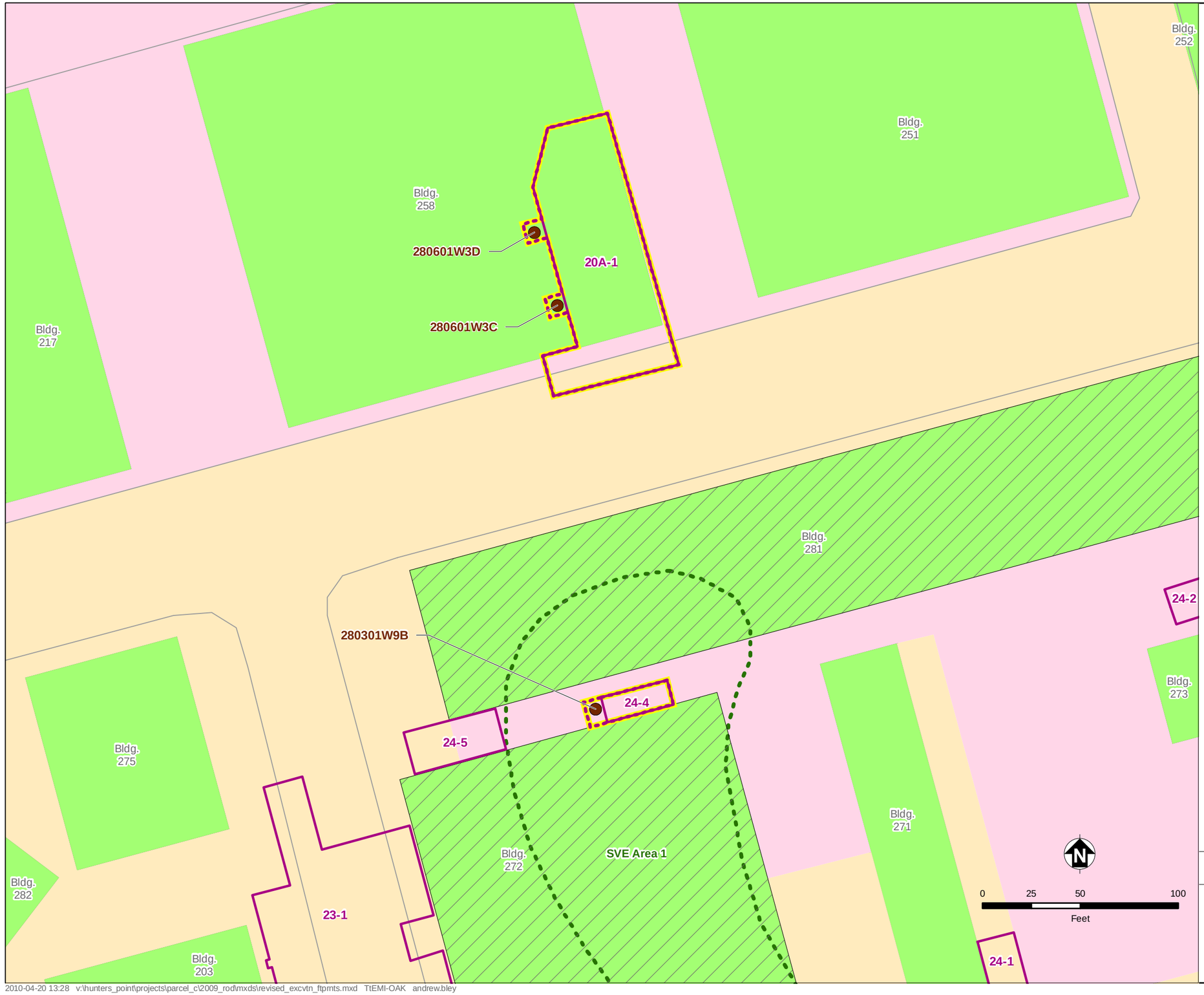

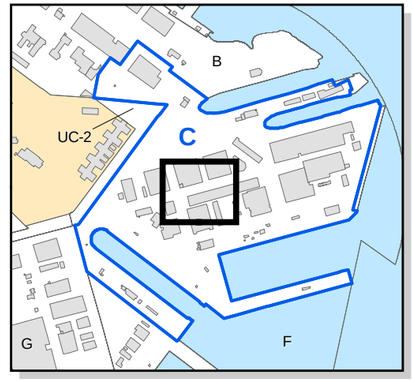

- Selected Soil Sampling Location
- Proposed Excavation Area
- Revised Proposed Excavation Area
- Area Requiring Institutional Control*
- Proposed SVE Area
- Non-Navy Property
- Road Edge

Proposed Surface Covers and Soil Remedies

- New Asphalt
- Repaired Asphalt
- Building Footprint (with building number)

Note:
*Selected remedy for these areas is to maintain building footprints (foundations) to serve as surface covers. If the buildings are removed in the future, further action is required to address chemicals present in soil beneath the building footprint.

SVE Soil Vapor Extraction

ChaduxTt JV

Hunters Point Shipyard, San Francisco, California
Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE B-2
REVISED EXCAVATION
FOOTPRINTS IN PARCEL C

2010-04-20 13:28 v:\hunters_point\projects\parcel_c\2009_rod\mxds\revised_excvtn_ftprnts.mxd TtEMI-OAK andrew.bley

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Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
50	Dust control measures	Section 2.9.2	Final Basewide Dust Control Plan, Hunters Point Shipyard, San Francisco, California. Tetra Tech EC Inc. June 12, 2008.

Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108-4310

CONTRACT NO. N62473-07-D-3211
CTO NO. 0018

FINAL

BASEWIDE DUST CONTROL PLAN

June 12, 2009

DCN: ECSD-3211-0018-0002

HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
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FINAL

BASEWIDE DUST CONTROL PLAN
June 12, 2009

HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

DCN: ECSD-3211-0018-0002

Prepared by:

TETRA TECH EC, INC.
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ABBREVIATIONS AND ACRONYMS

ALI	annual limit
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
CCR	*California Code of Regulations*
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
DAC	derived airborne concentration
DON	Department of the Navy
EPA	U.S. Environmental Protection Agency
ft^3/min	cubic feet per minute
HPS	Hunters Point Shipyard
L/min	liters per minute
mg/m^3	milligrams per cubic meter
mph	miles per hour
NIOSH	National Institute for Occupational Safety and Health
NOA	naturally occurring asbestos
PESM	Project Environmental Safety Manager
PM_{10}	particulate matter smaller than 10 microns in diameter
QC	quality control
RASO	Radiological Affairs Support Office
ROC	radionuclide of concern
SHSS	Site Health and Safety Specialist
TCRA	time-critical removal action
TSP	total suspended particulates

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1.0 INTRODUCTION

1.1 DUST CONTROL PLAN FOR TIME-CRITICAL REMOVAL ACTIONS

This Basewide Dust Control Plan was prepared for all work performed by contractors during the time-critical removal actions (TCRAs) at Hunters Point Shipyard (HPS) in San Francisco, California (Figure 1-1). This plan was developed to ensure that the Department of the Navy (DON) maintains a coordinated approach for dust control and air monitoring activities across multiple contracts. At a minimum, all contactors will be required to adhere to the requirements set forth in this document.

This document will be evaluated as new contracts are awarded to ensure that the dust mitigation requirements meet the substantive dust mitigation requirements presented in the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, *California Code of Regulations* (CCR) Title 17, Section 93105. Contractors may be required to submit addenda to address work activities not presented in this plan.

1.2 REGULATORY BASIS

The TCRAs at HPS are being conducted in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Regulatory oversight and guidance are provided by the U.S. Environmental Protection Agency (EPA), the California Environmental Protection Agency, and the Regional Water Quality Control Board. The project areas are located within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). However, as TCRAs under CERCLA, the projects are not required to have permits from the BAAQMD. Nevertheless, the projects need to meet the substantive aspects of BAAQMD air quality requirements.

This Basewide Dust Control Plan specifically identifies the steps that will be taken to reduce fugitive dust emissions during excavation, transportation of soil and debris, and installation/removal of construction site infrastructure. This plan describes measures to address the substantive requirements of the following applicable regulations:

- CCR Title 17, Section 93105 (e), ATCM for Construction Grading, Quarrying, and Surface Mining Operations – Requirements for Construction and Grading Operations – Areas Greater Than One Acre.
- BAAQMD Regulation 6, Particulate Matter and Visible Emissions, 6-301 Ringelmann No. 1 Limitation, 6-302 Opacity Limitation, and 6-305 Visible Particles

1.3 REPORT ORGANIZATION

Section 2.0 of this Basewide Dust Control Plan provides site background and history. Section 3.0 describes potential sources of fugitive dust. Section 4.0 discusses control measures for dust generated by general construction activities. Section 5.0 describes air monitoring requirements. Section 6.0 presents references cited in this plan. Tables and figures follow the text.

2.0 BACKGROUND

2.1 SITE DESCRIPTION AND HISTORY

HPS is located in the City and County of San Francisco, California, on a long promontory in the southeastern part of San Francisco that extends east into San Francisco Bay (Bay) (Figure 1-1). HPS encompasses 848 acres, including 416 acres on land. The land portion of HPS was purchased by the DON in 1939 and leased to Bethlehem Steel Corporation. At the start of World War II in 1941, the DON took possession of the property and operated it as a shipbuilding, repair, and maintenance facility until 1974. Throughout the 1940s, 1950s, and 1960s, the DON excavated the hills surrounding the shipyard, and used the resulting spoils along with available dredge material and engineered fill material to expand the shipyard's shoreline into San Francisco Bay. The DON deactivated HPS in 1974. From 1976 to 1986, the DON leased HPS to Triple A Machine Shop, Inc., a private ship repair company. In 1986, Triple A Machine Shop ceased operations at HPS, and the DON resumed occupancy through 1989.

Because of previous hazardous operations on the site, HPS was placed on the National Priorities List in 1989 as a Superfund site pursuant to CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986. HPS then came under the administrative jurisdiction of the Treasure Island Naval Station in April 1990.

In 1991, HPS was placed on the Navy's Base Realignment and Closure list, and its mission as a Navy shipyard ended in April 1994. Closure activities at HPS involve environmental remediation activities and making the property available for non-defense use. On March 31, 1994, control of HPS was transferred from the Treasure Island Naval Station to the Naval Facilities Engineering Command, Western Division (now Engineering Field Activity West) in San Bruno, California. In October 1999, Naval Facilities Engineering Command Southwest assumed management of HPS.

2.2 SCOPE OF WORK

The DON has various active contracts at HPS. The contracts cover the removal and remediation of potentially radiologically impacted sanitary sewer and storm drain lines, radiological and nonradiological waste disposal, long-term monitoring, site investigations, and other remedial actions.

In general, work activities may consist of one or more of the following: removal of asphalt pavement, geophysical investigations and utility clearance of excavation areas, establishment of soil and debris stockpile areas, excavation of impacted soil and piping, building demolition, soil/groundwater sampling, and site restoration.

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3.0 POTENTIAL SOURCES OF FUGITIVE DUST

Site activities have the potential to generate air emissions in the form of fugitive dust. Possible sources of emissions include the following activities:

- Construction Traffic – Movement of construction equipment around the construction areas is capable of creating construction emissions in excavated or cleared areas.
- Site Preparation – Asphalt and vegetation removal will increase the potential for fugitive dust emissions through wind erosion.
- Excavation – Removal of soil from the ground and loading it either onto screening pads or into waiting vehicles could cause fugitive dust emissions.
- Material Stockpiles – Soil that has been cleared of radioactivity may be stockpiled prior to being used as backfill or shipped to appropriate disposal facilities. Soil will be loaded into trucks for final disposal. Fugitive emissions during stockpiling and truck loading, as well as wind erosion, are possible.
- Building Demolition – Demolition of buildings may produce fugitive dust emissions. Structures will be evaluated for lead and asbestos contamination by a California-certified consultant. Based on the resulting data, site-specific Demolition Plans will be developed that describe the controls necessary to minimize fugitive dust.
- Transportation of Solid Bulk Material – Soil will be transported for radiological screening and/or disposal. If soil is left uncovered, fugitive emissions could occur.
- Site Restoration – Backfilling and revegetating/restoration of the excavated areas may produce fugitive dust emissions.
- Recycling – Asphalt and concrete are typically recycled on-site, which may produce fugitive dust emissions.

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4.0 GENERAL CONSTRUCTION DUST CONTROL METHODS

Control methods for fugitive dust are described for the following emissions generated from the construction activities at the project sites:

- Dust entrained during on-site travel on paved and unpaved surfaces
- Dust entrained during vegetation removal, excavation, material screening, use of conveyors, backfill, and final grading at the construction site
- Dust entrained during soil stockpiling, and loading and unloading operations
- Wind erosion of areas disturbed during construction activities
- Vehicle emissions associated with construction equipment

4.1 CONSTRUCTION TRAFFIC

4.1.1 Track-out Prevention

Track-out of loose materials will be controlled by use of tire-cleaning rumble grid plates at the access point from project sites to the paved road to prevent track-out of mud or loose soils onto roadways. These track-out prevention control points have been established at the three primary site access points. These locations are the entrance to the Radiological Screening Yard 2 (RSY2), the Main Parcel E gate, and on Lockwood Street exiting Parcel C (shown on Figure 4-1). To ensure that the tires are free from mud or loose soils prior to leaving the site, the bulk-loaded trucks and commercial vehicles will be required to pass over a gravel pad (at least 50 feet in length) and over the rumble grid plates where the soil residue from the tires will be removed.

Any visible track-out onto a paved road where vehicles exit the work site will be removed by wet sweeping at the end of the work day or at least once per day.

All bulk-loaded trucks used to transport naturally occurring asbestos (NOA)-containing material off-site will be cleaned by a wheel wash station before leaving the site.

4.1.2 Traffic Control

Fugitive dust emissions from construction traffic traveling on unpaved surfaces will be controlled through the following mitigation methods:

- Actively used unpaved roads in the project construction sites will be watered every 2 hours or frequently enough to maintain adequate wetness. The frequency of watering can be reduced or eliminated during periods of precipitation. Watering frequency may be increased during hotter periods or windy conditions.

- No vehicle will exceed 15 miles per hour (mph) within the construction site and 5 mph in work areas.

The following mitigation measures will be followed for fugitive dust emissions from construction traffic traveling on paved streets:

- Bulk-loaded trucks used for transportation of soil and other heavy earth-moving equipment will not be allowed to exit the construction sites, except through one of the track-out prevention control points.
- Construction areas adjacent to any paved roadway will be treated with best management practices, as specified in the Stormwater Pollution Prevention Plan.
- Roadways within the site will be swept with a wet sweeper or washed down to remove soils. The accumulated soils will be routinely removed from non-traffic areas such as gutters and curbs.
- No vehicle will exceed 15 mph within the construction site and 5 mph in work areas.

If any of the preceding mitigation methods fail to properly control fugitive dust emissions, one or more of the following reasonably available control measures will be applied:

- Unpaved active portions of the construction sites will be watered or treated with dust control solutions to minimize windblown dust and dust generated by vehicle traffic.
- Paved portions of the construction sites will be cleaned more frequently to control windblown dust and dust generated by vehicle traffic. Water may also be applied to the paved roads if necessary.
- Gravel, recrushed/recycled asphalt, or other material of low silt content (less than 5 percent) will be applied to a depth of 3 or more inches, if necessary. Serpentine-containing material will not be used for this purpose.
- Vehicle trips will be reduced if necessary.

4.2 SITE PREPARATION AND REMEDIATION ACTIVITIES

Fugitive dust emissions from site preparation, excavation, loading, spreading, stockpiling, backfill, and compaction activities will be controlled using the following methods:

- During asphalt removal, surface soils will be pre-wetted in the area to be removed prior to commencing the activity. Soil moisture content will be sufficiently maintained to minimize fugitive dust creation.
- All unpaved, inactive portions of the work area and inactive storage piles that are inactive for more than 7 days will be watered or chemical soil stabilizer applied to minimize fugitive dust creation.

4.3 EXCAVATION ACTIVITIES

Fugitive dust emissions from excavation and loading activities will be controlled using the following methods:

- Soil will be wetted prior to excavation activities to reduce dust migration. Additional water will be added during active excavation, material handling, and loading on an as-needed basis. Active excavation areas will be wetted every 2 hours during periods of dry weather or in windy conditions. A water truck or water buffalo shall be dedicated to excavation and removal operations.
- The area subject to excavation and other construction activity will be limited at any one time. A chemical soil stabilizer will be applied to on-site storage piles of soil or sand.
- The height from which excavated soil is dropped either to trucks, stockpiles, or pads will be minimized.
- Trucks moving potentially radiologically impacted soils will be loaded over a plastic liner to assist in the cleanup of any soil from the loading process.
- Trucks shall be equipped with tarping systems to cover loads during soil transport.
- Truck traffic shall be minimized to the shortest haul routes from the work areas, screening yard, and stockpile areas.
- Chemical soil stabilizer will be applied in sufficient quantities to disturbed areas so as to create a stabilized surface.
- Backfill materials will be wetted on an as-needed basis to maintain moisture. Loader buckets will be emptied slowly and drop height from loader bucket minimized. A water truck or water buffalo will be dedicated to backfilling operations.
- A chemical soil stabilizer will be applied to backfill material and storage piles when not actively handled (i.e., no activity in 7 days).

4.4 MATERIAL STOCKPILES

Fugitive dust emissions from soil storage piles will be controlled by using a temporary cover, water, or a chemical soil stabilizer.

4.5 BUILDING DEMOLITION

Structures will be evaluated for lead and asbestos contamination by a California-certified consultant. Based on the resulting data, site-specific Demolition Plans will be developed that describe the controls necessary to minimize fugitive dust

4.6 BULK SOIL TRANSPORT

- All trucks that are used to transport solid bulk material will be covered (tarped) prior to leaving the site.
- Vehicles will be checked to ensure that they are tarped to prevent any spillage, and any spillage material on the shelf, on exterior surfaces of the cargo compartment, or on wheels will be removed prior to leaving the site.
- Trucks used for bulk soil transport will be inspected to ensure that no spillage can occur from holes or other openings in the cargo compartment.
- Bulk loaded trucks will exit the work site via an established track-out control point.

4.7 POST-CONSTRUCTION STABILIZATION OF DISTURBED AREAS

Unpaved areas disturbed during excavation, grading, and/or construction activities will be covered with one of the following to reduce dust generation on the site:

- An approved vegetative cover
- Surface swales to control stormwater
- Coverage with a minimum of 3 inches of non-asbestos-containing material
- Hard surface paving

4.8 RECYCLING

Nonimpacted asphalt and concrete are typically recycled on-site and may produce fugitive dust emissions. Fugitive dust emissions from recycling activities will be controlled using the following methods:

- Asphalt and concrete will be wetted prior to handling to reduce dust migration. A water truck or water buffalo shall be dedicated to this activity.
- Additional water will be added during active grinding, sorting, material handling, and loading, as needed, to control fugitive dust.
- The height from which crushed material is dropped either to trucks, stockpiles, or pads will be minimized.
- Trucks shall be equipped with tarping systems to cover loads during transport.
- Truck traffic shall be minimized to the shortest haul routes from the work areas, screening yard, and stockpile areas.
- A chemical soil stabilizer will be applied in sufficient quantities to stockpiles so as to create a stabilized surface.

5.0 AIR MONITORING

Air monitoring is performed to ensure worker and community safety in accordance with NIOSH approved air sampling methodology. Figure 5-1 presents a map of known sensitive community receptors within 1 mile of HPS. Three types of air monitoring are conducted during construction activities:

- Air quality monitoring (total suspended particulates [TSP], manganese, lead, particulate matter smaller than 10 microns in diameter [PM_{10}], and asbestos)
- Radionuclides of concern (ROCs) air monitoring
- Personnel monitoring

During prolonged precipitation events (greater than 8 hours of precipitation in a 24-hour period), the air monitoring units will not be operated. An air monitoring station or individual units being inoperable shall not preclude construction activities at the associated work site.

5.1 AIR QUALITY MONITORING

The air monitoring for HPS will include ambient air quality monitoring stations that will be established to perform monitoring during field activities. Air samples will be collected at the monitoring stations and will be analyzed for the airborne chemicals of concern, which include TSP, manganese, lead, PM_{10}, and asbestos. The air quality sampling will be used to assess the status of air quality compliance and to evaluate modifications to basewide activities in the event of compliance concerns. The meteorological data for the general work areas, specifically wind speed and direction, will be used to identify the most appropriate locations for the air monitoring stations. Air samplers and monitoring stations will be located upwind and downwind of work areas, using wind direction data, and in the most practical locations.

Analytical results for TSP will be compared with a standard of 0.5 milligram per cubic meter (mg/m^3) (level chosen to minimize overall permissible dust release from site), 0.2 microgram per cubic meter for manganese (California Office of Environmental Health Hazard Assessment's lifetime reference concentration), 1.5 mg/m^3 averaged over 1 month for lead, and 50 mg/m^3 for PM_{10}. If HPS activities are the cause of exceedances, additional control measures may be considered.

During prolonged precipitation events (greater than 8 hours of precipitation in a 24-hour period), the air monitoring units will not be operated. An air monitoring station or individual units being inoperable shall not preclude construction activities at the associated work site.

5.1.1 Monitoring Site Locations

Air monitoring stations will be installed to collect air samples upwind and downwind of work areas for the duration of the activities. The predominant wind direction at HPS is from the west. Locations of air monitoring stations are shown on Figure 5-2. Air monitoring is performed to estimate and assess the impact of the field activities. The locations of the air monitoring stations will be determined based on the prevailing wind direction and may be modified as needed. Monitoring stations will not be moved while they are sampling. Radiological air monitoring will be conducted both upwind and downwind of the excavations and in the immediate vicinity of each excavation site in accordance with the applicable radiation work permit requirements and the Hunters Point Standard Operating Procedure, HPO-Tt-008, Air Sampling and Sample Analysis (TtEC 2005). In addition, a windsock will be set up at each site to show wind direction.

Each monitoring station will include three different monitoring systems: one each for TSP (that will be analyzed for manganese and lead), PM_{10}, and asbestos. Descriptions of these samplers are provided below. Sampling frequency and monitoring methods are listed in Table 5-1.

5.1.2 Total Suspended Particulates, Manganese, and Lead

TSP will be sampled with a high-volume (39 to 60 cubic feet per minute [ft^3/min]) air sampler in accordance with EPA's reference sampling method for TSP, described in Title 40 *Code of Federal Regulations* (CFR), Part 50, Subpart B. Each sample will be collected on a filter over the course of a period not to exceed 54 hours; the filter is then weighed to determine the amount of TSP collected. Once the filter weight has been determined, the sample will be analyzed for manganese in accordance with one of the IO-3 methods identified in EPA's Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air (EPA 1999) and lead in accordance with a modified EPA Method 12. The equipment specifications and sampling procedures will comply with the specifications provided in the regulations for the sampler, filter, accuracy, calibration, and quality assurances.

The flow of the high-volume air sampler will be properly calibrated to establish traceability of the field measurement. Calibrations shall follow the guidelines specified in 40 CFR, Part 50, Section 9.3, and Section 2.6 of the EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods (EPA 1998).

Field logs should be used to properly record information after collecting the samples. Appropriate field data, such as date, time, sample identification, calibration data, sample location, ambient temperature and pressure, and any additional information or observations that could influence analyses of the results, will be entered on the field logs.

5.1.3 PM_{10}

PM_{10} will be sampled in accordance with EPA's reference sampling method for PM_{10}, described in 40 CFR 50, Subpart J. Each sample be collected on a filter over a period not to exceed 54 hours; the filter is then weighed to determine the amount of PM_{10} collected.

5.1.4 Asbestos

Asbestos will be sampled and analyzed in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7400, from the NIOSH Manual of Analytical Methods (NIOSH 1994). Method 7400 requires that samples be collected on three-piece cellulose ester filters fitted with conductive cowlings at a sampling rate of between 0.5 liter per minute (L/min) and 16 L/min. Each sample will be collected over a period not to exceed 54 hours.

5.2 AIR SAMPLING FOR RADIONUCLIDES OF CONCERN

As specified in the Base-wide Project Work Plan (TtEC 2008), airborne radioactivity monitoring (continuous or grab samples) will be conducted during the course of work. To control occupational exposures, establish personal protective equipment, and determine respiratory protection requirements, monitoring and trending for airborne radioactive material will be performed as necessary. Each ROC, as specified in 10 CFR 20, Appendix B, has a derived airborne concentration (DAC) value. DAC is defined as the concentration in air that will result in an intake of 1 annual limit (ALI) if breathed for a working year under high working conditions (inhalation rate of 1.2 cubic meters of air per hour). ALI is the derived limit for the quantity of radioactive material intake into the body of a worker by inhalation or ingestion in a year.

Engineered controls will be developed in conjunction with the Radiological Affairs Support Office (RASO). They will be implemented if required to maintain airborne concentrations below 10 percent of the applicable DAC value for the ROCs at the sites. Table 5-2 shows the ROCs and their respective DAC values.

5.3 PERSONNEL MONITORING

The Site Health and Safety Specialist (SHSS) will conduct monitoring to ensure that each site worker is adequately protected. Site monitoring and sampling includes real-time air monitoring and perimeter monitoring. In consultation with the Project Environmental Safety Manager (PESM), the SHSS will determine if personal or addition perimeter monitoring is required to evaluate the potential for personnel exposure. All air quality monitoring results that exceed the California Occupational Safety and Health Administration permissible exposure limits (asbestos – 0.1 fiber/cubic centimeter, PM_{10} – 5,000 mg/m^3, TSP – 10 mg/m^3, manganese – 200 mg/m^3, lead – 50 mg/m^3) will be immediately reported to the PESM, who will evaluate the results. If the

evaluation finds elevated results, personnel monitoring may be required. Depending on the elevated results, addition sampling may be conducted for asbestos, particulate matter, or lead.

5.4 QUALITY CONTROL PROCEDURES

A quality control (QC) program will be implemented to ensure that collected data are accurate and precise in order to effectively characterize both the magnitude and variations in ambient conditions at the monitoring stations. Complete documentation of the results of routine operations and QC aspects of the program, including all log notes, calibration forms, and certifications, will be maintained on file. Key elements of the routine field QC program will include:

- Routine visits to each sampling station over the sampling period to check sampler pump flow rates, verify operation and sample conditions, and note any ambient conditions that could affect the accuracy or representativeness of the sample
- Calibration of the sampling pumps and flow devices
- Routine preventive maintenance of all equipment components

The analytical laboratory performing the sample analyses will establish a QC program that will also ensure the accuracy of the data as the data are being analyzed. Key elements of the routine QC procedures implemented during the sample analyses will include analysis of laboratory blanks and spikes and calibration of the analytical instruments, as specified in the appropriate methodology.

Dust control activities will be documented during construction activities and included in the Daily Contractor Production Reports. Available air data will be submitted monthly to the DON for distribution to interested parties and will be posted online to the Base Realignment and Closure Program Management Office web page at:

- http://www.bracpmo.navy.mil/basepage.aspx?baseid=45&state=California&name=hps

6.0 REFERENCES

EPA (U.S. Environmental Protection Agency). 1998. Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods.

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————————. 2008. Final Project Work Plan, Base-wide Storm Drain and Sanitary Sewer Removal, Revision 3, Hunters Point Shipyard, San Francisco, California. May.

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TABLES

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TABLE 5-1

SAMPLING FREQUENCY AND MONITORING METHODS

Test Scenario	Type of Analysis	Monitoring Method	Frequency
Excavation and soil handling (upwind and downwind)	TSP	40 CFR, Part 50, Appendix B Analysis Method IO-3 (Mn) Analysis Method 12 (Pb)	1 sample per workday 2–3 samples per workweek
	PM_{10}	40 CFR, Part 50, Appendix J	1 sample per workday 2–3 samples per workweek
	Asbestos	NIOSH Method 7400	1 sample per workday 2–3 samples per workweek
	ROCs	HPO-TtFW-008*	1 sample per workday 2–3 samples per workweek
Backfill and site restoration (upwind and downwind)	TSP	40 CFR, Part 50, Appendix B Analysis Method IO-3 (Mn) Analysis Method 12 (Pb)	1 sample per workday 2–3 samples per workweek
	PM_{10}	40 CFR, Part 50, Appendix J	1 sample per workday 2–3 samples per workweek
	Asbestos	NIOSH Method 7400	1 sample per workday 2–3 samples per workweek
	ROCs	HPO-TtFW-008*	1 sample per workday 2–3 samples per workweek

Notes:

* PO-TtFW-008, Air Sampling and Sample Analysis (TtEC 2005), is a standard operating procedure used for radiological air sampling activities supporting Hunters Point Shipyard field projects.

Abbreviations and Acronyms:

CFR – *Code of Federal Regulations*
Mn – manganese
NIOSH – National Institute for Occupational Safety and Health
Pb – lead
PM_{10} – particulate matter smaller than 10 microns in diameter
ROC – radionuclide of concern
TSP – total suspended particulates

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TABLE 5-2

RADIONUCLIDE AIRBORNE CONCENTRATION GUIDELINES

Radionuclide	Worker*	
	DAC (μCi/mL)	10% DAC (μCi/mL)
Radium-226	3.0E-10	3.0E-11
Strontium-90	2.0E-9	2.0E-10
Cesium-137	6.0E-8	6.0E-9

Notes:

* The guideline values were determined using the NRC's 10 CFR, Part 20, Appendix B.

Abbreviations and Acronyms:

μCi/mL – microcuries per milliliter (activity)
CFR – *Code of Federal Regulations*
DAC – derived airborne concentration
NRC – Nuclear Regulatory Commission

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FIGURES

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LEGEND

- STATE HIGHWAY
- US HIGHWAY
- INTERSTATE HIGHWAY
- HUNTERS POINT SHIPYARD
- WATER

2.5 0 2.5 5 Miles

Scale: 1" = 5 Miles

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

BASEWIDE DUST CONTROL PLAN

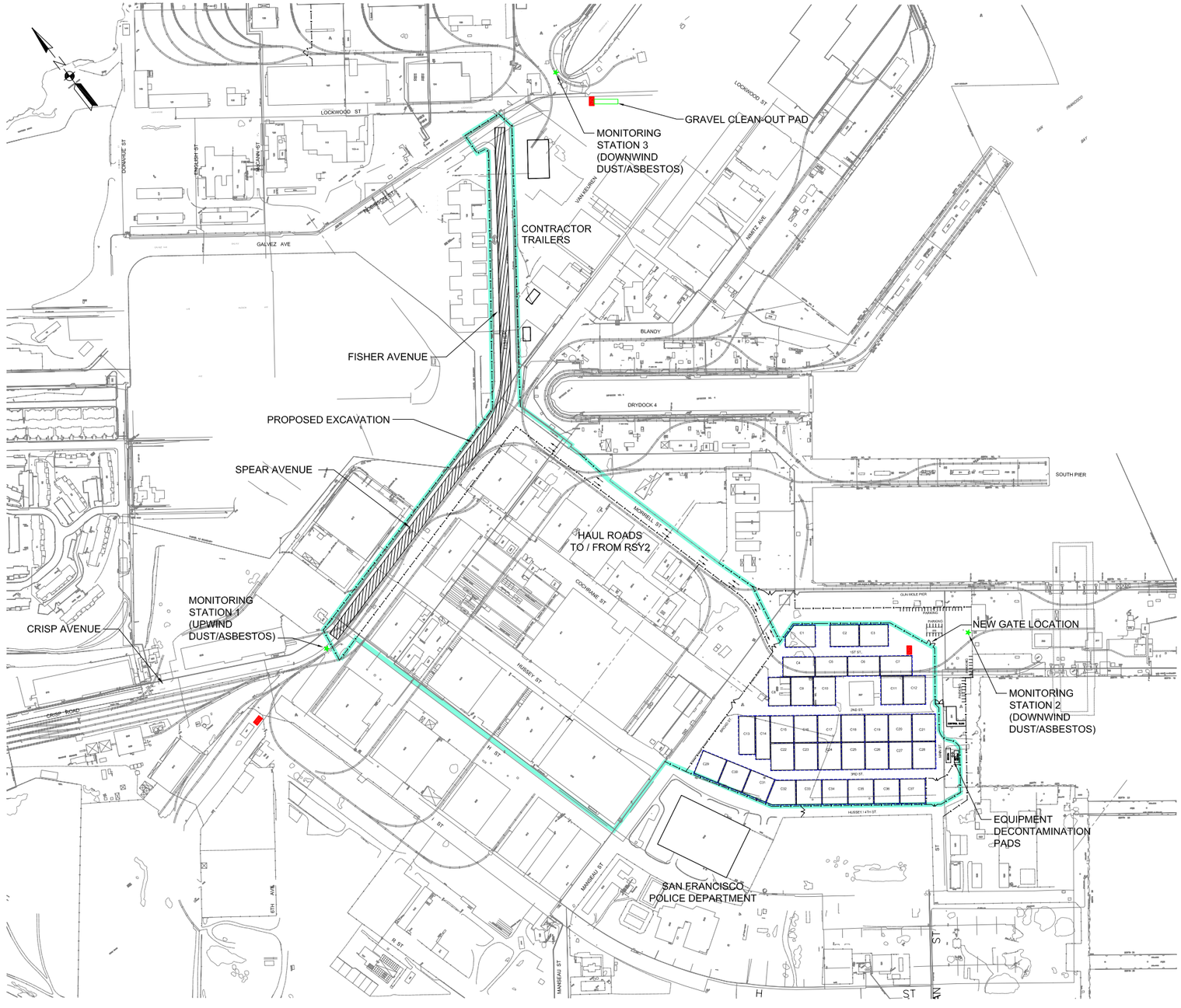
FIGURE 1-1

HUNTERS POINT SHIPYARD LOCATION MAP

HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

REVISION: 0
AUTHOR: GFG
DCN: ECSD-3211-0018-0002
FILE NUMBER: 090544R4748.mxd

TETRA TECH EC, INC.



LEGEND

- FENCE
- TRAFFIC FLOW DIRECTION
- RCA BOUNDARY
- PROPOSED LOCATION OF 10'X16' RUMBLE STRIP
- PROPOSED LOCATION OF 10'X50' GRAVEL CLEAN-OUT PAD

BASE REALIGNMENT AND CLOSURE PROGRAM MANAGEMENT OFFICE WEST SAN DIEGO, CALIFORNIA

BASEWIDE DUST CONTROL PLAN

FIGURE 4-1

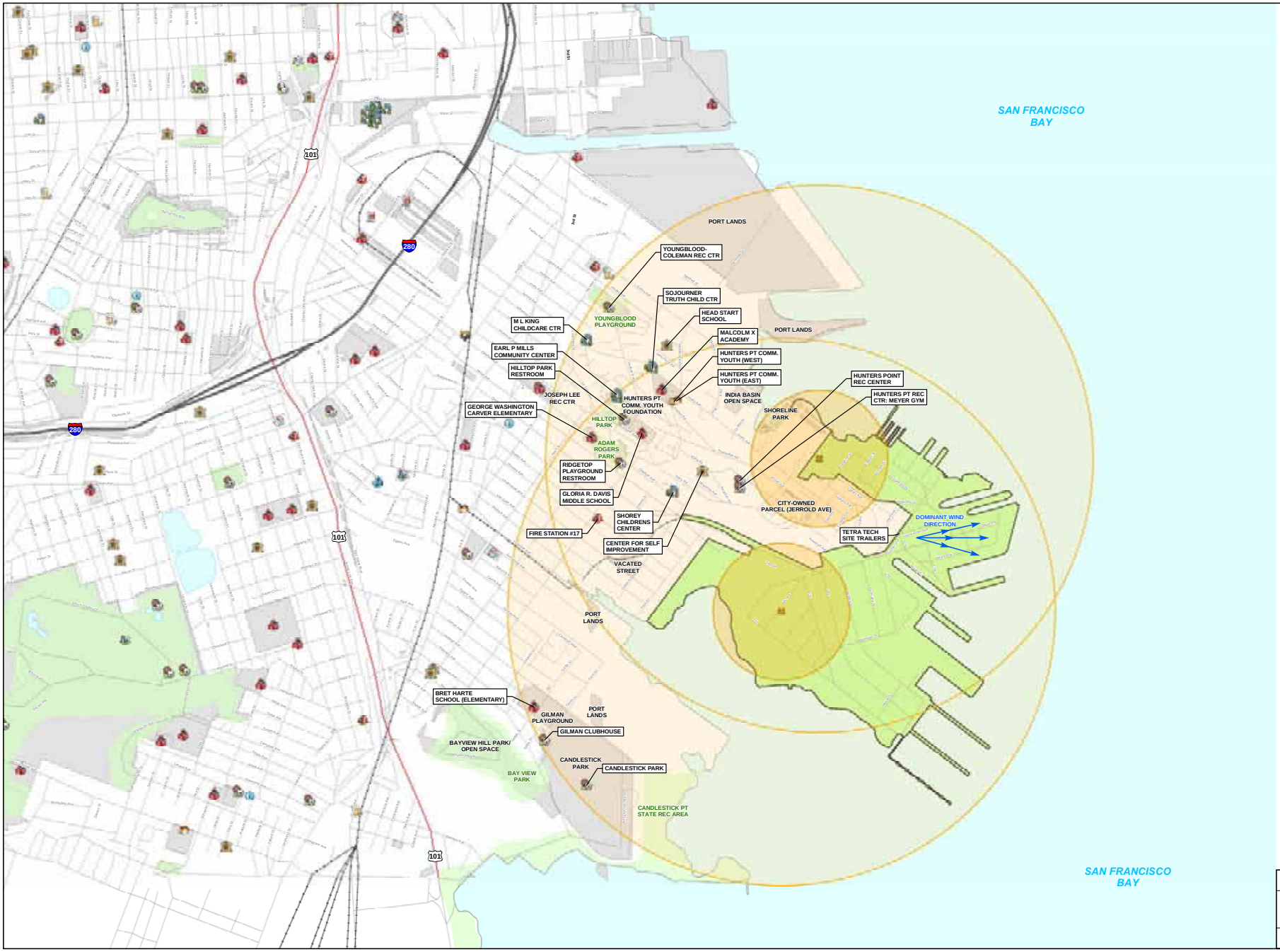
HUNTERS POINT SHIPYARD FISHER AND SPEAR AVENUES EXCAVATION AND TRAFFIC CONTROL PLANS

HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA.

REVISION: 0
AUTHOR: A. CRABTREE
PROJECT NO: ECSD-3211-0018-0002
FILE: SEE BELOW

TETRA TECH EC, INC.

\\ECISFOFILE1\PROJECTS\CTO 006\CAD\TO 70 PARCEL D\PARCEL D WORKING FILES\TRAFFIC CONTROL PLANS\PDTCP0009.DWG



LEGEND

- FIRE DEPARTMENT
- HUMAN SERVICES
- JUVENILE PROBATION
- MAYOR/COMMUNITY DEVELOPMENT
- MENTAL HEALTH
- POLICE STATION
- PUBLIC HEALTH
- PUBLIC LIBRARY
- PUBLIC WORKS
- REAL ESTATE/ADMINISTRATIVE SERVICES
- RECREATION AND PARK
- SAN FRANCISCO COMMUNITY COLLEGE DISTRICT
- SAN FRANCISCO PRIVATE SCHOOL
- SAN FRANCISCO UNIFIED SCHOOL DISTRICT
- SHERIFF
- RADIUS CENTERPOINT
- ROAD
- HIGHWAY
- INTERSTATE HIGHWAY
- RAILROAD
- PARK
- WATER
- SAN FRANCISCO PUBLIC LAND
- QUARTER MILE BUFFER
- ONE MILE BUFFER
- HUNTERS POINT SHIPYARD BOUNDARY

SOURCE:

WIND DIRECTION
AS PER SOUTHWEST DIVISION NAVAL FACILITIES ENGINEERING COMMAND WIND ROSE PLOTS OF HUNTERS POINT SHIPYARD 08/06/00 - 10/12/00

SAN FRANCISCO FACILITIES LOCATIONS
RETRIEVED FROM THE CITY AND COUNTY OF SAN FRANCISCO ONLINE WEBSITE (SFGIS DATA DOWNLOAD).

N

400 0 400 800 Feet

Scale: 1" = 400'

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

BASEWIDE DUST CONTROL PLAN

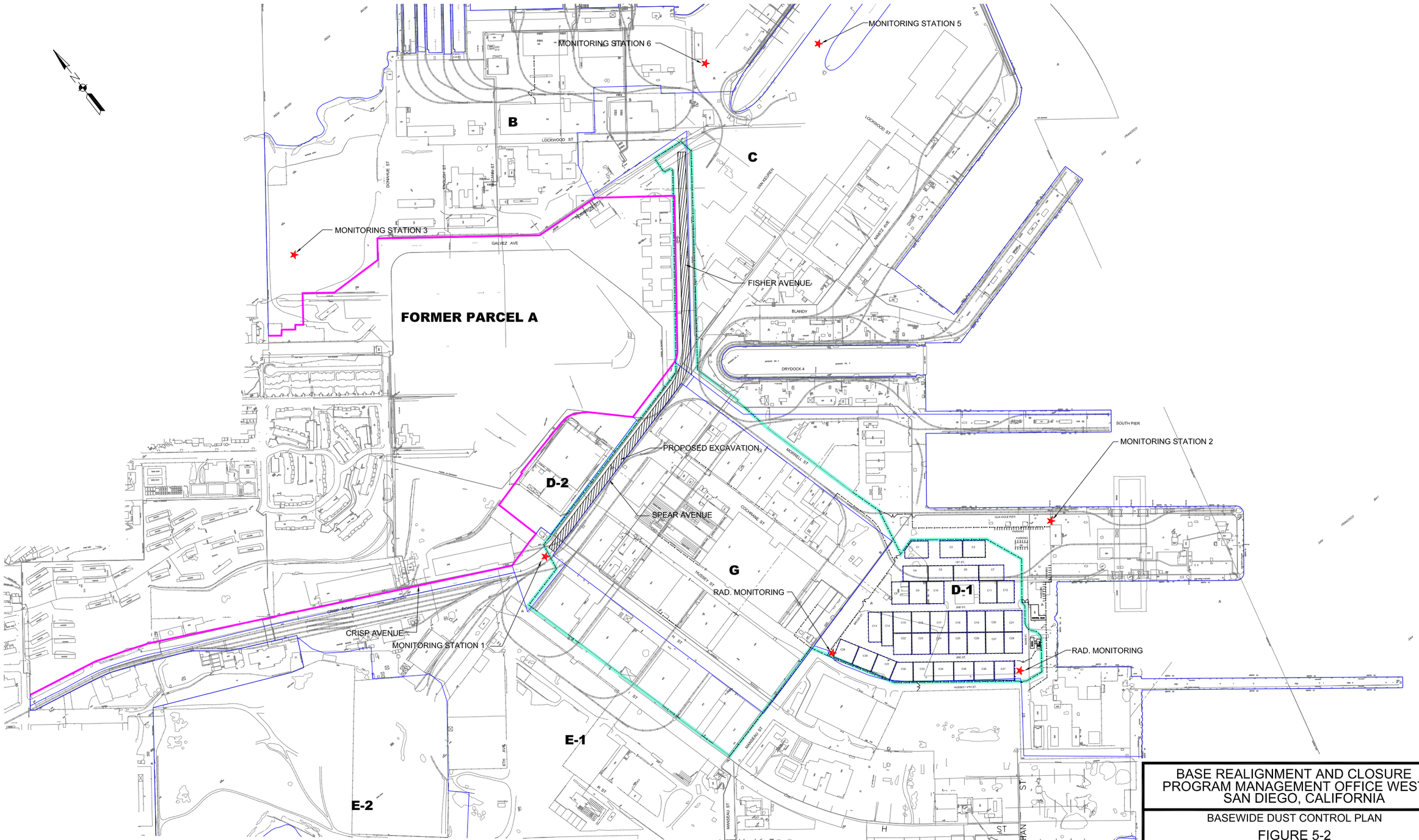
FIGURE 5-1

HUNTERS POINT POTENTIAL COMMUNITY RECEPTORS AND BUFFER AREAS

HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA

REVIEW: G
AUTHOR: GFG
DCN: ECSD-3231-0018-0002
FILE NUMBER: 080548-LF47.mxd

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE PROGRAM MANAGEMENT OFFICE WEST SAN DIEGO, CALIFORNIA

BASEWIDE DUST CONTROL PLAN

FIGURE 5-2

HUNTERS POINT SHIPYARD
AIR MONITORING LOCATIONS

HUNTERS POINT SHIPYARD, SAN FRANCISCO, CA.

REVISION: 0
AUTHOR: A. CRABTREE
PROJECT NO: ECSD-3211-0018-0002
FILE: SEE BELOW

TETRA TECH EC, INC.

\\Ecisfofile1\projects\CTO 006\CAD\TO 70 Parcel D\Parcel D working Files\Traffic Control Plans\PDTCP0010A.dwg

Item	Reference or Phrase in ROD	Location in ROD	Identification of Referenced Document Available in the Administrative Record[1]
51	ICs	Section 2.9.2	Final Feasibility Study Report for Parcel C, Hunters Point Shipyard, San Francisco, California. SulTech. July 31, 2008. Section 4.3.2.1, pages 4-20 to 4-23.

Institutional Controls in General

Institutional controls will be implemented to prevent exposure to areas where potential unacceptable risk is posed by COCs in soil and groundwater. Institutional controls are legal and administrative mechanisms used to implement land use restrictions that are used to limit the exposure of future landowner(s) or user(s) of the property to hazardous substances present on the property, and to ensure the integrity of the remedial action. Institutional controls are required on a property where the selected remedial cleanup levels result in contamination remaining at the property above levels that allow for unlimited use and unrestricted exposure. Institutional controls will remain in place unless the remedial action taken will allow for unlimited use of the property and unrestricted exposure. Implementation of institutional controls includes requirements for monitoring and inspections, and reporting to ensure compliance with land use or activity restrictions.

Legal mechanisms include proprietary controls such as restrictive covenants, negative easements, equitable servitudes, and deed notices. Administrative mechanisms include notices, adopted local land use plans and ordinances, construction permitting, or other existing land use management systems that are intended to ensure compliance with land use or activity restrictions.

The Navy has determined that it will rely upon proprietary controls in the form of environmental restrictive covenants as provided in the "Memorandum of Agreement Between the United States Department of the Navy and the California Department of Toxic Substances Control" and attached covenant models (Navy and DTSC 2000) (hereinafter referred to as "Navy/DTSC MOA"). More specifically, land use and activity restrictions will be incorporated into two separate legal instruments as provided in the Navy/DTSC MOA:

1. Restrictive covenants included in one or more Quitclaim Deeds from the Navy to the property recipient.

2. Restrictive covenants included in one or more "Covenant to Restrict Use of Property" entered into by the Navy and DTSC as provided in the Navy/DTSC MOA and consistent with the substantive provisions of Cal. Code Regs. tit. 22 § 67391.1.

The "Covenant(s) to Restrict Use of Property" will incorporate the land use restrictions into environmental restrictive covenants that run with the land and that are enforceable by DTSC against future transferees. The Quitclaim Deed(s) will include the identical land use and activity restrictions in environmental restrictive covenants that run with the land and that will be enforceable by the Navy against future transferees.

The activity restrictions in the "Covenant(s) to Restrict Use of Property" and Quitclaim Deed(s) shall be implemented through the Parcel C Risk Management Plan ("Parcel C RMP") to be prepared by the City of San Francisco and approved by the Navy and FFA Signatories. The Parcel C RMP shall be discussed in the Parcel C ROD and shall be attached to and incorporated by reference into the Covenant(s) to Restrict Use of Property and Deed(s) as an enforceable part

thereof. It shall specify soil and groundwater management procedures for compliance with the remedy selected in the Parcel C ROD. The Parcel C RMP shall identify the roles of local, state, and federal government in administering the Parcel C RMP and shall include, but not be limited to, procedures for any necessary sampling and analysis requirements, worker health and safety requirements, and any necessary site-specific construction and/or use approvals that may be required.

In addition to being set forth in the "Covenant(s) to restrict Use of Property" and Quitclaim Deed(s) as described above, restrictions applied to specified portions of the property will be described in findings of suitability of transfer and findings of suitability for early transfer.

Access

The Deed and Covenant shall provide that the Navy and FFA Signatories and their authorized agents, employees, contractors and subcontractors shall have the right to enter upon HPS Parcel C to conduct investigations, tests, or surveys; inspect field activities; or construct, operate, and maintain any response or remedial action as required or necessary under the cleanup program, including but not limited to monitoring wells, pumping wells, treatment facilities, and cap/containment systems.

Implementation

The Navy shall address and describe institutional control implementation and maintenance actions including periodic inspections and reporting requirements in the preliminary and final RD reports to be developed and submitted to the FFA Signatories for review pursuant to the FFA (see "Navy Principles and Procedures for Specifying, Monitoring and Enforcement of Land Use Controls and Other Post-ROD Actions" attached to January 16, 2004 Department of Defense memorandum titled "Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Record of Decision (ROD) and Post-ROD Policy"). The preliminary and final RD reports are primary documents as provided in Section 7.3 of the FFA.

Activity Restrictions that Apply Throughout Parcel C

The following sections describe the institutional control objectives to be achieved through activity restrictions throughout Parcel C in order to ensure that any necessary measures to protect human health and the environment and the integrity of the remedy have been undertaken.

Restricted Activities

The following restricted activities throughout HPS Parcel C must be conducted in accordance with the "Covenant(s) to Restrict Use of Property", Quitclaim Deed(s), and the Parcel C RMP, and, if required, any other work plan or document approved in accordance with these referenced documents:

1. "Land disturbing activity," which includes but is not limited to: (1) excavation of soil, (2) construction of roads, utilities, facilities, structures, and appurtenances of any kind, (3) demolition or removal of "hardscape" (for example, concrete roadways, parking lots, foundations, and sidewalks), (4) any activity that involves movement of soil to the surface from below the surface of the land, and (5) any other activity that causes or facilitates the movement of known contaminated groundwater.

2. Alteration, disturbance, or removal of any component of a response or cleanup action (including but not limited to pump-and-treat facilities, and soil cap/containment systems); groundwater extraction, injection, and monitoring wells and associated piping and equipment; or associated utilities.

3. Extraction of groundwater and installation of new groundwater wells.

4. Removal of or damage to security features (for example, locks on monitoring wells, survey monuments, fencing, signs, or monitoring equipment and associated pipelines and appurtenances).

Prohibited Activities

The following activities are prohibited throughout HPS Parcel C:

1. Growing vegetables or fruits in native soil for human consumption

2. Use of groundwater

Activity Restrictions Relating to Soil and Associated VOC Vapors at Specific Locations Within Parcel C

Any proposed construction of enclosed structures must be approved in accordance with the "Covenant to Restrict Use of the Property," Quitclaim Deed, and Parcel C RMP prior to the conduct of such activity within the area requiring institutional controls (ARIC) for VOC vapors in order to ensure that the risks of potential exposures to VOC vapors are reduced to acceptable levels that are adequately protective of human health. Initially, the ARIC will include all of Parcel C. This can be achieved through engineering controls or other design alternatives that meet the specifications set forth in the ROD, RD reports, land use control (LUC) RD report, and Parcel C RMP. The ARIC may be modified by the FFA Signatories as the soil contamination areas and groundwater contaminant plumes that are producing unacceptable vapor inhalation risks are reduced over time or in response to further soil, vapor, and groundwater sampling and analysis for VOCs that establishes that areas now included in the ARIC do not pose unacceptable potential exposure risk to VOC vapors.

Additional Land Use Restrictions for Areas Designated Open Space, Educational/Cultural, and Maritime/Industrial

The following restricted land uses for property areas designated for open space, educational/cultural and maritime/industrial land uses in the "Hunters Point Shipyard Redevelopment Plan" dated July 14, 1997 must be reviewed and approved by the FFA Signatories in accordance with the "Covenant(s) to Restrict Use of the Property," Quitclaim Deed(s), and Parcel C RMP prior to use of the property for any of the restricted uses:

1. A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation
2. A hospital for humans
3. A school for persons under 21 years of age
4. A daycare facility for children

The process options related to institutional controls will be retained for development and evaluation of remedial alternatives.

Access Restrictions

Access restrictions will include physical barriers such as fences and informational devices such as warning signs. Fences would be installed around the perimeter of the site to restrict public access. Signs warning of the presence and potential danger of hazardous materials would be posted on the fence to further discourage unauthorized access.

Removal

Removal is an effective GRA for all contaminant groups associated with soil at Parcel C. The technologies applicable to this GRA are excavation and disposal, involving removing and transporting contaminated material off site to a permitted treatment and disposal facility. Some pretreatment such as stabilization may be required or preferred to meet land disposal restrictions so that the most economical disposal option can be applied. Important considerations with the excavation and disposal technologies include excavation volume, fugitive emissions, hauling distance, and type of treatment and disposal facility for final deposition. The excavation cleanup criteria would be specific to the reuse type and chemical-specific remediation goals specified in Section 4.1.1.1.

The technology of excavation is effective and implementable for many of the COCs found in soil at Parcel C. Most of the near-surface soil at Parcel C is fill that was placed without documentation. The mineral content in the fill, the locations where the fill was placed, the method of placement, and the concentrations of metals in the fill are not documented. The Navy believes that arsenic is naturally occurring in local bedrock that was used for fill, and that this is