INNER HARBOR NAVIGATION CANAL
LOCK REPLACEMENT PROJECT
ORLEANS PARISH, LOUISIANA

DESIGN DOCUMENTATION REPORT NO. 1
SITE PREPARATION AND DEMOLITION

VOLUME NO. 6 OF 8

PREPARED FOR:

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

PREPARED BY:

WALDEMAR S. NELSON AND COMPANY, INC.
ENGINEERS AND ARCHITECTS
NEW ORLEANS, LOUISIANA

AND

DAMES AND MOORE, INC.
NEW ORLEANS, LOUISIANA

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Volume 6 - Excavation, Treatment, and Disposal of Contaminated Soils

This report identifies the materials of the East Bank Industrial Area between 0 and 5 feet below ground surface that are subject to environmental and safety regulations. The report includes a review of previous sampling investigations; identification of data gaps in the existing data and a sampling plan to address the data gaps; soil reuse, treatment, and disposal options; and a cost estimate.

Approximately 21,400 cubic yards of soil will be removed and disposed at an estimated cost of $1,072,000. This estimate was prepared using the assumptions that LDEQ RECAP criteria levels are applied; 17,100 cubic yards of soil contaminated with TPH, VOC, SVOC, and arsenic will be sent to a sanitary landfill for disposal; 4,300 cubic yards of soil contaminated with lead will be sent to a hazardous landfill for disposal; arsenic background level of 17 mg/kg will be acceptable for soil reuse, and soils have a moisture content of 30%. This estimate does not include the disposal of additional contaminated soils to be identified in the investigation of data gaps.

APPROVAL PAGE

Operational Plans For
Excavation, Treatment and Disposal of Contaminated Soils
of The East Bank Industrial Area of The IHNC

Environmental Support to
IHNC Lock Replacement Project
New Orleans, Louisiana

Contract No. DACW29-97-D-0019
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Approved by:

Dames & Moore QA Director, John E. Plevniak — April 20, 2000

Dames & Moore Project Manager, Douglas E. Kuhn — April 20, 2000

New Orleans COE Contracting Officers Representative, Brett Herr — April 20, 2000

New Orleans COE Technical Representative (TR) — April 20, 2000
Mr. George Bacuta and/or Ms. Jean Spadaro

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1 INTRODUCTION

This document is one of four reports prepared by Dames and Moore as Environmental Support to the Inner Harbor Navigational Canal (IHNC) New Lock and Connecting Channels, Demolition Design Memorandum. The purpose of this document is to identify the materials of the east bank industrial area along the IHNC between 0 to 5 feet below ground surface that are subject to environmental and safety regulations. The soil and dredged sediments of the east bank industrial area are to be excavated for the placement of a bypass channel during the construction of a new lock.

The report was completed in accordance with the final scope of work provided by the U.S. Army Corps of Engineers (USACE), dated October 13, 1998. The specific tasks that were completed during the course of this project on the east bank industrial area included:

- A review of background environmental information on the IHNC new lock project furnished by the USACE. These documents included a land use study report, an evaluation report on the potential hazards (HTRW Report), a report on the classification and disposal of containerized waste abandoned along the east bank, and an evaluation of the environment of the east bank; (see Reference Page)
- Determination of data gaps in the environmental information furnished by the USACE;
- A review of regulatory requirements associated with the handling and disposal of impacted soil identified along the east bank of the IHNC;
- Determination of disposal options with estimated cost for the various materials scheduled to be removed during the course of completing the bypass channel; and
- The completion of a Site Specific Sampling & Analyses Plan (Appendix B) and a Site Specific Safety & Health Plan (Appendix A) for addressing data gaps identified in this report.

This report provides the following:

- Summary of the previous investigations completed along the east bank of the IHNC;
- Inventory and classification of regulated materials identified along the east bank;
- Regulatory review: Louisiana's Department of Environmental Quality's (LDEQ) Risk Evaluation/Corrective Action Program (RECAP) regulation has been promulgated and became effective in December 20, 1998. Chemical data acquired in 1993 through 1997 along the east bank of the IHNC were reviewed against the 1998 LDEQ RECAP screening standards;
- Waste handling and management;
- Treatment/Disposal requirements; and
- Detailed estimated cost data.

1.1 Site Description

The IHNC opened in 1923 and is located in the metropolitan area of New Orleans. The canal was constructed in order to allow for the movement of barge traffic from the Mississippi River to Lake Pontchartrain and the inter-coastal waterways (IWW) of the Gulf Coast. The focus of this document is on the industrialized portion of the IHNC east bank between Florida and North Claiborne Avenues along Surekote Road. In this industrialized area are several active and inactive facilities that were associated with steel fabrication, shipbuilding, marine vessel repair and servicing, marine supplies, petroleum related facilities, barge leasing, and others.
Industrialization of the east bank area began in the 1960s and today approximately 50% of these industrialized facilities are currently unoccupied or abandoned. Six sites along Surekote Road make up the east bank industrial area. These sites are Boland Marine (2500 Surekote Road),

McDonough Marine (2300 Surekote Road), Indian Towing Company (2200 Surekote Road), Mayer Yacht/Distributor Oil (2100 Surekote Road), Saucer Marine (1910 Surekote Road), and International Tank Terminal (1800 Surekote Road).

1.2 Site Location

The area of concern is located on the east bank of the IHNC in an industrial area south of Florida Avenue and along Surekote Road in New Orleans, LA. Appendix D, Figure 1, Site Location Map, presents a generalized map of the project area and Appendix D, Figure 2, Site Plot Plan, presents the east bank of the IHNC with site names and structures.

The history of the east bank facilities described in the following text is based on information provided in USACE supplied documents (see Section 9, References). Since 1993, containerized wastes including cans, drums and tanks have been removed and disposed off-site by the Port of New Orleans. In 1998, Distributor's Oil Company terminated its lease with the Port of New Orleans and moved its bulk plant facility off-site. Above ground storage tanks (ASTs), fueling pumps, office and other excess inventory of drummed/canned bulk oil and supplies associated with the operations of Distributor's Oil were removed at the time of lease termination.

1.3 Site History

The history of the east bank facilities described in the following text is based on information provided in USACE supplied documents (see Section 9, References). Since 1993, containerized wastes including cans, drums and tanks have been removed and disposed off-site by the Port of New Orleans. In 1998, Distributor's Oil Company terminated its lease with the Port of New Orleans and moved its bulk plant facility off-site. Above ground storage tanks (ASTs), fueling pumps, office and other excess inventory of drummed/canned bulk oil and supplies associated with the operations of Distributor's Oil were removed at the time of lease termination.

Boland Marine

The Boland Marine property, located at 2500 Surekote Road, historically has been used for ship repairs. Operated by Boland Marine for nearly twenty years, the site is now occupied by an unaffiliated ship repair company. From the mid 1970s to the early 1990s, Boland Marine developed and utilized site facilities for storage, office space, painting operations, and fabrication/welding.

Signs of apparent site contamination were observed throughout the property. The ground surface is covered with scattered pockets of sandblast materials. The area surrounding the compressor house, located on the west side of the site, serves as a discarded drum graveyard. Electrical transformer units are located near the southwest property corner. Overhead piping, formerly insulated with asbestos containing materials, is located near the Boland fabrication/welding building. At one time, both aboveground storage tanks (ASTs) and underground storage tanks (USTs), known to contain diesel fuel and gasoline respectively, were located at the site. The State of Louisiana listed Boland Marine as an unspecified hazardous waste generator. Several vacant concrete slabs remain on the property.

McDonough Marine

The McDonough Marine property, located at 2300 Surekote Road, has been used for barge leasing and chartering services for more than three decades. Originally operating under the name McDonough Marine, this company has been known as Marmac Corporation since 1972. Several buildings are located on the site. These buildings have been used for office space, parking, machining, painting operations, and bulk materials storage. Historical records, as well as current site conditions, provoke reason for environmental concern at the McDonough site. One vacant concrete slab remains on the property. Sandblast materials were found on the ground

surface near the southwest property corner. Discarded drums have been abandoned near the paint house. Several ASTs are located on the McDonough property. Known prior tank contents include propane, oxygen, gasoline, paint thinner, diesel fuel, and used oil. According to the State of Louisiana records, one 500-gallon steel UST of unknown contents is located at the McDonough site. No records have been found to document this UST's removal.

Indian Towing Company

The Indian Towing Company began operations at 2200 Surekote Road in 1954. In addition to being a nautical towing company, Indian used the Surekote location for the sale, storage, and repair of marine equipment. Since establishment along the IHNC, the Indian Towing Co. had a rocky relationship with the Dock Board. On numerous occasions, the Dock Board sited Indian Towing with lease violations. The nature of these infractions included unauthorized subletting, illegal barge discharging, and general disregard for the environment. Paint manufacturing and distributing, vegetable oil handling, boat manufacturing, and fueling services are among the known operations conducted at the Indian Towing site by subleasees.

A large warehouse/work storage building where drums, cans, and spent cylinders are stored remains on site. Tools, scrap iron, miscellaneous equipment, discarded drums, and spent cylinders are scattered throughout the property. Sandblast materials coat the ground surface near an AST located close to the northwest property corner. Oil soaked soils and a partially submerged tank car can be found along the waterfront. Several abandoned concrete slabs remain at the site.

Prior site utilization gives rise to many contaminants of concern for the Indian Towing site. Breakdown products of ferromanganese ore and petroleum products are likely present from past barge discharging activities and fueling operations conducted on site. The manufacturing of paint and varnish requires the use of numerous hazardous substances. Potential residual contaminants resulting from paint and varnish manufacturing include barium, barium sulfate, benzene, carbon tetrachloride, chromium, manganese, mercury, toluene, uranium, and xylene.

Mayer Yacht/Distributors Oil

Mayer Yacht currently performs boat repairs on the property located at 2100 Surekote Road. Originally developed in 1951, the site has primarily been used for fueling operations, boat repairs, and the distribution of marine supplies. Since developing this property, Mayer Yacht has had a shaky relationship with the dock board. Mayer Yacht has been cited for several lease violations relating to unauthorized subletting, inadequate record keeping, and a general disregard for the environment.

The Mayer Yacht site consists of several buildings used as workshops, office space, and storage space. Distributor's Oil Company operated an AST tank field and fueling stations on the north end of the property. The ASTs are known to have contained diesel and gasoline. A drum storage area surrounds the fueling stations near the northwest property corner. Approximately 60 drums containing motor fuel and similar products remain in the drum storage area. Four USTs containing fuel oil are believed to exist on the Mayer property, although the State of Louisiana does not have any supporting documentation. A former Mayer subleasee discarded spent paint cans in abandoned on-site dumpsters. Two of Mayer's former subleases have by been listed by the State of Louisiana as unspecified hazardous waste generators.

Stained surface soils were also documented on the subject property in the vicinity of the former bulk storage tank area. Historically, degreasing operations have taken place on the south half of the site. Sandblast waste piles have also been identified on the property near the southeast and northeast property corners.

Saucer Marine Service

Saucer Marine Service began leasing the property located at 1910 Surkote Road in 1954. Saucer Marine used this site for ship building practices for the next four decades. Located on the property are several buildings that were formerly used for storage, offices, warehousing, and machining. Vacant concrete slabs remain on site indicating previous structures on the Saucer property.

Numerous storage tanks located on the Saucer Marine property accommodated fueling operations formerly conducted on site. Diesel fuel and gasoline were stored in bulk in numerous areas of the site. A gasoline fueling station is known to have operated along the east fence line. Pockets of oil saturated soils can be found throughout the Saucer Marine property. A sandblast waste pile currently surrounds one of the ASTs on the south end of the property. The north end of the property accommodates two mixed waste piles as well as a drum and can disposal area. The mixed waste piles are known to contain tar and creosote coated wood poles and sandblasting materials.

In 1991, an anonymous employee reported Saucer Marine to the Louisiana Department of Environmental Quality (LDEQ). The employee indicated that the company had buried drums containing hazardous waste on site. This employee also reported Saucer had been discharging used oils into the canal and onto the ground surface. That same year, a water pollution control officer witnessed sandblasting, painting, and metal working operations being conducted on the Saucer Marine site. This officer observed discarded drums, a leaking air compressor, and spent paint cans along the east property line.

International Tank Terminal

The site referred as the International Tank Terminal (ITT) is located at 1800 Surekote Road. Former operations at this site include steel fabrication, trucking, and ship repairs. One building remains on the site. A vacant concrete slab on the ITT property is assumed to have been the foundation for a former workhouse. The activities conducted in association with the workhouse are unknown. Tanks of undisclosed size and contents were at one time located on the property. Sandblast materials can still be found on the ground surface on the north end of the site. A rodent eradication experiment station bordered the ITT property to the south.

1.4 Geology

The east bank of the IHNC is comprised of approximately 32 acres. The area investigated for the Bypass Channel excavation site is about 4,200 ft long and about 400 feet wide and is roughly bounded by the canal, the floodwall, Florida Avenue and North Claiborne Avenue. The industrial east bank of the IHNC is underlain at the near surface by fill material. This material is a mixture of shells, limestone gravel, fine grain sand, clay and silt which has a reported thickness of 14 feet to 16 feet across the site. The coarser materials (shells, limestone gravel and sand) usually constitute the ground surface and are irregularly distributed throughout the industrialized areas of the east bank. A majority of the sand stockpiled at ground surface is blast sand that was associated with the former industrial operations that were located along the east bank of the IHNC. The fill material may also contain concrete blocks, bricks, metallic plates and sheets, metallic rods, timbers, and blasting sand.

Below the coarser grained materials at the near surface, the fill grades to a more clayey soil. The contact between these clays and the underlying natural clays of the original IHNC ground surface is not well defined. Underlying the fill material are interbedded organic-rich clays of high moisture contents typical of deposits in swamp environments. These interbedded clays have an average thickness of about eight feet.

1.5 Hydrogeology

The shallow water table between the floodwall and the canal at the east industrial bank of the IHNC is a perched water table. Depths to the shallow water table are reported to be in the range of 0.1 foot to 3.25 feet. Movement of groundwater under the east bank is basically influenced by the physical conditions at each industrial site. Physical conditions include the topography of the ground surface, the nature of the contact between the coarse material and the fine grain clays and silts within the fill material, buried building foundations and utilities, surface drainage systems, and the activities of nearby pumping stations.

2 PREVIOUS INVESTIGATIONS ALONG THE IHNC

2.1 Summary of Previous Site Investigations

Soil samples were collected at each of the six sites located along the east bank of the IHNC during 1993 by the USACE. These site are bordered on the north by Florida Avenue, the south by Claiborne Avenue, the west by the IHNC, and on the east by a floodwall. Near surface soils encountered during sample collection consisted of sand (SP), silty sand (SM), fat clay (CH), organic clay (OH), silt (ML), and gravel. Sandblast material (sand) and shells were also intermingled with the collected soils. Groundwater was also sampled at many of the boring locations. Sample locations with identification numbers and laboratory results can be found in Appendix D, Figure 3 and in Appendix C, Table 1.

Near surface soil samples collected during these previous investigations were labeled with both matrix and site identifiers. For each of the samples collected, the first two characters of the sample label, **IC**, indicated the sample was collected at the **I**nner Harbor Navigational **C**anal. The third character of the sample identifier designates which of the six sites the sample was collected from (Boland-**B**, McDonough-**M**, Indian Towing-**I**, Distributors Oil/ Mayer Yacht-**D**, Saucer Marine-**S**, and International Tank Terminal-**T**). The fourth character of the sample identifier designates the sample matrix (soil-**S**, water-**W**). The last character of the sample label specifies the sample number corresponding to a particular location within a site, as shown in Appendix D, Figure 3. A typical sample identifier is IC-MS-4. This sample was collected for the Inner Harbor Navigational Canal project on the McDonough Marine property, the sample matrix is soil, and this sample has been designated as sample number 4 on the corresponding site figures. Only soil samples are discussed in this report.

Some samples may have a sixth character. A "D" as a sixth character indicates that the sample was collected as part of the Phase II investigation, in the same general location as the corresponding five character identifier collected during Phase I (IC-BS-8 and IC-BS-8D were collected in generally the same location during Phase I and Phase II respectively). Samples having a "P" as a sixth character were collected in association with suspected petroleum contamination. Samples may also have a sixth character of "A" through "G". In all cases where sample identifiers have six characters, the samples are grab samples and not composites of numerous sample points. The majority of soil samples collected were composite samples. See Appendix D, Figure 3 for grab and composite sample locations.

Six deep (35 ft) soil borings were advanced within the IHNC project site during July and August of 1993. Only samples collected from ground surface to five feet below ground surface have been address in the scope of this report. The sample identifiers for the deep borings also have **IC** as the first two label characters. The third character of the deep boring sample identifiers corresponds to the respective boring location (reference Appendix D, Figure 3). The fourth and final character of the sample label indicates the sample number for that particular boring (samples labeled with the number one are closest to the ground surface). For example, the sample labeled

IC-2-2 was collected at the Inner Harbor Navigational Canal site, at boring number two, and is the second sample collected at this boring location.

Soil samples were also not uniformly analyzed for a standard list of parameters. Instead, samples were analyzed for the probable contaminants present at a particular sample location. To determine likely contaminants at the IHNC site, historical site activities were reviewed. This historical review included determining what industrial processes had been conducted on each of the IHNC site properties and where on the property these activities occurred. From this information, soil sample locations and analysis were prescribed.

Toxicity characteristic leachate testing procedures (TCLP) were used to decipher if a sampled material was considered to be hazardous waste. It appears that the most obviously contaminated soils were selected for TCLP analysis. Approximately fifteen percent of the soil samples collected were analyzed by TCLP methods.

Boland Marine

Phase I of the IHNC site investigation was conducted on the Boland Marine property between April 15 and April 20, 1993. During Phase I, ten near surface soil samples were collected at the Boland site. During phase 2 of this investigation, conducted from July 19 to July 31, 1993, six soil samples were collected.

Of the sixteen soil samples collected in 1993, both the LDEQ Screening Option Non-Industrial (SOni) and Screening Option Industrial (SOi) levels for arsenic were exceeded at BS-2, BS-6, BS-7, BS-9, BS-9D, BS-10, and IC-1-1. Similarly, the samples collected at BS-9 and BS-9D exceed the SOni and SOi regulatory threshold values for several semi-volatile organic compounds (SVOCs). At BS-10, lead and barium results were above the SOni. BS-10 also failed the SOi and TCLP for lead. BS-4, which was collected beneath the overhead piping formerly insulated with asbestos containing materials, tested positive for asbestos content.
Assuming that the arsenic detected is accepted by the LDEQ as background and the lead detected is not hazardous, approximately 6,879yd^3 of material has been estimated as impacted above LDEQ screening options for SVOC and lead. These materials would be considered as Special Waste and require to be either treated prior to reuse or disposed as a Special Waste in a construction debris landfill. The remaining 80,904yd^3 would be considered clean and could be disposed directly to the Mississippi River or at the mitigation site for wetland re-construction. These soils could also be stockpiled for reuse as backfill around the new lock or disposed in the Mississippi River Gulf Outlet (MRGO) site. Areas of impact with laboratory results can be found in Appendix D, Figures 6 through 9. Refer to Appendix C, Tables 3 and 4 for soil quantities and management options.

McDonough Marine

Five near surface soil samples were collected on the McDonough Marine property during the Phase I site investigation on April 24 and 26 in 1993. One soil sample was collected during Phase 2 of the site investigation on July 20, 1993.

Each of the four McDonough samples analyzed for RCRA metals (MS-1, MS-3, MS-5, and MS–6) had arsenic levels exceeding the SOni and SOi. Similarly, MS-5 contained lead concentrations above both LDEQ screening option thresholds. Sample dilutions were required to quantify semi-volatile parameters in MS-1, MS-3, and MS-6. A data gap for 2-nitroaniline resulted from the dilutions in each of these three samples.

Assuming that the arsenic detected is accepted by the LDEQ as background, approximately 381yd^3 of material has been estimated as impacted above LDEQ screening options for SVOC. These materials would be considered as Special Waste and should be treated prior to reuse or disposed of as a Special Waste in a construction debris landfill. The remaining 35,432yd^3 would be considered clean and could be disposed of directly in the Mississippi River or at the mitigation

site for wet land re-construction. These soils could also be stockpiled for reuse as backfill around the new lock or disposed of in the MRGO site. Areas of impact with laboratory results can be found in Appendix D, Figures 6 through 10. Refer to Appendix C, Tables 3 and 4 for soil quantities and management options.

Indian Towing

Six shallow soil samples were collected on May 4, 1993 at Indian Towing for Phase I of the site investigation. During Phase 2, in July and August 1993, three samples were collected from two boring locations. At IC-2, samples were collected from two unique intervals (0.5'-0.8' and 1.2'-1.7' below ground surface).

Samples collected at each of the eight boring locations contained arsenic at concentrations above SOni and SOi levels. Additional RCRA metals SOni exceedences at the Indian Towing site include lead (IS-5 and IC-2-1) and mercury (IC-2-1). Two borings, IS-1 and IS-4, exceeded the non-industrial SVOC regulatory standards. The benzo(a)pyrene (a semi-volatile analyte) concentration at IS-1 was greater than the required SOi level.

Sample dilutions created data gaps at IC-2-2 (arsenic) and at IS-3, 5, 6, 8, IC-2-2 (SVOs). The arsenic data gap for IC-2-2 was negated by the arsenic SOi exceedence in IC-2-1. (The most contaminated sample interval is considered to be representative for that boring location.) The laboratory standard for hexavalent chromium was exceeded in IS-3, IS-5, and IC-2-1 causing a data gap.

Assuming that the arsenic detected is accepted by the LDEQ as background, approximately 1,527yd^3 of material have been estimated as impacted above LDEQ screening options. For SVOCs these materials would be considered as Special Waste and require to be either treated prior to reuse or disposed of as a Special Waste in a construction debris landfill. The remaining 22,313yd^3 would be considered clean and could be disposed of directly in the Mississippi River or at the mitigation site for wetland re-construction. These soils could also be stockpiled for reuse as backfill around the new lock or disposed of in the MRGO site. Areas of impact with laboratory results can be found in Appendix D, Figures 6 through 10. Refer to Appendix C, Tables 3 and 4 for soil quantities and management options.

Mayer Yacht/Distributors Oil

A total of eight shallow soil samples were collected on the Mayer Yacht property during the 1993 site investigation. Six samples were collected in April and May during the Phase I sampling event and two additional samples were collected in July during the second phase of sampling.

A total of two soil samples were collected and analyzed for petroleum products in association with of the former fueling/drum storage area and AST farm. Both of these samples (DS-1 and DS-2) exceeded the SOni for TPH-Diesel. DS-2 also failed the TPH-Diesel SOi levels. Four of the five Mayer Yacht soil samples (DS-4, DS-5, DS-9, and DS-11) analyzed for RCRA metals contained arsenic at levels exceeding the SOni and SOi. The fifth RCRA metals sample, IC-5-1, reported a nondetect for arsenic with test detection limits exceeding the SOni. Four samples, DS-4, DS-9, DS-11, and IC-5-1 have data gaps for semi-volatile parameters caused by sample dilutions.

Assuming that the arsenic detected is accepted by the LDEQ as background, approximately 1,202yd^3 of material has been estimated as impacted above LDEQ screening options for TPH. These materials would be considered as Special Waste and require to be either treated prior to reuse or disposed of as a Special Waste in a construction debris landfill. The remaining 32,982yd^3 would be considered clean and could be disposed of directly in the Mississippi River or at the mitigation site for wetland re-construction. These soils could also be stockpiled for reuse as backfill around the new lock or disposed of in the MRGO site. Areas of impact with laboratory results can be found in Appendix D, Figures 6 through 9. Refer to Appendix C, Tables 3 and 4 for soil quantities and management options.

Saucer Marine

Ten shallow soil samples were collected on the Saucer Marine property between April 28 through May 19, 1993 as part of Phase I of the site investigation. Forty-three soil samples were collected from the site subsequent to Phase I. SS-15, IC-3-1, and IC-6-1 were collected between July 21 and August 8 in 1993. Sample collection dates for IC-SS-2P, 4P, 5P, 7P, 16P, and IC-SS-9A through 9G are unknown. These samples are assumed to be near surface soils.

Fourteen samples (SS-2, 3, 4, 5, 6, 7, 10, 11, 15, 2P, 4P, 7P, IC-3-1, and IC-6-1) collected for RCRA metals analysis contained arsenic levels above the SOni standards. All but SS-4 also exceeded the SOi standard for arsenic. RCRA metals analyses indicate SOni exceedences at SS-2P-1 (barium) and IC-SS-5P (lead). SS-2 exceeded both the SOni and SOi threshold limits for certain semi-volatile parameters. The SOni TPH-Diesel standard was exceeded at SS-9, 2P, 4P, 5P, 7P, and 16P. All of these samples, except SS-9, exceeded TPH-Diesel SOi threshold levels. Samples SS-9A and SS-9D had TPH-Gasoline concentrations above the SOni. SS-9A also exceeded the SOi for TPH-Gasoline as well as the SOni and SOi for xylenes (BTEX methods).

Soil collected at the SS-1 boring location was suspected to contain asbestos materials. The SS-1 soil sample was reportedly analyzed for asbestos, however this data is missing. Data gaps resulting from sample dilutions occur for semi-volatile parameters at borings SS-3, 4, 5, 6, 7, 10, 15, I-C-3-1, and IC-6-1. SS-4, 5, 6, and 7 also had lower detection limit data gaps for vinyl chloride, a volatile analyte. Similarly, Poly Aromatic Hydrocarbons (PAHs) (2P, 4P, 5P, 7P, 16P), benzene (9D) by BTEX methods, and arsenic (16P) required sample dilutions which increased the lower test detection limits beyond the SOni thresholds. The laboratory standard for hexavalent chromium was potentially exceeded in SS-10 and SS-11 causing a data gap.

Assuming that the arsenic detected is accepted by the LDEQ as background, approximately 9,600yd^3 of material has been estimated as impacted above LDEQ screening options for SVOCs and TPH. These materials would be considered as Special Waste and require to be either treated prior to reuse or disposed of as a Special Waste in a construction debris landfill. The remaining 67,545yd^3 would be considered clean and could be disposed of directly in the Mississippi River or at the mitigation site for wet land re-construction. These soils could also be stockpiled for reuse as backfill around the new lock or disposed of in the MRGO site. Areas of impact with laboratory results can be found in Appendix D, Figures 6 through 10. Refer to Appendix C, Tables 3 and 4 for soil quantities and management options.

International Tank Terminal

Four shallow soil samples were collected on the International Tank Terminal property in for Phase I of the site investigation in April 1993. Four additional soil samples were collected for Phase 2 on July 20, 1993 and August 14, 1993.

The six samples collected on the ITT site analyzed for RCRA metals tested positive for arsenic at levels exceeding the SOni and SOi. SVOC analysis indicated SOni and SOi exceedences at TS-3.

Assuming that the arsenic detected is accepted by the LDEQ as background, approximately 1,261yd^3 of material has been estimated as impacted above LDEQ screening options for SVOC. These materials would be considered as Special Waste and require to be either treated prior to reuse or disposed of as a Special Waste in a construction debris landfill. The remaining 42,305yd^3 would be considered clean and could be disposed of directly in the Mississippi River or at the mitigation site for wetland re-construction. These soils could also be stockpiled for reuse as backfill around the new lock or disposed of in the MRGO site. Areas of impact with laboratory results can be found in Appendix D, Figures 6 through 9. Refer to Appendix C, Tables 3 and 4 for soil quantities and management options.

3 PREVIOUS INVESTIGATION DATA GAPS

3.1 Summary of Data Gaps

After a thorough review of the previous investigations and the data available at the USACE, several data gaps were identified. These data gaps range from insufficient data for site characterization to sample dilution and laboratory detection limits (see Appendix C, Table 2). Resolution of these data gaps should supplement previous sampling and testing efforts as well as help resolve issues on sample dilution and detection limits that may arise from more conservative screening standards under the 1998 LDEQ Risk Evaluation / Corrective Action Program or RECAP. The following discussion will identify the data gaps for each site.

Boland Marine

Several laboratory data gaps have been identified in association with the Boland Marine soil samples. Data gaps for chromium exist at the BS-3, BS-7, BS-9, BS-9D, and BS-10 sample locations. The test method used in the previous investigations to quantify chromium content in the soil samples reported chromium only as total chromium. The State of Louisiana regulates hexavalent (Cr^{+6}) and trivalent (Cr^{+3}) chromium independently with hexavalent chromium having a significantly smaller SOni. The chromium results for the aforementioned samples exceed the LDEQ hexavalent chromium SOni. As a result, it is unknown if these soil samples exceeded the SOni hexavalent chromium standard.

Although, it should be noted that a land use study as well as a previous Phase I study along the east bank of the IHNC did not show industries (e.g. tanning, electroplating/chrome plating, or wood preservation), which would have used materials containing hexavalent chromium. In addition, the concentrations of chromium detected in the soils along the IHNC are comparable to the concentrations detected in the sediments of the Pontchartrain estuary (63 mg/kg).

Soil samples collected at BS-2, BS-3D, BS-6, BS-7, BS-8D, BS-10D, BS-11, and IC-1-1 required several dilutions in order to quantify the most concentrated SVOCs. These dilutions raised the lower test detection limits above the SOni for several of the semi-volatile analytes. As a result, data gaps relating to SVOCs exist at these sample locations. Sample dilutions also caused data gaps for arsenic at BS-3 and BS-8.

Additional sampling data should also be collected around the floor drains and under the concrete pads of the existing structures. A review of building permits and construction as-builts should be conducted for the location of buried utilities and structures. Additional soil samples should be collected along any buried sanitary lines and/or around former septic tanks identified by the above document review.

McDonough Marine

Sample dilutions were required to quantify SVOCs in MS-1, MS-3, and MS-6. A data gap for 2-nitroaniline resulted from the dilutions in each of these three samples.

Additional sampling data should also be collected around the floor drains and under the concrete pads of the existing structures. A review of building permits and construction as-builts should be conducted for the location of buried utilities and structures. Additional soil samples should be collected along any buried sanitary lines and/or around former septic tanks identified by the above document review.

Indian Towing

Sample dilutions created data gaps at IC-2-2 (arsenic) and at IS-3, 5, 6, 8, IC-2-2 (SVOCs). The arsenic data gap for IC-2-2 was negated by the arsenic SOi exceedence in IC-2-1. (The most

contaminated sample interval is considered to be representative for that boring location.) The standard for hexavalent chromium was exceeded in IS-3, IS-5, and IC-2-1 causing a data gap.

Additional sampling data should also be collected around the floor drains and under the concrete pads of the existing structures. A review of building permits and construction as-builts should be conducted for the location of buried utilities and structures. Additional soil samples should be collected along any buried sanitary lines and/or around former septic tanks identified by the above document review.

Mayer Yacht

Four samples, DS-4, DS-9, DS-11, and IC-5-1 have data gaps for semi-volatile parameters caused by sample dilutions.

Additional sampling data should also be collected around the floor drains and under the concrete pads of the existing structures. A review of building permits and construction as-builts should be conducted for the location of buried utilities and structures. Additional soil samples should be collected along any buried sanitary lines and/or around former septic tanks identified by the above document review.

Saucer Marine

Data gaps resulting from sample dilutions occur for SVOCs at borings SS-3, 4, 5, 6, 7, 10, 15, I-C-3-1, and IC-6-1. SS-4, 5, 6, and 7 also had lower detection limit data gaps for vinyl chloride, a volatile analyte. PAHs (2P, 4P, 5P, 7P, 16P), benzene (9D) by BTEX methods, and arsenic (16P) required sample dilutions which increased the lower test detection limits beyond the SOni thresholds. The standard for hexavalent chromium was potentially exceeded in SS-10 and SS-11 causing a data gap.

Additional sampling data should also be collected around the floor drains and under the concrete pads of the existing structures. A review of building permits and construction as-builts should be conducted for the location of buried utilities and structures. Additional soil samples should be collected along any buried sanitary lines and/or around former septic tanks identified by the above document review.

International Tank Terminal

Of the six ITT samples analyzed for SVOC, five had data gaps associated with sample dilutions. RCRA metals analysis reported the SOni standard for hexavalent chromium was potentially exceeded at boring IC-4.

Additional sampling data should also be collected around the floor drains and under the concrete pads of the existing structures. A review of building permits and construction as-builts should be conducted for the location of buried utilities and structures. Additional soil samples should be collected along any buried sanitary lines and/or around former septic tanks identified by the above document review.

4 REGULATORY REVIEW

Soils with analytical results meeting the LDEQ Risk Evaluation/Corrective Action Program (RECAP) document SOni for all probable contaminants are considered to be "clean" by the LDEQ and may be re-used with state approval. Supplementary soil sampling and analysis is required at locations where previously analyzed soil samples were not tested for all probable contaminants. These sample locations would be considered as a data gap and would require additional

sampling. LDEQ regulated soil contaminant concentrations can be found in Appendix C, Tables 1 and 2 of the RECAP document.

Soils with analytical results less than the SOi for all probable contaminants are considered to be suitable for re-use at industrial sites. Permission from the LDEQ is required prior to the re-use of these soils. Additional sampling and analysis would be required at all data gap locations.

4.1 Hazardous and Industrial Solid Waste

Industrial Solid Waste is defined as solid waste generated by a manufacturing, industrial, or mining process, or which is contaminated by solid waste generated by such a process. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products; by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone; glass, clay and concrete products; textile manufacturing; and transportation equipment. This does not include hazardous waste regulated under the Louisiana Hazardous Waste Regulations or under federal law, or waste which is subject to regulation under the Office of Conservation's Statewide Order No. 29-B, or by other agencies (LAC 33:VII.115).

Persons who generate industrial solid waste or persons who transport, process, or dispose of solid waste must, within 30 days after becoming subject to the solid waste regulations, notify the administrative authority (Louisiana Department of Environmental Quality) in writing of this activity (LAC 33:VII.503.A1). Generators must also submit annual reports to the administrative authority listing the types and quantities, in wet-weight tons per year, of industrial solid waste they have disposed of off site. This report must include the name of the transporter(s) who removed the industrial solid waste from the site and the permitted solid waste processing or disposal facility or facilities that processed or disposed of the waste. This form may be obtained from the Solid Waste Division and must be submitted by August 1 of each reporting year. Generators must maintain, for two years, all records concerning the types and quantities of industrial solid waste disposed of off site (LAC 33:VII.701).

No solid waste shall be stored or allowed to accumulate long enough to cause a nuisance, health hazard, or detriment to the environment as determined by the administrative authority (LAC 33:VII.703.A1).

A solid waste that exhibits the characteristic of toxicity, but is not listed as a hazardous waste in LAC 33:V.4901, has the Hazardous Waste Number that corresponds to the toxic contaminant causing it to be hazardous. The Hazardous Waste Number can be found in Appendix C, Table 5 of the LAC 33:V.4901 document. The maximum concentration of lead in soil that has undergone TCLP is 5.0 milligrams per liter (mg/L). Any amount of contaminate below that threshold does not have to be treated as hazardous waste (LAC 33:V.4903). It should be noted that the sand in the mounds at Saucer Marine are below the 5.0 mg/L threshold level for lead and therefore should not be considered as hazardous waste.

If a categorically hazardous waste is discharged without authorization and threatens or results in an emergency condition (that causes danger to public health and safety, causes significant adverse impact to the land, water or air, or severe property damage), the discharger must notify the Department of Public Safety 24-hour Louisiana Hazardous Materials Hotline at 504-925-6595 within one hour of the discharge and in accordance with other provisions of the LAC 33:I.Chapter 39. For all other non-emergency conditions, notification to Louisiana Hazardous Materials Hotline must be given within 24 hours of the discharge (LAC 33:V.105.J).

Samples which are collected for the sole purpose of testing to determine its characteristics or composition, are not subject to any requirements of LAC 33:V.Subpart I or to the notification requirements of LAC 33:V.Subpart I, Subsection A. When the sample is being transported to a

laboratory for the purpose of testing or the sample is being stored by the sample collector before transport to a laboratory for testing (LAC 33:V.105.D.4a). In order to be eligible for the above referenced exemption, a sample collector shipping samples to a laboratory must comply with the Louisiana Department of Public Safety (LDPS), U.S. Postal Service (USPS) or any other applicable shipping requirements (LAC 33:V.105.D.4b).

A generator who transports, or offers for transportation, hazardous waste for off-site treatment, storage, or disposal must prepare a manifest before transporting the waste off-site pursuant to the requirements of LAC 33:V.1107 – 1111. All generators must comply with the requirements of LAC 33:V.1511. Each generator shall prepare a contingency plan. The contingency plan must include the information as specified in LAC 33:V.1513.A, B, C, D.2, and F. The contingency plan shall include a section describing emergency response procedure as specified in LAC 33:V.1513.F.

5 DISPOSAL/TREATMENT OPTIONS

The RECAP document prepared by the LDEQ was used to develop contaminated soil management procedures for the IHNC sites along the east bank of the IHNC. The RECAP document outlines four site classification options; a Screening Option (SO) and three Management Options (MO-1, MO-2, and MO-3). The SO and MO-1 options have LDEQ derived RECAP standards for soil and groundwater contaminant levels which are subdivided into non-industrial (residential) and industrial requirements. MO-2 and MO-3 site management options rely on fate and transport models to develop site specific cleanup standards. This tiered management system allows site evaluation and corrective action efforts to be tailored to site conditions and risk.

The four site management options in the RECAP document are primarily tailored to rehabilitate soil and groundwater to option specific cleanup standards. Future site utilization, for most sites following RECAP document cleanup methods, does not require off site soil re-use. At the IHNC project area, all soils are being excavated and relocated. Due to the nontraditional soil management methods being proposed for this site, the RECAP document section on soil re-use is most applicable.

5.1 Soil Re-Use

Re-using soils on site or off site requires written authorization from the LDEQ. The Department approves soil re-use on a case by case basis. Confirmatory soil samples are required prior to requesting LDEQ re-use approval. In addition, a description of the soil source site conditions, proposed soil receptors, and soil management procedures prior to re-use should be provided to the Department.

Two locations have been identified for depositing the clean soils excavated from the IHNC project area. A portion of the excavated clean soil may be discharged directly into the Mississippi River, south of the project area. Clean soil may also be placed at the mitigation site, located to the northeast on the project area. The mitigation site will be a constructed wetland area; developed to compensate for wetlands damaged at the graving site. Soils deposited at the mitigation site or in the Mississippi River must meet the RECAP document SOni standards. Both of these sites are ecologically sensitive non-industrial areas and therefore, the most conservative soil standards must be met.

Soils meeting the SOi RECAP document standards may be used as backfill around the new lock proposed at the IHNC project area or disposed of at the MRGO site. Soils disposed of at the MRGO site will be placed along the south bank of the MRGO/IWW and confined. Soils previously exceeding the SOi standards which, following treatment (chemical, thermal, extraction, or washing) meet the SOi standards may be used as lock backfill or placed to the MRGO site.

Soil containing petroleum hydrocarbons may be incorporated into bituminous pavement with permission from the LDEQ. After locating a bituminous pavement plant willing to accept the contaminated soils, site specific information and soil laboratory data must be submitted to the Department for review. The LDEQ decides on a case by case basis if petroleum impacted soils may be re-used as asphalt concrete components.

5.2 Soil Treatment Options

Soils that do not meet RECAP SOni or SOi standards may be treated thermally, biologically, or chemically, by various treatment options (i.e., soil washing, or land-spreading). The shallow soils at the IHNC project area are primarily contaminated with arsenic, SVOCs, and petroleum hydrocarbons.

Thermal Treatment

Soil remediation by thermal treatment is designed to remediate soil impacted with petroleum hydrocarbons and solvents. Remediation is done by rapidly volatilizing the volatile compounds from the soil, then thermally destructing them in an air pollution control system. The major mechanical components of the unit consist of; a control house, soil feed system including a weigh scale, a rotary drum desorber, a treated soil handling system, a bag house and a thermal oxidizer air pollution control system. Auxiliary systems include fuel, and water delivery systems and a process control, monitoring and interlock system.

Some of the soils at the IHNC project area may require only chemical treatment, only thermal treatment, or thermal treatment followed by chemical treatment depending on the soil contaminants. Following soil treatment, laboratory soil samples are collected and analyzed. Soils meeting the LDEQ RECAP SOni or SOi standards may then be deposited at an appropriate receptor. Soils transported to non-industrial and industrial receptor sites shall meet the SOni and SOi standards respectively.

Biological Treatment (Land-spreading)

The potential for biological treatment of soils at the IHNC site applies to soils impacted with semi-volatile compounds, volatile organic compounds, and petroleum hydrocarbons. The most applicable biological treatment method for this site is land-spreading, also known as land-farming. Traditional in situ treatment methods (soil vapor extraction a.k.a. SVE and/or bioventing) are not feasible at this site for several reasons. First, both of these methods require system installation that would become an issue with future site development plans. These systems would interfere with related site activities such as the excavation of the bypass channel and the demolition of existing structures. Secondly, several systems, all requiring routine monitoring and maintenance, would need to be constructed throughout the site to accommodate individual source areas. Lastly, the site contaminants are in near-surface (0-5') clayey soils. Bioventing and SVE systems would not operate effectively due to the small radius of influence associated with clay soils and the likelihood of short circuiting the system due to its operation in shallow soils.

Land-spreading is an ex situ treatment method and is most effective at temperatures above forty (40) degrees Fahrenheit. Soils impacted with semi-volatile, volatile, and petroleum hydrocarbons would be excavated and placed on an impermeable and petroleum retardant tarpaulin. A berm constructed of straw or equivalent and covered by the above mentioned tarpaulin should serve to contain the contaminated soils and associated runoff. Soils placed in these bio cells should not exceed a thickness of twelve (12) inches and should be turned weekly. Mixing the soils promotes exposure to the atmosphere that facilitates volatilization and biodegradation. Runoff collected in the bio-cells should be sampled and analyzed prior to being drained as needed. Soils can be sampled monthly to track treatment progress. Land-spread soil treatment methods require approximately three to six months per biocell pending on weather conditions and organic activities in the cell.

Chemical Treatment

Chemical treatment by the Maectite® process adapts a mineralogical process found in nature. Toxic metals, such as lead and arsenic, are permanently substituted into stable, non-leaching mineral crystalline forms which do not break down. The treatment process applies reagents to the impacted soil that initiates the formation of a heavy metal-bearing mixed crystal species of the apatite family. This treatment process may be done directly to impacted soil (in situ), in containment cells (ex situ), or upstream in a waste generating process (in-line). The process can reduce overall volume of impacted material by the reduction of carbonates in the soil to CO_2, the release of water via evaporation, or by the formation of inherently compact, dense crystalline structures.

Off Site Landfill Disposal (Dig and Haul)

Soils which, when excavated from the IHNC site, do not comply with SOni or SOi, are not being considered for treatment or re-use in pavement, and pass TCLP may be disposed of in a landfill licensed to accept industrial solid waste. **It should be noted that soils removed from the site that have failed TCLP must be disposed of in a hazardous waste landfill.** Hazardous waste disposal is not anticipated to be required for the IHNC site. Louisiana Department of Environmental Quality Regulations Title 33, Part V (Hazardous Waste) and Part VII (Solid Waste) should be followed for all materials being placed in a landfill.

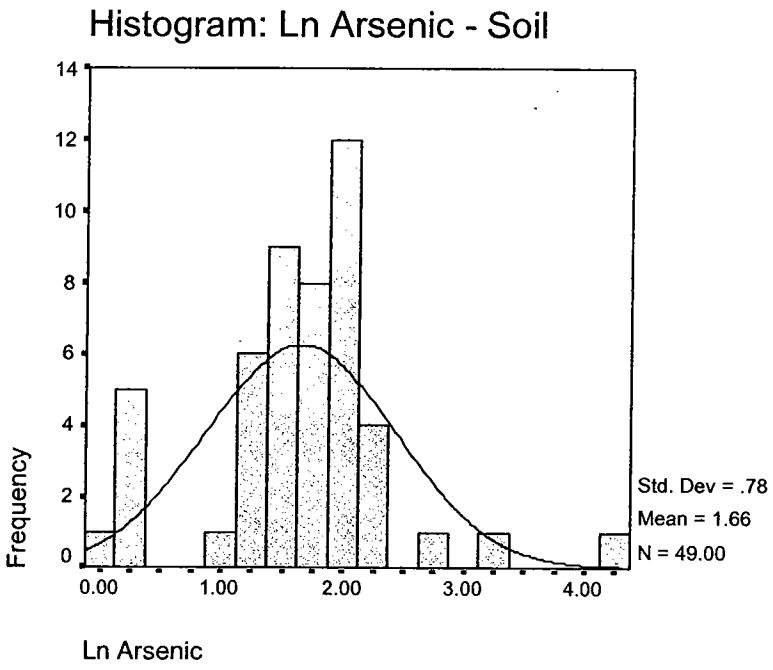
5.3 Background Arsenic Levels

Soil Samples

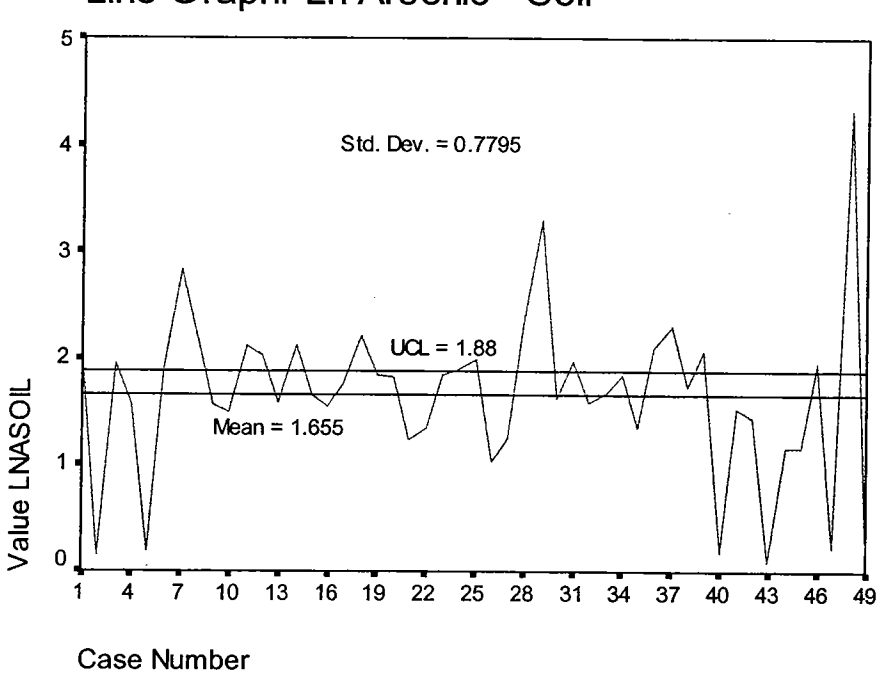
Forty-nine values for arsenic (listed below) are included in this censored data set (i.e. non-detect samples have been given assigned values and are included in the statistical analysis). These forty-nine values were not considered to be normally distributed, and therefore were transformed by taking the natural log (Ln Arsenic) to obtain a log normal distribution. (A Normal Q-Q Plot" is included to support the log normal distribution assumption.) It should also be noted that the data considered in this statistical evaluation included QA/QC and non-detect data points. For the non-detect samples, the laboratory reporting limit was assigned and used in the statistical analysis. This is a more conservative approach than EPA protocol that utilizes half the laboratory detection limit in statistical evaluations.

Case No.	Result (mg/kg)	Ln As	Case No.	Result (mg/kg)	Ln As	Case No.	Result (mg/kg)	Ln As	Case No.	Result (mg/kg)	Ln As
	7.60	2.03	**14**	8.30	2.12	**26**	2.80	1.03	**38**	5.60	1.72
2	1.15	0.14	**15**	5.20	1.65	**27**	3.50	1.25	**39**	7.80	2.05
3	7.00	1.95	**16**	4.70	1.55	**28**	10.20	2.32	**40**	1.20	0.18
4	4.80	1.57	**17**	5.80	1.76	**29**	26.70	3.28	**41**	4.60	1.53
5	1.20	0.18	**18**	9.00	2.20	**30**	5.00	1.61	**42**	4.20	1.44
6	6.70	1.90	**19**	6.30	1.84	**31**	7.20	1.97	**43**	1.10	0.10
7	16.90	2.83	**20**	6.20	1.82	**32**	4.90	1.59	**44**	3.20	1.16
8	9.00	2.20	**21**	3.40	1.22	**33**	5.30	1.67	**45**	3.20	1.16
9	4.80	1.57	**22**	3.80	1.34	**34**	6.30	1.84	**46**	7.00	1.95
10	4.40	1.48	**23**	6.30	1.84	**35**	3.80	1.34	**47**	1.25	0.22
11	8.30	2.12	**24**	6.60	1.89	**36**	8.20	2.10	**48**	75.70	4.33
12	7.60	2.03	**25**	7.30	1.99	**37**	9.90	2.29	**49**	1.20	0.18
13	4.90	1.59									

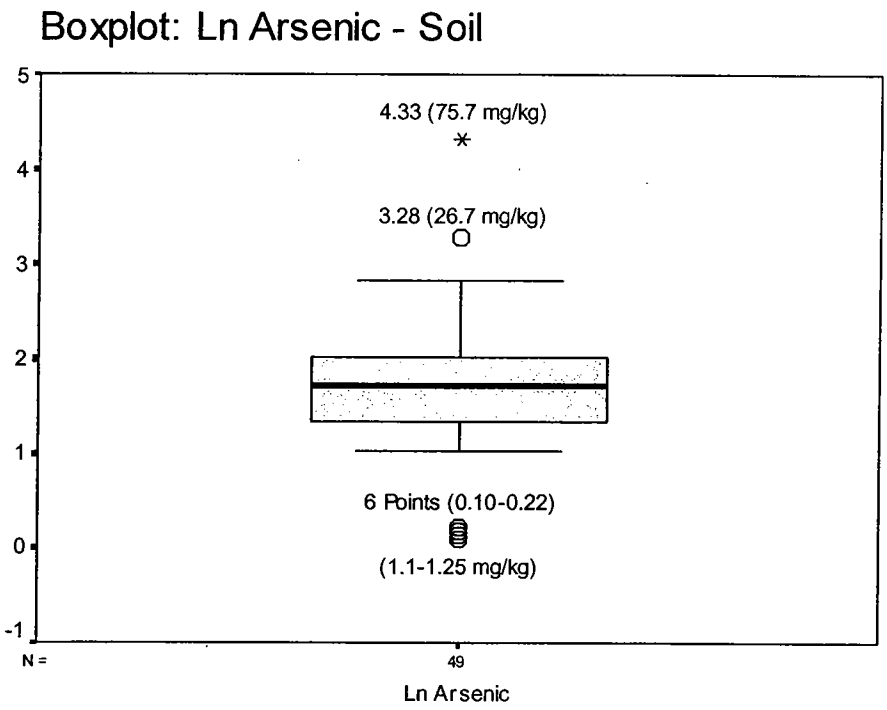
A histogram with Ln Arsenic is included below with normal distribution line super-imposed. For these 49 samples, the mean is 1.66 (5.26 mg/kg) and the standard deviation is 0.78 (2.18 mg/kg).



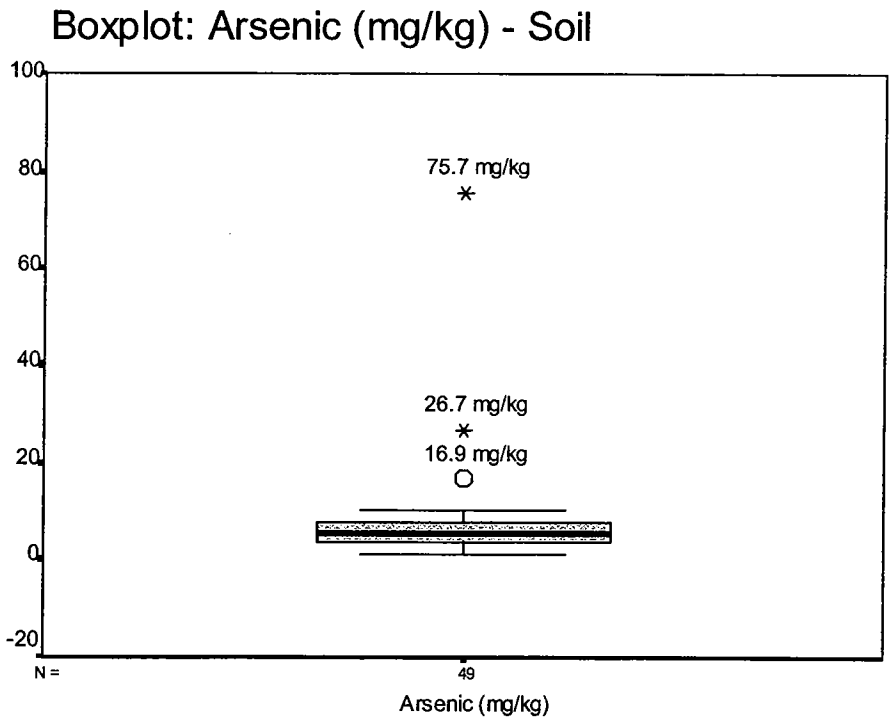
Ln Arsenic values are plotted on the right by case number (numbered samples). Also plotted are the mean and UCL.



The boxplots below identify outliers and extremes in Arsenic and Ln Arsenic values. In the soil samples there are more outliers and extremes for Ln Arsenic than Arsenic. This is due to the distribution of values. The crosshatched box portion is the middle 50 percent (25^{th} to 75^{th} percentile). The top and bottom horizontal lines indicate the smallest and largest values that are not outliers or extremes. Outliers are values more than 1.5 box lengths from the 75^{th} percentile. Extremes are values more than 3 box lengths from the 75^{th} percentile



Although many of the arsenic concentrations detected in the soils of the IHNC exceed the LDEQ RECAP standards for re-use at non-industrial and industrial settings, the majority appear to be in



the range of natural background levels for arsenic. The U.S. Geological Survey (USGS) has reported background arsenic levels in soils to range from <0.1 to 97 ppmw (Shacklette, et. al., 1984). A recent study in 1995 by Kenneth E. Landrum also found an average arsenic concentration of 17 mg/kg in 125 samples collected from the sediments of the St. Bernard Geomorphic Region estuarine complex including the IHNC, MRGO, Lake Pontchartrain,

Intracoastal Waterway, and Breton Sound. Arsenic in these sediments probably includes both the naturally occurring and anthropogenic contributions such as from regional impacts accounted to agricultural runoff. Only two IHNC east bank soil samples are above Landrum's average arsenic level of 17 mg/kg in sediments. Appendix D, Figure 6 illustrates detectable arsenic concentrations in the shallow soils of the IHNC.

Dames & Moore recommends that the USACE present the data to the LDEQ and request a variance to the screening options which would allow the arsenic to be considered as background and considered clean for re-use. **It should be noted that the arsenic issue would also probably have to be addressed for any soil used as backfill around the new lock.** This is especially true if the background concentrations of arsenic in the backfill material are above LDEQ screening options.

6 WASTE MANAGEMENT

This section describes the procedures that the Contractor shall employ to remove and segregate the materials identified in this and previous documents concerning the site conditions along the east bank of the IHNC. The primary focus of the following text will be directed toward the excavation, segregation and removal of the shallow soils under the foot print of the proposed bypass channel. Impacted soils will also be excavated and segregated based on the LDEQ approved treatment and/or disposal option presented by the USACE.

All safety and health protocols shall be detailed in a Site Safety and Health Plan (SSHP) submittal for approval prior to site work (Appendix A). The SSHP shall include an Accident Prevention Plan with Activity Hazard Analysis (AHAs) detailing material handling procedures. The contractor will also provide the USACE a detailed Sampling and Analyses Plan (SAP) for confirmation sampling. The SAP will follow the requirements as outlined in the USACE EM200-1-3 Document, dated September 1, 1994, including updates.

The Contractor shall maintain a project log at the Contractor Field Office. This log shall be updated at the conclusion of each workday to indicate:

- The quantity of material that has been excavated, segregated and removed from the site,
- The quantity of material that has been staged for on site or off-site treatment,
- The quantity of material that has been staged for off-site disposal, and
- The number and location of confirmation samples collected.

Soils along the east bank industrial corridor of the IHNC have been impacted by current and past industrial activities. The impacted soils are contaminated with SVOCs, volatile organic compounds, petroleum hydrocarbons, and various metals that have been detected above LDEQ Action Levels. Appendix C, Table 3 presents an inventory of the soil to be excavated during the course of constructing the bypass channel. Appendix C, Table 3 also presents the estimated quantities of impacted material at each site along the east bank of the canal.

Appendix C, Table 4 presents the excavation methods, disposal and/or treatment options, and equipment requirements for the management of impacted soils along the east bank industrial canal.

6.1 Impacted Soil Removal

Prior to removing any impacted material, surficial vegetation and debris (metal and timbers) must be cleared from the area of concern and stockpiled for proper disposal by the Contractor. Each area of concern will be inspected and raked by a tractor equipped with a plow rake to dislodge

any large metal debris and timbers. Debris accumulated in the rake will be removed, segregated and stockpiled for recycling or disposal.

After the removal of surficial debris, the impacted material will be excavated to approximately five feet bgs or to the top of groundwater whichever comes first. This excavated material will be placed in tandem dump trucks using front-end loaders and transported to a designated staging area and stockpiled pending treatment/disposal.

6.2 Clean Soil Removal

After the impacted soils have been removed from the east bank of the IHNC and confirmation sample results verify the successful removal of these materials, the excavations will be backfilled to grade. A detailed report with correspondence from the LDEQ, tables, figures and laboratory results should be presented to the LDEQ for review and approval. After approval from the LDEQ, the clean soils remaining on site and the east bank of the IHNC should be cleared of environmental impact and ready to be handed over to the construction contractor for dredging operations of the bypass channel. **Note: Dames & Moore assumes that all of the above ground structures and buried utilities have been removed from east bank of the IHNC prior to the start of dredging activities.**

6.3 Removal Sequence – Impacted Material

The removal of impacted material from the east bank of the IHNC will be as follows:

- Utility companies cut off service to the site and insure that all hazardous material is removed from the utility lines and/or poles.
- Remove all trees and shrubs.
- Rake each area of concern in order to expose any buried metal debris and timbers.
- Remove all metal debris and timbers from the surface of each area of concern.
- Segregate all raked materials for disposal or recycling.
- Excavate each area of concern and load material in either single or tandem axle dump trucks for transfer to the staging area. Note: Excavated material may also be loaded in a barge and transported to a staging area for transfer to dump trucks.
- At the staging area, the excavated material will be segregated according to disposal or treatment options.
- Load metal debris in roll-off boxes for recycling.
- Load general trash in roll-off boxes for disposal as general solid waste.

6.4 Waste Disposal

6.4.1 Quantity by Type

See Appendix C, Table 3 for detailed estimates on the quantity and type of material to be generated during the course of this project.

6.4.2 Disposal Sites.

Material not treated and reused during the course of this project will be disposed of at a licensed disposal facility. The following is a list of sites currently in operation around the New Orleans area:

Debris Type	Disposal Facility
Construction/Demolition Debris	Johnny Smith 310 Howze Beach Road Slidell, LA (504) 641-7330 E & J Landfill 9710 Almonaster New Orleans, LA (504) 242-7481
Industrial Solid Waste	Colonial Landfill Sorento, LA (504) 837-8989
General Trash	Colonial Landfill Sorento, LA (504) 837-8989

6.5 Transportation

Excavated material will be removed from the east bank of the IHNC by either barge or truck. Material removed by barge will eventually be off-loaded onto trucks, as there is no water access to the disposal facilities listed above. If the USACE can locate an area for treating the material that has water access, the excavated material will be directly off-loaded from the barge and staged for treatment. Metal debris and general trash will be transported from the subject area by truck.

It should be noted that land transportation would be strictly regulated to routes that cross the Florida Avenue Bridge to the west bank due to the residential neighborhood on the east side of the IHNC flood wall. Material transported by barges for off-site disposal or treatment will be staged in an area around the IHNC and U.S. Highway 90 (Chef Menteur Highway). There, the material will be off-loaded from the barges on to single or tandem axle dump trucks.

6.6 Residential Considerations in Excavation and Transportation

Excavation and removal of the impacted material has the potential to be disturbing to the residential neighborhood adjacent to the east side of the IHNC. The two potential problems are noise and air borne dust. Loading of material into empty steel barges or dump trucks could be a prime source of noise. Therefore, the specifications should require that all barges and trucks receive a layer of granular debris or dirt to cushion the impact of the material and dampen the noise during loading. No ingress or egress from the site will be allowed from the east side of the subject property except from Florida Avenue to Surekote Road. Air borne dirt and dust will be controlled by ordinary dust abatement in accordance with current laws and regulations for the site of work.

6.7 Construction Contracts and Contract Duration

- The excavation and removal of the mixed-waste mounds will be accomplished by one construction contract.
- The estimated construction duration (does not include treatment) for this project is 60 calendar days.

7 COST ESTIMATION

The scope of work outlined to address the areas of impacted soil along the east bank of the IHNC was determined based on a review of background environmental information furnished by the USACE. No intrusive field investigations for additional data were completed during the course of this project to address the data gaps presented in this report.

In preparation of the estimated cost for this project, Dames & Moore have made the following assumptions:

- The area of concern on each property has been outlined based on boring locations and laboratory data available to date. Areas that had laboratory results above LDEQ screening option levels were considered to be impacted and would require to be excavated.
- Areas of impact would be excavated to five feet below ground surface.
- Arsenic levels detected in the laboratory data would be presented to the LDEQ as background and therefore managed as clean soil.
- Impacted material would be treated and reused on site, or disposed of off-site at a licensed landfill operating in the vicinity of the IHNC.
- At this time, no hazardous material has been documented in the shallow soils along the east bank of the IHNC. The lead issue at Boland Marine was considered a data gap and would require re-sampling for TCLP lead analyses.
- The data gaps identified in this document and the areas associated with these gaps have not been included in the quantities presented herein.

Appendix C, Table 5 presents a breakdown on the estimated cost for the treatment or disposal of the impacted material identified along the IHNC.

The estimated cost to address the impacted material in the shallow soils along the IHNC ranges from $800,000.00 to $1.1 million pending on any treatment options utilized by the USACE. The estimated cost to address the lead issue would be $302,325.00. **Note: These estimated cost could increase substantially if the LDEQ considers the arsenic to be associated with past operations and not a background concentration.**

8 CONCLUSION

8.1 Recapitulation

- The IHNC opened in 1923 and is located in the metropolitan area of New Orleans. The canal was constructed in order to allow for the movement of barge traffic from the Mississippi River to Lake Pontchartrian and the inter-coastal waterways of the Gulf Cost.

- Industrialization of the east bank area began in the 1960s and today approximately 50% of the industrialized facilities are currently unoccupied or abandoned.

- Numerous shallow soil borings and six deep soil borings were completed and sampled in 1993. As a result of these previous investigations, and based on Federal and State screening levels existing at that time, several areas of environmental impact were identified along the east bank of the IHNC.

- Numerous data gaps have also been identified in the data provided to Dames & Moore from the USACE.

- Soils with analytical results meeting the LDEQ RECAP document were considered to be "clean" and may be re-used with state approval.

- The 1998 LDEQ RECAP document was used to re-evaluate analytical results collected in 1993 and to develop contaminated soil management procedures for the IHNC.

- Re-using soils on site or off site requires written authorization from the LDEQ.

- Two locations have been identified for depositing the clean soils excavated from the IHNC project area. A portion of the excavated clean soil may be discharged directly into the Mississippi River, south of the project area. Clean soil may also be placed at the mitigation site, located to the northeast on the project area. The mitigation site will be a constructed wetland area; developed to compensate for wetlands damaged at the graving site. Soils with concentrations below the RECAP SOni standards should also pass standards for aqueous disposal at the Mississippi River and the mitigation site. Both of these sites are ecologically sensitive non-industrial areas and therefore, the most conservative soil standards must be met.

- Soils meeting the SOi RECAP document standards may be used as backfill around the new lock proposed at the IHNC project area or disposed of at the MRGO site. Soils disposed at the MRGO site will be placed along the south bank of the MRGO/IWW and confined. Soils previously exceeding the SOi standards may be used as lock backfill or placed to the MRGO site after treatment and approval from the LDEQ. **Note:** These soils would have to be sampled and tested after treatment prior to usage at the IHNC or MRGO site.

- Soil containing petroleum hydrocarbons may be incorporated into bituminous pavement with permission from the LDEQ. After locating a bituminous pavement plant willing to accept the contaminated soils, site specific information and soil laboratory data must be submitted to the LDEQ for review. The LDEQ decides on a case by case basis if petroleum impacted soils may be re-used as asphalt concrete components.

- The shallow soils at the IHNC project area are primarily contaminated with metals (predominantly arsenic), SVOCs, and petroleum hydrocarbons. Soils that do not meet RECAP SOni or SOi standards may be treated thermally, biologically, or chemically, by various treatment options (i.e., soil washing, or land-spreading). Each of the aforementioned methods requires confirmatory analytical soil testing.

- The arsenic concentrations detected in the soils of the IHNC appear to be from natural sources as well as local/regional anthropogenic sources unrelated to specific past industrial activities along the east bank of the IHNC.

- Soils along the east bank industrial corridor of the IHNC have been impacted by current and past industrial activities. The impacted soils are contaminated with SVOCs, volatile organic compounds, petroleum hydrocarbons, and various metals that have been detected above LDEQ RECAP numerical screening standards.

- After the removal of surficial debris, the impacted material will be excavated to approximately five feet bgs or to the top of groundwater whichever comes first. This excavated material will be placed in tandem dump trucks using front-end loaders and transported to a designated staging area and stockpiled pending on treatment/disposal option.

- After the impacted soils have been removed from the east bank of the IHNC and confirmation sample results verify the successful removal of these materials, the excavations will be backfilled to grade. A detailed report with correspondence from the LDEQ, tables, figures and laboratory results should be presented to the LDEQ for review and approval. After approval from the LDEQ, the clean soils remaining on site and the east bank of the IHNC should be cleared of environmental impact and ready to be handed over to the construction contractor for dredging operations of the bypass channel. **Note: Dames & Moore assumes**

- **that all of the above ground structures and buried utilities have been removed from east bank of the IHNC prior to the start of dredging activities.**

8.2 Conclusions

- The removal of impacted soils can be economically performed with land based equipment using mainly water access and/or limited land access from the west and north.

9 REFERENCES

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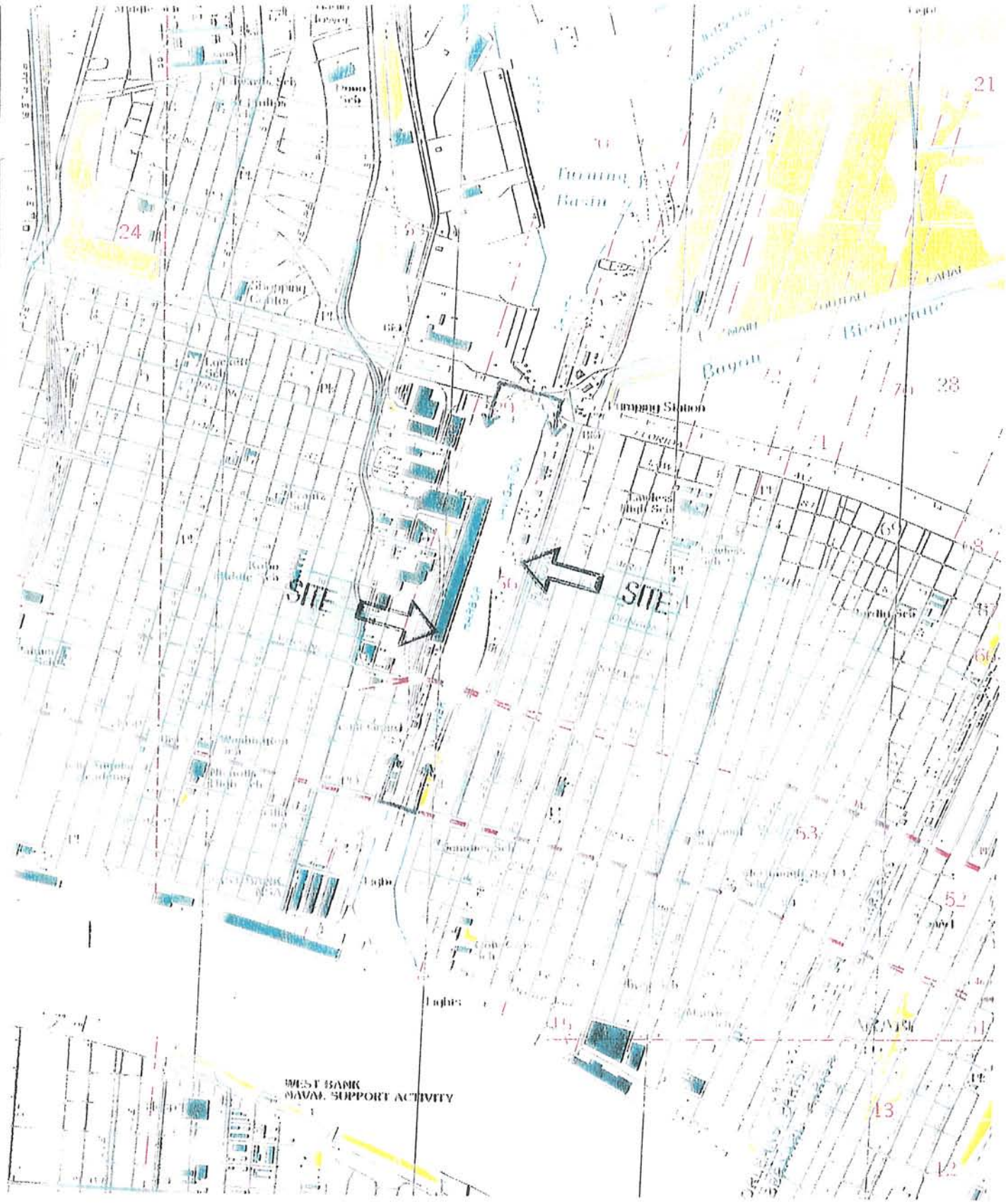
Shacklette, et. al., 1984, United States Geological Survey Report, Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States.

TABLE 1

Summary of Analytical Data



Adapted from U.S. Geological Survey
NEW ORLEANS EAST
QUADRANGLE
7.5 Minute Series (Topographic)
1992

LOUISIANA

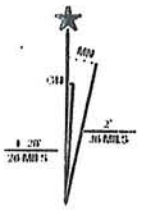


Figure 1
SITE LOCATION MAP

Inner Harbor Navigation Canal
New Orleans, Louisiana

Scale: 1:24 000
Contour Interval: 10'

DAMES & MOORE

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	NA	24	NA	NA	NA	ND (<10)	ND (<10)	NA	56	NA	ND (<10)	19	4,400,000
Vinyl Acetate	ug/kg	NA	ND (<10)	NA	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	NA	ND (<10)	ND (<10)	-
2-Hexanone	ug/kg	NA	ND (<10)	NA	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	NA	ND (<10)	ND (<10)	-
4-Methyl-2-Pentanone	ug/kg	NA	ND (<10)	NA	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	NA	ND (<10)	ND (<10)	-
Styrene	ug/kg	NA	ND (<5)	NA	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	NA	ND (<5)	ND (<5)	1,700,000
Xylene (Total)	ug/kg	NA	ND (<5)	NA	NA	NA	14	23	NA	6	NA	6	20	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

							Sample Number							
Semi-Volatiles	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
Benzidine	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	-
bis (2-Chloroethyl) ether	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	930
1,3-Dichlorobenzene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	570,000
1,4-Dichlorobenzene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	16,000
1,2-Dichlorobenzene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	120,000
bis (2-Chloroisopropyl) ether	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	14,000
N-Nitroso-di-n-propylamine	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	**ND (<830)**	NA	**ND (<830)**	NA	ND (<170)	**ND (<830)**	330
Hexachloroethane	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	110,000
Nitrobenzene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	21,000
Isophorone	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
1,2,4-Trichlorobenzene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	780,000
Naphthalene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	5,200
Hexachlorobutadiene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	17,000
Hexachlorocyclopentadiene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	3,400
2-Chloronaphthalene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	610,000
Dimethylphthalate	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	1,500,000
2,6-Dinitrotoluene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	52,000
Acenaphthylene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
Acenaphthene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	2,200	NA	ND (<170)	ND (<830)	3,900,000
2,4-Dinitrotoluene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	110,000
Diethylphthalate	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	670,000
4-Chlorophenyl-phenylether	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
Fluorene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	980	NA	ND (<170)	ND (<830)	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	470,000
4-Bromophenyl-phenylether	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
Hexachlorobenzene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	1,300
Phenanthrene	ug/kg	NA	ND (<170)	NA	NA	NA	270	ND (<830)	NA	6,700	NA	ND (<170)	ND (<830)	-
Anthracene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	1,100	NA	ND (<170)	ND (<830)	25,000,000
Pyrene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	8,400	NA	ND (<170)	ND (<830)	2,700,000
Di-n-butylphthalate	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
Fluoranthene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	9,900	NA	ND (<170)	ND (<830)	3,600,000
Butylbenzylphthalate	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	220,000
3,3'-Dichlorobenzidine	ug/kg	NA	ND (<330)	NA	NA	NA	ND (<330)	ND (<1,700)	NA	ND (<1,700)	NA	ND (<330)	ND (<1,700)	4,900
Benzo (a) anthracene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	4,900	NA	ND (<170)	ND (<830)	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	NA	ND (<170)	NA	NA	NA	220	1,000	NA	ND (<830)	NA	ND (<170)	ND (<830)	210,000
Chrysene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	5,900	NA	ND (<170)	ND (<830)	400,000
Di-n-octyl phthalate	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

		Sample Number												
Semi-Volatiles	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_i
Benzo (b) fluoranthene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	6,100	NA	ND (<170)	ND (<830)	3,600
N-Nitrosodimethylamine	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
1,2-Diphenylhydrazine (2)	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
Benzo (k) fluoranthene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	4,200	NA	ND (<170)	ND (<830)	35,000
Benzo (a) pyrene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	**ND (<830)**	NA	5,400	NA	ND (<170)	**ND (<830)**	360
Indeno (1,2,3,-cd) pyrene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	3,300	NA	ND (<170)	ND (<830)	3,600
Dibenz (a,h) anthracene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	**ND (<830)**	NA	940	NA	ND (<170)	**ND (<830)**	360
Benzo (g,h,i) perylene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	3,600	NA	ND (<170)	ND (<830)	-
Benzyl alcohol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
4-Chloroaniline	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	190,000
Dibenzofuran	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	150,000
2-Methylnaphthalene	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
2-Nitroaniline	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	**ND (<4,200)**	NA	**ND (<4,200)**	NA	ND (<830)	**ND (<4,200)**	920
3-Nitroaniline	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	120,000
4-Nitroaniline	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

		Sample Number												
	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_i
Phenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	24,000,000
2-Chlorophenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	130,000
2-Nitrophenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
2,4-Dimethylphenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	1,200,000
2,4-Dichlorophenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	230,000
4-Chloro-3-methylphenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
2,4,6-Trichlorophenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	200,000
2,4-Dinitrophenol	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	76,000
4-Nitrophenol	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	370,000
4,6-Dinitro-2-methylphenol	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	-
Pentachlorophenol	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	12,000
2-Methylphenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
4-Methylphenol	ug/kg	NA	ND (<170)	NA	NA	NA	ND (<170)	ND (<830)	NA	ND (<830)	NA	ND (<170)	ND (<830)	-
Benzoic acid	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	-
2,4,5-Trichlorophenol	ug/kg	NA	ND (<830)	NA	NA	NA	ND (<830)	ND (<4,200)	NA	ND (<4,200)	NA	ND (<830)	ND (<4,200)	7,600,000

Pesticides/PCB

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_i
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	ND (<1.0)	NA	NA	NA	NA	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	ND (<1.99)	NA	NA	NA	NA	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	ND (<2.99)	NA	NA	NA	NA	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	NA	NA	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	NA	NA	NA	ND (<1.0)	NA	NA	NA	NA	NA	NA	NA	37
Aldrin	ug/kg	NA	NA	NA	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	NA	NA	NA	ND (<1.0)	NA	NA	NA	NA	NA	NA	NA	320
Endosulfan I	ug/kg	NA	NA	NA	NA	ND (<4.64)	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	NA	NA	ND (<0.66)	NA	NA	NA	NA	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	NA	NA	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
Endrin	ug/kg	NA	NA	NA	NA	ND (<1.99)	NA	NA	NA	NA	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	NA	NA	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	NA	NA	ND (<3.65)	NA	NA	NA	NA	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	NA	NA	NA	ND (<21.9)	NA	NA	NA	NA	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	NA	NA	NA	ND (<3.98)	NA	NA	NA	NA	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	NA	NA	ND (<58.4)	NA	NA	NA	NA	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	NA	NA	NA	ND (<6.63)	NA	NA	NA	NA	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	NA	NA	NA	ND (<4.64)	NA	NA	NA	NA	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	NA	NA	NA	ND (<79.6)	NA	NA	NA	NA	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	ND (<33.2)	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	ND (<33.2)	NA	NA	NA	NA	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	NA	NA	ND (<149.4)	NA	NA	NA	NA	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
1,3-Dichlorobenzene	ug/kg	NA	ND (<83.1)	NA	NA	NA	ND (<83.1)	ND (<83.1)	NA	ND (<83.1)	NA	NA	ND (<83.2)	570,000
1,4-Dichlorobenzene	ug/kg	NA	ND (<296)	NA	NA	NA	ND (<296)	ND (<296)	NA	ND (<296)	NA	NA	ND (<296)	16,000
1,2-Dichlorobenzene	ug/kg	NA	ND (<89.7)	NA	NA	NA	ND (<89.7)	ND (<89.7)	NA	ND (<89.7)	NA	NA	ND (<89.9)	120,000
Hexachloroethane	ug/kg	NA	ND (<1.66)	NA	NA	NA	ND (<1.66)	ND (<1.66)	NA	ND (<1.66)	NA	NA	ND (<1.66)	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	ND (<43.2)	NA	NA	NA	ND (<43.2)	ND (<43.2)	NA	ND (<43.2)	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	NA	ND (<1.66)	NA	NA	NA	ND (<1.66)	ND (<1.66)	NA	ND (<1.66)	NA	NA	4.31	17,000
2-Chloronaphthalene	ug/kg	NA	ND (<432)	NA	NA	NA	ND (<432)	ND (<432)	NA	ND (<432)	NA	NA	ND (<433)	610,000
Hexachlorobenzene	ug/kg	NA	ND (<1.66)	NA	NA	NA	ND (<1.66)	ND (<1.66)	NA	ND (<1.66)	NA	NA	ND (<1.66)	1,300

Total Petroleum Hydrocarbons

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
TPH (as Gasoline)	mg/kg	ND (<39.4)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
TPH (as Diesel Oil)	mg/kg	ND (<39.4)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Oil and Grease	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_i
Benzene	ug/kg	3.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,200
Toluene	ug/kg	26.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480,000
Ethylbenzene	ug/kg	2.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
m-/p-Xylene	ug/kg	9.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
o-Xylene	ug/kg	4.09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Xylene (Total)	ug/kg	13.28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
BTEX (Total)	ug/kg	45.72	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Ignitability	C	NA	NA	NA	NA	NA	NA	>100	NA	NA	NA	NA	NA	-
Asbestos	+/-	NA	NA	NA	(Positive)	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_i
Arsenic	mg/L	NA	ND (<0.060)	NA	NA	NA	ND (<0.060)	ND (<0.060)	NA	NA	NA	NA	NA	5.0
Barium	mg/L	NA	2	NA	NA	NA	0.9	0.74	NA	NA	NA	NA	NA	100.0
Cadmium	mg/L	NA	ND (<0.010)	NA	NA	NA	ND (<0.010)	ND (<0.010)	NA	NA	NA	NA	NA	1.0
Chromium	mg/L	NA	ND (<0.020)	NA	NA	NA	ND (<0.020)	ND (<0.020)	NA	NA	NA	NA	NA	5.0
Lead	mg/L	NA	ND (<0.050)	NA	NA	NA	ND (<0.050)	ND (<0.050)	NA	NA	NA	NA	NA	5.0
Mercury	mg/L	NA	ND (<0.0002)	NA	NA	NA	0.0004	ND (<0.0002)	NA	NA	NA	NA	NA	0.2
Selenium	mg/L	NA	ND (<0.12)	NA	NA	NA	ND (<0.12)	ND (<0.12)	NA	NA	NA	NA	NA	1.0
Silver	mg/L	NA	ND (<0.020)	NA	NA	NA	ND (<0.020)	ND (<0.020)	NA	NA	NA	NA	NA	5.0

TCLP Volatile Organic Compounds

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_i
Vinyl Chloride	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	200
1,1-Dichloroethylene	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	700
Chloroform	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	6,000
1,2-Dichloroethane	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	500
Carbon Tetrachloride	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	500
Trichloroethylene	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	500
Benzene	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	500
Tetrachloroethylene	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	700
Chlorobenzene	ug/L	NA	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	NA	NA	NA	NA	NA	100,000
Methyl ethyl ketone	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	200,000

TCLP Extractables

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_i
Pyridine	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	5,000
1,4-Dichlorobenzene	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	7,500
Hexachloroethane	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	3,000
Nitrobenzene	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	2,000
Hexachloro-1,3-butadiene	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	500
2,4-Dinitrotoluene	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	100 (3)
Hexachlorobenzene	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	100 (3)
Cresols (total)	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	200,000
2,4,6-Trichlorophenol	ug/L	NA	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
2,4,5-Trichlorophenol	ug/L	NA	ND (<250)	NA	NA	NA	ND (<250)	ND (<250)	NA	NA	NA	NA	NA	400,000
Pentachlorophenol	ug/L	NA	ND (<250)	NA	NA	NA	ND (<250)	ND (<250)	NA	NA	NA	NA	NA	100,000

TCLP Pesticides

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
gamma-BHC (Lindane)	ug/L	NA	ND (<1.60)	NA	NA	NA	ND (<1.60)	ND (<1.60)	NA	NA	NA	NA	NA	400
Heptachlor	ug/L	NA	ND (<1.20)	NA	NA	NA	ND (<1.20)	ND (<1.20)	NA	NA	NA	NA	NA	-
Heptachlor epoxide	ug/L	NA	ND (<1.20)	NA	NA	NA	ND (<1.20)	ND (<1.20)	NA	NA	NA	NA	NA	-
Total Heptachlor	ug/L	NA	ND (<2.40)	NA	NA	NA	ND (<2.40)	ND (<2.40)	NA	NA	NA	NA	NA	8
Endrin	ug/L	NA	ND (<2.40)	NA	NA	NA	ND (<2.40)	ND (<2.40)	NA	NA	NA	NA	NA	20
Methoxychlor	ug/L	NA	ND (<10.0)	NA	NA	NA	ND (<10.0)	ND (<10.0)	NA	NA	NA	NA	NA	10,000
Chlordane	ug/L	NA	ND (<5.60)	NA	NA	NA	ND (<5.60)	ND (<5.60)	NA	NA	NA	NA	NA	30
Toxaphene	ug/L	NA	ND (<96.0)	NA	NA	NA	ND (<96.0)	ND (<96.0)	NA	NA	NA	NA	NA	500

TCLP Chlorinated Herbicides

	Units	IC-BS-1	IC-BS-2	IC-BS-3	IC-BS-4	IC-BS-5	IC-BS-6	IC-BS-7	IC-BS-8	IC-BS-9	IC-BS-10	IC-BS-11	IC-BS-3D	SO_1
2,4-D	ug/L	NA	ND (<240)	NA	NA	NA	ND (<240)	ND (<240)	NA	NA	NA	NA	NA	10,000
2,4,5-TP (Silvex)	ug/L	NA	ND (<34)	NA	NA	NA	ND (<34)	ND (<34)	NA	NA	NA	NA	NA	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Arsenic	mg/kg	NA	9	NA	4.8	NA	4.4	NA	8.3	7.6	4.9	8.3	5.2	3.0
Barium	mg/kg	NA	167	NA	1.22	NA	168	NA	359	220	189	140	166	13,000
Cadmium	mg/kg	NA	ND (<0.5)	NA	ND (<0.45)	NA	ND (<0.5)	NA	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.45)	1.8	94
Chromium	mg/kg	NA	55.7	NA	14.9	NA	16	NA	32.1	20.2	18	11.8	59.4	190,000(+3),940 (6+)
Lead	mg/kg	NA	36	NA	9.6	29.7	18.2	15.1	4,690	153	159	12.7	368	1,700
Mercury	mg/kg	NA	0.13	NA	ND (<0.02)	NA	0.058	NA	0.14	0.11	0.3	0.048	1.4	56
Selenium	mg/kg	NA	ND (<2.4)	NA	ND (<0.5)	NA	ND(<0.5)	NA	ND (<0.45)	ND (<2.2)	1.8	ND(<0.5)	ND(<0.5)	940
Silver	mg/kg	NA	ND (<0.95)	NA	ND (<0.01)	NA	ND (<0.01)	NA	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND(<0.9)	ND(<0.95)	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Acrolein	ug/kg	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	ND (<50)	NA	NA	ND (<50)	ND (<50)	NA	ND (<50)	-
Acrylonitrile	ug/kg	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	ND (<50)	NA	NA	ND (<50)	ND (<50)	NA	ND (<50)	-
Chloromethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	7,400
Bromomethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	3,100
Vinyl Chloride	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	98
Chloroethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	99	990,000
Methylene Chloride	ug/kg	100	110	110	6b	NA	ND (<5)	NA	NA	59	6b	NA	16b	44,000
1,1-Dichloroethene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	250
1,1-Dichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	220	470,000
1,2-Dichloroethene (total)	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	8	83,000
Trichlorofluoromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	270,000
Chloroform	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,200
1,2-Dichloroethane	ug/kg	ND (<5)	ND (<5)	8	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,800
1,1,1-Trichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	590,000
Carbon Tetrachloride	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,200
Bromodichloromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	4,200
1,2-Dichloropropane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,800
trans-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,200 (T)
Trichloroethene	ug/kg	11	28	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	6	14,000
Dibromochloromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	5,200
1,1,2-Trichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	4,300
Benzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	3,200
cis-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,200 (T)
Bromoform	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	150,000
Tetrachloroethene	ug/kg	ND (<5)	17	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	27,000
1,1,2,2-Tetrachloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,900
Toluene	ug/kg	100	83	85	ND (<5)	NA	ND (<5)	NA	NA	11	ND (<5)	NA	ND (<5)	480,000
Chlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	43,000
Ethylbenzene	ug/kg	38	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	-
1,2-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	120,000
1,3-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	570,000
1,4-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	16,000
Acetone	ug/kg	27	ND (<10)	16	41	NA	ND (<10)	NA	NA	120	62	NA	60	1,400,000
Carbon Disulfide	ug/kg	9	ND (<5)	ND (<5)	ND (<5)	NA	32	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	21	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	29	4,400,000
Vinyl Acetate	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	-
2-Hexanone	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	21b	ND (<10)	NA	ND (<10)	-
4-Methyl-2-Pentanone	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	ND (<10)	-
Styrene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	ND (<5)	1,700,000
Xylene (Total)	ug/kg	230	29	19	ND (<5)	NA	9	NA	NA	ND (<5)	ND (<5)	NA	18	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Sample Number

Semi-Volatiles	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Benzidine	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	-
bis (2-Chloroethyl) ether	ug/kg	**ND (<1,700)**	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	930
1,3-Dichlorobenzene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	570,000
1,4-Dichlorobenzene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	16,000
1,2-Dichlorobenzene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	120,000
bis (2-Chloroisopropyl) ether	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	14,000
N-Nitroso-di-n-propylamine	ug/kg	**ND (<1,700)**	ND (<170)	**ND (<830)**	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	**ND (<830)**	330
Hexachloroethane	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	110,000
Nitrobenzene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	21,000
Isophorone	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
1,2,4-Trichlorobenzene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	780,000
Naphthalene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	5,200
Hexachlorobutadiene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	17,000
Hexachlorocyclopentadiene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	3,400
2-Chloronaphthalene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	610,000
Dimethylphthalate	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	1,500,000
2,6-Dinitrotoluene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	52,000
Acenaphthylene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
Acenaphthene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	3,900,000
2,4-Dinitrotoluene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	110,000
Diethylphthalate	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	670,000
4-Chlorophenyl-phenylether	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
Fluorene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	470,000
4-Bromophenyl-phenylether	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
Hexachlorobenzene	ug/kg	**ND (<1,700)**	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	1,300
Phenanthrene	ug/kg	ND (<1,700)	540	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	210	NA	2,100	-
Anthracene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	25,000,000
Pyrene	ug/kg	ND (<1,700)	980	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	1,300	NA	1,600	2,700,000
Di-n-butylphthalate	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
Fluoranthene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	1,300	NA	1,900	3,600,000
Butylbenzylphthalate	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	220,000
3,3'-Dichlorobenzidine	ug/kg	ND (<3,300)	ND (<330)	ND (<1,700)	ND (<330)	NA	ND (<330)	NA	NA	ND (<330)	ND (<330)	NA	ND (<1,700)	4,900
Benzo (a) anthracene	ug/kg	ND (<1,700)	650	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	960	NA	ND (<830)	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	1,300	210,000
Chrysene	ug/kg	ND (<1,700)	810	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<1,200)	NA	ND (<830)	400,000
Di-n-octyl phthalate	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

		Sample Number												
Semi-Volatiles	**Units**	**IC-BS-8D**	**IC-BS-9D**	**IC-BS-10D**	**IC-MS-1**	**IC-MS-2**	**IC-MS-3**	**IC-MS-4**	**IC-MS-5**	**IC-MS-6**	**IC-IS-1**	**IC-IS-2**	**IC-IS-3**	**SO_i**
Benzo (b) fluoranthene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	1,600	NA	ND (<830)	3,600
N-Nitrosodimethylamine	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
1,2-Diphenylhydrazine (2)	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
Benzo (k) fluoranthene	ug/kg	ND (<1,700)	1,600	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	220	NA	ND (<830)	35,000
Benzo (a) pyrene	ug/kg	**ND (<1,700)**	810	**ND (<830)**	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	1,300	NA	**ND (<830)**	360
Indeno (1,2,3,-cd) pyrene	ug/kg	ND (<1,700)	590	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	900	NA	ND (<830)	3,600
Dibenz (a,h) anthracene	ug/kg	**ND (<1,700)**	ND (<170)	**ND (<830)**	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	250	NA	**ND (<830)**	360
Benzo (g,h,i) perylene	ug/kg	ND (<1,700)	620	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	950	NA	ND (<830)	-
Benzyl alcohol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
4-Chloroaniline	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	190,000
Dibenzofuran	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	150,000
2-Methylnaphthalene	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
2-Nitroaniline	ug/kg	**ND (<8,300)**	ND (<830)	**ND (<4,200)**	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	**ND (<4,200)**	920
3-Nitroaniline	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	120,000
4-Nitroaniline	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

		Sample Number												
	Units	**IC-BS-8D**	**IC-BS-9D**	**IC-BS-10D**	**IC-MS-1**	**IC-MS-2**	**IC-MS-3**	**IC-MS-4**	**IC-MS-5**	**IC-MS-6**	**IC-IS-1**	**IC-IS-2**	**IC-IS-3**	**SO_i**
Phenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	24,000,000
2-Chlorophenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	130,000
2-Nitrophenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
2,4-Dimethylphenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	1,200,000
2,4-Dichlorophenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	230,000
4-Chloro-3-methylphenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
2,4,6-Trichlorophenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	200,000
2,4-Dinitrophenol	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	76,000
4-Nitrophenol	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	370,000
4,6-Dinitro-2-methylphenol	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	-
Pentachlorophenol	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	12,000
2-Methylphenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
4-Methylphenol	ug/kg	ND (<1,700)	ND (<170)	ND (<830)	ND (<170)	NA	ND (<170)	NA	NA	ND (<170)	ND (<170)	NA	ND (<830)	-
Benzoic acid	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	-
2,4,5-Trichlorophenol	ug/kg	ND (<8,300)	ND (<830)	ND (<4,200)	ND (<830)	NA	ND (<830)	NA	NA	ND (<830)	ND (<830)	NA	ND (<4,200)	7,600,000

Pesticides/PCB

	Units	**IC-BS-8D**	**IC-BS-9D**	**IC-BS-10D**	**IC-MS-1**	**IC-MS-2**	**IC-MS-3**	**IC-MS-4**	**IC-MS-5**	**IC-MS-6**	**IC-IS-1**	**IC-IS-2**	**IC-IS-3**	**SO_i**
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
Aldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320
Endosulfan I	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Endrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
1,3-Dichlorobenzene	ug/kg	ND (<83.3)	ND (<83.2)	ND (<83.3)	ND (<83.1)	NA	ND (<82.9)	NA	NA	NA	ND (<83.2)	NA	ND (<83.1)	570,000
1,4-Dichlorobenzene	ug/kg	ND (<297)	ND (<296)	ND (<297)	ND (<296)	NA	ND (<295)	NA	NA	NA	ND (<296)	NA	ND (<296)	16,000
1,2-Dichlorobenzene	ug/kg	ND (<90.0)	ND (<89.8)	ND (<90.0)	ND (<89.7)	NA	ND (<89.6)	NA	NA	NA	ND (<89.9)	NA	ND (<89.8)	120,000
Hexachloroethane	ug/kg	3.43	1.66	ND (<1.67)	ND (<1.66)	NA	ND (<1.66)	NA	NA	NA	ND (<1.66)	NA	ND (<1.66)	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	7.89b	9.68	3.24	ND (<1.66)	NA	ND (<1.66)	NA	NA	NA	9.14	NA	24.3	17,000
2-Chloronaphthalene	ug/kg	ND (<433)	ND (<432)	ND (<433)	ND (<432)	NA	ND (<431)	NA	NA	NA	ND (<433)	NA	ND (<432)	610,000
Hexachlorobenzene	ug/kg	ND (<1.67)	1.66	ND (<1.67)	ND (<1.66)	NA	ND (<1.66)	NA	NA	NA	ND (<1.66)	NA	ND (<1.66)	1,300

Total Petroleum Hydrocarbons

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
TPH (as Gasoline)	mg/kg	NA	NA	NA	NA	ND (<39.7)	NA	ND (<39.8)	NA	NA	NA	NA	NA	500
TPH (as Diesel Oil)	mg/kg	NA	NA	NA	NA	ND (<39.7)	NA	ND (<39.8)	NA	NA	NA	NA	NA	500
Oil and Grease	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Benzene	ug/kg	NA	NA	NA	NA	ND (<5.0)	NA	ND (<1.0)	NA	NA	NA	NA	NA	3,200
Toluene	ug/kg	NA	NA	NA	NA	9.99	NA	1.93	NA	NA	NA	NA	NA	480,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	9.07	NA	ND (<1.0)	NA	NA	NA	NA	NA	230,000
m-/p-Xylene	ug/kg	NA	NA	NA	NA	32.9	NA	2.49	NA	NA	NA	NA	NA	-
o-Xylene	ug/kg	NA	NA	NA	NA	22.6	NA	1.16	NA	NA	NA	NA	NA	-
Xylene (Total)	ug/kg	NA	NA	NA	NA	55.5	NA	3.65	NA	NA	NA	NA	NA	150,000
BTEX (Total)	ug/kg	NA	NA	NA	NA	74.56	NA	5.58	NA	NA	NA	NA	NA	-

Ignitability	C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Arsenic	mg/L	NA	NA	NA	ND (<0.03)	NA	ND (<0.03)	NA	NA	NA	NA	NA	NA	5.0
Barium	mg/L	NA	NA	NA	1.2	NA	1.2	NA	NA	NA	NA	NA	NA	100.0
Cadmium	mg/L	NA	NA	NA	ND (<0.005)	NA	ND (<0.005)	NA	NA	NA	NA	NA	NA	1.0
Chromium	mg/L	NA	NA	NA	ND (<0.01)	NA	ND (<0.01)	NA	NA	NA	NA	NA	NA	5.0
Lead	mg/L	NA	NA	NA	ND (<0.025)	NA	ND (<0.025)	NA	0.26	NA	NA	NA	NA	5.0
Mercury	mg/L	NA	NA	NA	ND (<0.0012)	NA	ND (<0.0004)	NA	NA	NA	NA	NA	NA	0.2
Selenium	mg/L	NA	NA	NA	ND (<0.06)	NA	ND (<0.06)	NA	NA	NA	NA	NA	NA	1.0
Silver	mg/L	NA	NA	NA	ND (<0.01)	NA	ND (<0.01)	NA	NA	NA	NA	NA	NA	5.0

TCLP Volatile Organic Compounds

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Vinyl Chloride	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	200
1,1-Dichloroethylene	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	700
Chloroform	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	6,000
1,2-Dichloroethane	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	500
Carbon Tetrachloride	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	500
Trichloroethylene	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	500
Benzene	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	500
Tetrachloroethylene	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	700
Chlorobenzene	ug/L	NA	NA	NA	ND (<25)	NA	ND (<25)	NA	NA	NA	NA	NA	NA	100,000
Methyl ethyl ketone	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	200,000

TCLP Extractables

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
Pyridine	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	5,000
1,4-Dichlorobenzene	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	7,500
Hexachloroethane	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	3,000
Nitrobenzene	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	2,000
Hexachloro-1,3-butadiene	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	500
2,4-Dinitrotoluene	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	100 (3)
Hexachlorobenzene	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	100 (3)
Cresols (total)	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	200,000
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	NA	NA	NA	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	ND (<250)	NA	ND (<250)	NA	NA	NA	NA	NA	NA	400,000
Pentachlorophenol	ug/L	NA	NA	NA	ND (<250)	NA	ND (<250)	NA	NA	NA	NA	NA	NA	100,000

TCLP Pesticides

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
gamma-BHC (Lindane)	ug/L	NA	NA	NA	ND (<1.60)	NA	ND (<1.60)	NA	NA	NA	NA	NA	NA	400
Heptachlor	ug/L	NA	NA	NA	ND (<1.20)	NA	ND (<1.20)	NA	NA	NA	NA	NA	NA	-
Heptachlor epoxide	ug/L	NA	NA	NA	ND (<1.20)	NA	ND (<1.20)	NA	NA	NA	NA	NA	NA	-
Total Heptachlor	ug/L	NA	NA	NA	ND (<2.40)	NA	ND (<2.40)	NA	NA	NA	NA	NA	NA	8
Endrin	ug/L	NA	NA	NA	ND (<2.40)	NA	ND (<2.40)	NA	NA	NA	NA	NA	NA	20
Methoxychlor	ug/L	NA	NA	NA	ND (<10.0)	NA	ND (<10.0)	NA	NA	NA	NA	NA	NA	10,000
Chlordane	ug/L	NA	NA	NA	ND (<5.60)	NA	ND (<5.60)	NA	NA	NA	NA	NA	NA	30
Toxaphene	ug/L	NA	NA	NA	ND (<96.0)	NA	ND (<96.0)	NA	NA	NA	NA	NA	NA	500

TCLP Chlorinated Herbicides

	Units	IC-BS-8D	IC-BS-9D	IC-BS-10D	IC-MS-1	IC-MS-2	IC-MS-3	IC-MS-4	IC-MS-5	IC-MS-6	IC-IS-1	IC-IS-2	IC-IS-3	SO_1
2,4-D	ug/L	NA	NA	NA	ND (<240)	NA	ND (<240)	NA	NA	NA	NA	NA	NA	10,000
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	ND (<34)	NA	ND (<34)	NA	NA	NA	NA	NA	NA	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_i
Arsenic	mg/kg	4.7	5.8	9.0	6.3	NA	NA	6.2	3.4	NA	3.8	6.3	NA	3.0
Barium	mg/kg	161	172	109	190	NA	NA	106	168	NA	171	75.4	NA	13,000
Cadmium	mg/kg	ND (<0.5)	ND (<0.45)	ND (<0.5)	ND (<0.45)	NA	NA	ND (<0.5)	ND (<0.5)	NA	ND (<2.0)	ND (<0.45)	NA	94
Chromium	mg/kg	19.3	183	12	30.3	NA	NA	22.6	25.9	NA	9	4.7	NA	190,000(+3),940 (6+)
Lead	mg/kg	362	453	88.3	122	10.8	0.51	28.8	171	NA	35.4	37.3	NA	1,700
Mercury	mg/kg	1	1.5	0.25	1.1	NA	NA	0.37	0.96	NA	0.057	0.18	NA	56
Selenium	mg/kg	ND(<0.5)	ND(<0.5)	ND (<0.45)	ND (<2.2)	NA	NA	ND (<0.45)	ND (<0.45)	NA	ND (<0.45)	ND (<2.0)	NA	940
Silver	mg/kg	ND (<1.0)	ND(<0.9)	ND (<1.0)	ND (<0.85)	NA	NA	ND(<0.95)	ND(<0.95)	NA	ND (<4)	ND(<0.9)	NA	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_i
Acrolein	ug/kg	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	ND (<50)	ND (<50)	NA	-
Acrylonitrile	ug/kg	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	ND (<50)	ND (<50)	NA	-
Chloromethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	7,400
Bromomethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	3,100
Vinyl Chloride	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	98
Chloroethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	990,000
Methylene Chloride	ug/kg	8b	13b	13b	64	NA	NA	ND (<5)	NA	NA	18b	48	NA	44,000
1,1-Dichloroethene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	250
1,1-Dichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	470,000
1,2-Dichloroethene (total)	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	83,000
Trichlorofluoromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	270,000
Chloroform	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,200
1,2-Dichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,800
1,1,1-Trichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	590,000
Carbon Tetrachloride	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,200
Bromodichloromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	4,200
1,2-Dichloropropane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,800
trans-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,200 (T)
Trichloroethene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	9	NA	14,000
Dibromochloromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	5,200
1,1,2-Trichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	4,300
Benzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	3,200
cis-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,200 (T)
Bromoform	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	150,000
Tetrachloroethene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	27,000
1,1,2,2-Tetrachloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,900
Toluene	ug/kg	17	ND (<5)	ND (<5)	50	NA	NA	ND (<5)	NA	NA	ND (<5)	13	NA	480,000
Chlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	43,000
Ethylbenzene	ug/kg	180	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	-
1,2-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	120,000
1,3-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	16,000
Acetone	ug/kg	110	63	16	20	NA	NA	ND (<10)	NA	NA	28	ND (<10)	NA	1,400,000
Carbon Disulfide	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	22	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	4,400,000
Vinyl Acetate	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	-
2-Hexanone	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	-
4-Methyl-2-Pentanone	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	ND (<10)	NA	NA	ND (<10)	ND (<10)	NA	-
Styrene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	1,700,000
Xylene (Total)	ug/kg	2500	ND (<5)	ND (<5)	5	NA	NA	ND (<5)	NA	NA	ND (<5)	ND (<5)	NA	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Sample Number

Semi-Volatiles	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Benzidine	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	-
bis (2-Chloroethyl) ether	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	930
1,3-Dichlorobenzene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	16,000
1,2-Dichlorobenzene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	120,000
bis (2-Chloroisopropyl) ether	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	14,000
N-Nitroso-di-n-propylamine	ug/kg	**ND (<830)**	**ND (<830)**	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	**ND (<830)**	**ND (<830)**	NA	330
Hexachloroethane	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	110,000
Nitrobenzene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	21,000
Isophorone	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
1,2,4-Trichlorobenzene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	780,000
Naphthalene	ug/kg	960	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	5,200
Hexachlorobutadiene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	17,000
Hexachlorocyclopentadiene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	3,400
2-Chloronaphthalene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	610,000
Dimethylphthalate	ug/kg	17,000	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	1,500,000
2,6-Dinitrotoluene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	52,000
Acenaphthylene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
Acenaphthene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	3,900,000
2,4-Dinitrotoluene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	110,000
Diethylphthalate	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	670,000
4-Chlorophenyl-phenylether	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
Fluorene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	170	NA	NA	ND (<830)	ND (<830)	NA	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	470,000
4-Bromophenyl-phenylether	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
Hexachlorobenzene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	1,300
Phenanthrene	ug/kg	ND (<830)	ND (<830)	ND (<170)	270	NA	NA	480	NA	NA	ND (<830)	ND (<830)	NA	-
Anthracene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	25,000,000
Pyrene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	2,700,000
Di-n-butylphthalate	ug/kg	2,900	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
Fluoranthene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	3,600,000
Butylbenzylphthalate	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	220,000
3,3'-Dichlorobenzidine	ug/kg	ND (<1,700)	ND (<1,700)	ND (<330)	ND (<330)	NA	NA	ND (<330)	NA	NA	ND (<1,700)	ND (<1,700)	NA	4,900
Benzo (a) anthracene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	160,000	1,100	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	210,000
Chrysene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	400,000
Di-n-octyl phthalate	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

		Sample Number												
Semi-Volatiles	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Benzo (b) fluoranthene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	3,600
N-Nitrosodimethylamine	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
1,2-Diphenylhydrazine (2)	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
Benzo (k) fluoranthene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	35,000
Benzo (a) pyrene	ug/kg	**ND (<830)**	**ND (<830)**	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	**ND (<830)**	**ND (<830)**	NA	360
Indeno (1,2,3,-cd) pyrene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	3,600
Dibenz (a,h) anthracene	ug/kg	**ND (<830)**	**ND (<830)**	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	**ND (<830)**	**ND (<830)**	NA	360
Benzo (g,h,i) perylene	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
Benzyl alcohol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
4-Chloroaniline	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	190,000
Dibenzofuran	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	150,000
2-Methylnaphthalene	ug/kg	ND (<830)	ND (<830)	ND (<170)	270	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
2-Nitroaniline	ug/kg	**ND (<4,200)**	**ND (<4,200)**	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	**ND (<4,200)**	**ND (<4,200)**	NA	920
3-Nitroaniline	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	120,000
4-Nitroaniline	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

		Sample Number												
	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Phenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	24,000,000
2-Chlorophenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	130,000
2-Nitrophenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
2,4-Dimethylphenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	1,200,000
2,4-Dichlorophenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	230,000
4-Chloro-3-methylphenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
2,4,6-Trichlorophenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	200,000
2,4-Dinitrophenol	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	76,000
4-Nitrophenol	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	370,000
4,6-Dinitro-2-methylphenol	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	-
Pentachlorophenol	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	12,000
2-Methylphenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
4-Methylphenol	ug/kg	ND (<830)	ND (<830)	ND (<170)	ND (<170)	NA	NA	ND (<170)	NA	NA	ND (<830)	ND (<830)	NA	-
Benzoic acid	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	-
2,4,5-Trichlorophenol	ug/kg	ND (<4,200)	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	ND (<830)	NA	NA	ND (<4,200)	ND (<4,200)	NA	7,600,000

Pesticides/PCB

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
Aldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320
Endosulfan I	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Endrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
1,3-Dichlorobenzene	ug/kg	ND (<83.2)	ND (<83.1)	ND (<83.1)	ND (<83.2)	NA	NA	ND (<83.1)	NA	NA	ND (<82.6)	ND (<83.2)	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<296)	ND (<296)	ND (<296)	ND (<296)	NA	NA	ND (<296)	NA	NA	ND (<294)	ND (<296)	NA	16,000
1,2-Dichlorobenzene	ug/kg	ND (<89.9)	ND (<89.7)	ND (<89.7)	ND (<89.9)	NA	NA	ND (<89.7)	NA	NA	ND (<89.2)	ND (<89.7)	NA	120,000
Hexachloroethane	ug/kg	ND(<1.66)	ND (<1.66)	ND (<1.66)	ND (<1.66)	NA	NA	ND (<1.66)	NA	NA	ND (<1.65)	2.36	NA	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	31.6	24.2	13.5	8.2	NA	NA	ND (<1.66)	NA	NA	ND (<1.65)	5.18	NA	17,000
2-Chloronaphthalene	ug/kg	ND (<433)	ND (<432)	ND (<432)	ND (<433)	NA	NA	ND (<432)	NA	NA	ND (<429)	ND (<432)	NA	610,000
Hexachlorobenzene	ug/kg	ND (<1.66)	ND (<1.66)	ND (<1.66)	ND (<1.66)	NA	NA	ND (<1.66)	NA	NA	ND (<1.65)	ND (<1.66)	NA	1,300

Total Petroleum Hydrocarbons

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
TPH (as Gasoline)	mg/kg	NA	NA	NA	NA	ND (<39.3)	ND (<39.6)	NA	NA	NA	NA	NA	NA	500
TPH (as Diesel Oil)	mg/kg	NA	NA	NA	NA	62	1,440	NA	NA	NA	NA	NA	NA	500
Oil and Grease	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Benzene	ug/kg	NA	NA	NA	NA	ND (<1.0)	ND (<10.0)	NA	NA	NA	NA	NA	NA	3,200
Toluene	ug/kg	NA	NA	NA	NA	3.51	77	NA	NA	NA	NA	NA	NA	480,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	ND (<1.0)	ND (<10.0)	NA	NA	NA	NA	NA	NA	230,000
m-/p-Xylene	ug/kg	NA	NA	NA	NA	3.71	34.9	NA	NA	NA	NA	NA	NA	-
o-Xylene	ug/kg	NA	NA	NA	NA	1.84	ND (<10.0)	NA	NA	NA	NA	NA	NA	-
Xylene (Total)	ug/kg	NA	NA	NA	NA	5.55	39.5	NA	NA	NA	NA	NA	NA	150,000
BTEX (Total)	ug/kg	NA	NA	NA	NA	9.06	126.9	NA	NA	NA	NA	NA	NA	-
Ignitability	C	>100	>100	NA	NA	NA	NA	NA	NA	>100	NA	NA	NA	-
Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	MD	-

TCLP METALS

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Arsenic	mg/L	ND (<0.06)	ND (<0.06)	NA	NA	NA	ND (<0.06)	ND (<0.03)	ND (<0.06)	ND (<0.03)	NA	NA	NA	5.0
Barium	mg/L	2.3	1.9	NA	NA	NA	1.1	1.1	1.1	1.3	NA	NA	NA	100.0
Cadmium	mg/L	ND (<0.01)	ND (<0.01)	NA	NA	NA	ND (<0.01)	ND (<0.005)	ND (<0.01)	ND (<0.005)	NA	NA	NA	1.0
Chromium	mg/L	ND (<0.02)	ND (<0.02)	NA	NA	NA	ND(<0.02)	ND (<0.01)	ND(<0.02)	ND(<0.01)	NA	NA	NA	5.0
Lead	mg/L	2.7	1.8	NA	NA	NA	ND (<0.001)	0.11	0.099	0.053	NA	NA	NA	5.0
Mercury	mg/L	0.0002	0.0006	NA	NA	NA	ND (<0.0002)	0.0007	0.0007	0.0003	NA	NA	NA	0.2
Selenium	mg/L	ND (<0.12)	ND (<0.12)	NA	NA	NA	ND (<0.12)	ND (<0.06)	ND (<0.12)	ND (<0.06)	NA	NA	NA	1.0
Silver	mg/L	ND (<0.02)	ND (<0.02)	NA	NA	NA	ND (<0.02)	ND (<0.01)	ND (<0.02)	ND (<0.01)	NA	NA	NA	5.0

TCLP Volatile Organic Compounds

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Vinyl Chloride	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	200
1,1-Dichloroethylene	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	700
Chloroform	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	6,000
1,2-Dichloroethane	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	500
Carbon Tetrachloride	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	500
Trichloroethylene	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	500
Benzene	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	500
Tetrachloroethylene	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	700
Chlorobenzene	ug/L	ND (<25)	ND (<25)	NA	NA	NA	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	NA	100,000
Methyl ethyl ketone	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	200,000

TCLP Extractables

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
Pyridine	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	5,000
1,4-Dichlorobenzene	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	7,500
Hexachloroethane	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	3,000
Nitrobenzene	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	2,000
Hexachloro-1,3-butadiene	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	500
2,4-Dinitrotoluene	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	100 (3)
Hexachlorobenzene	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	100 (3)
Cresols (total)	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	200,000
2,4,6-Trichlorophenol	ug/L	ND (<50)	ND (<50)	NA	NA	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
2,4,5-Trichlorophenol	ug/L	ND (<250)	ND (<250)	NA	NA	NA	ND (<250)	ND (<250)	ND (<250)	ND (<250)	NA	NA	NA	400,000
Pentachlorophenol	ug/L	ND (<250)	ND (<250)	NA	NA	NA	ND (<250)	ND (<250)	ND (<250)	ND (<250)	NA	NA	NA	100,000

TCLP Pesticides

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
gamma-BHC (Lindane)	ug/L	ND (<1.60)	ND (<1.60)	NA	NA	NA	ND (<1.60)	ND (<1.60)	ND (<1.60)	ND (<1.60)	NA	NA	NA	400
Heptachlor	ug/L	ND (<1.20)	ND (<1.20)	NA	NA	NA	ND (<1.20)	ND (<1.20)	ND (<1.20)	ND (<1.20)	NA	NA	NA	-
Heptachlor epoxide	ug/L	ND (<1.20)	ND (<1.20)	NA	NA	NA	ND (<1.20)	ND (<1.20)	ND (<1.20)	ND (<1.20)	NA	NA	NA	-
Total Heptachlor	ug/L	ND (<2.40)	ND (<2.40)	NA	NA	NA	ND (<2.40)	ND (<2.40)	ND (<2.40)	ND (<2.40)	NA	NA	NA	8
Endrin	ug/L	ND (<2.40)	ND (<2.40)	NA	NA	NA	ND (<2.40)	ND (<2.40)	ND (<2.40)	ND (<2.40)	NA	NA	NA	20
Methoxychlor	ug/L	ND (<10.0)	ND (<10.0)	NA	NA	NA	ND (<10.0)	ND (<10.0)	ND (<10.0)	ND (<10.0)	NA	NA	NA	10,000
Chlordane	ug/L	ND (<5.60)	ND (<5.60)	NA	NA	NA	ND (<5.60)	ND (<5.60)	ND (<5.60)	ND (<5.60)	NA	NA	NA	30
Toxaphene	ug/L	ND (<96.0)	ND (<96.0)	NA	NA	NA	ND (<96.0)	ND (<96.0)	ND (<96.0)	ND (<96.0)	NA	NA	NA	500

TCLP Chlorinated Herbicides

	Units	IC-IS-4	IC-IS-5	IC-IS-6	IC-IS-8	IC-DS-1	IC-DS-2	IC-DS-4	IC-DS-5	IC-DS-8	IC-DS-9	IC-DS-11	IC-SS-1	SO_1
2,4-D	ug/L	ND (<240)	ND (<240)	NA	NA	NA	ND (<240)	ND (<240)	ND (<240)	ND (<240)	NA	NA	NA	10,000
2,4,5-TP (Silvex)	ug/L	ND (<34)	ND (<34)	NA	NA	NA	ND (<34)	ND (<34)	ND (<34)	ND (<34)	NA	NA	NA	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
Arsenic	mg/kg	6.6	7.3	2.8	3.5	10.2	26.7	NA	NA	5	7.2	3.0
Barium	mg/kg	458	130	186	377	196	172	NA	NA	190	111	13,000
Cadmium	mg/kg	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.45)	ND (<0.5)	NA	NA	ND (<0.5)	ND (<2.3)	94
Chromium	mg/kg	19.7	17.2	12.3	10.3	12.1	20.7	NA	NA	15.2	132	190,000(+3),940 (6+)
Lead	mg/kg	92.6	60	127	171	270	85.5	54.9	66.9	17.7	201	1,700
Mercury	mg/kg	0.2	0.047	0.12	0.095	0.12	0.099	NA	NA	0.5	0.19	56
Selenium	mg/kg	1	0.84	ND (<0.45)	ND (<0.5)	ND (<0.4)	ND (<0.45)	NA	NA	ND (<0.5)	ND (<0.45)	940
Silver	mg/kg	ND (<1.0)	ND (<1.0)	ND(<0.95)	ND (<1.0)	ND (<0.85)	ND(<0.95)	NA	NA	ND (<1.0)	ND (<4.6)	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
Acrolein	ug/kg	ND (<50)	ND (<100)	ND (<250)	ND (<250)	ND (<250)	ND (<250)	NA	NA	ND (<50)	NA	-
Acrylonitrile	ug/kg	ND (<50)	ND (<100)	ND (<250)	ND (<250)	ND (<250)	ND (<250)	NA	NA	ND (<50)	NA	-
Chloromethane	ug/kg	ND (<10)	ND (<20)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	7,400
Bromomethane	ug/kg	ND (<10)	ND (<20)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	3,100
Vinyl Chloride	ug/kg	ND (<10)	ND (<20)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	98
Chloroethane	ug/kg	ND (<10)	ND (<20)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	990,000
Methylene Chloride	ug/kg	17b	21b	ND (<25)	300b	27b	310b	NA	NA	ND (<5)	NA	44,000
1,1-Dichloroethene	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	250
1,1-Dichloroethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	470,000
1,2-Dichloroethene (total)	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	83,000
Trichlorofluoromethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	270,000
Chloroform	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,200
1,2-Dichloroethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,800
1,1,1-Trichloroethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	590,000
Carbon Tetrachloride	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,200
Bromodichloromethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	4,200
1,2-Dichloropropane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,800
trans-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,200 (T)
Trichloroethene	ug/kg	ND (<5)	ND (<10)	ND (<25)	38	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	14,000
Dibromochloromethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	5,200
1,1,2-Trichloroethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	4,300
Benzene	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	6	NA	3,200
cis-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,200 (T)
Bromoform	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	150,000
Tetrachloroethene	ug/kg	ND (<5)	ND (<10)	ND (<25)	89	ND (<25)	29	NA	NA	ND (<5)	NA	27,000
1,1,2,2-Tetrachloroethane	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,900
Toluene	ug/kg	ND (<5)	20	ND (<25)	85	ND (<25)	180	NA	NA	ND (<5)	NA	480,000
Chlorobenzene	ug/kg	ND (<5)	ND (<10)	120	190	ND (<25)	220	NA	NA	490	NA	43,000
Ethylbenzene	ug/kg	ND (<5)	ND (<10)	ND (<25)	53	ND (<25)	110	NA	NA	ND (<5)	NA	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	ND (<10)	ND (<20)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	-
1,2-Dichlorobenzene	ug/kg	ND (<5)	ND (<10)	96	ND (<25)	ND (<25)	540	NA	NA	200	NA	120,000
1,3-Dichlorobenzene	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	50	NA	NA	ND (<5)	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	74	NA	NA	19	NA	16,000
Acetone	ug/kg	1,000	430	ND (<50)	ND (<50)	73	350	NA	NA	38	NA	1,400,000
Carbon Disulfide	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
2-Butanone (methyl ethyl ketone)	ug/kg	29b	ND (<20)	50	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	4,400,000
Vinyl Acetate	ug/kg	ND (<10)	ND (<20)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	-
2-Hexanone	ug/kg	ND (<10)	ND (<20)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<10)	NA	-
4-Methyl-2-Pentanone	ug/kg	10	ND (<20)	ND (<50)	ND (<50)	ND (<50)	76	NA	NA	ND (<10)	NA	-
Styrene	ug/kg	ND (<5)	ND (<10)	ND (<25)	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<5)	NA	1,700,000
Xylene (Total)	ug/kg	13	ND (<10)	130	290	ND (<25)	730	NA	NA	ND (<5)	NA	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Sample Number

Semi-Volatiles	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
Benzidine	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	-
bis (2-Chloroethyl) ether	ug/kg	ND (<170)	ND (<170)	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	NA	NA	ND (<830)	NA	930
1,3-Dichlorobenzene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	16,000
1,2-Dichlorobenzene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	120,000
bis (2-Chloroisopropyl) ether	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	14,000
N-Nitroso-di-n-propylamine	ug/kg	ND (<170)	ND (<170)	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	NA	NA	**ND (<830)**	NA	330
Hexachloroethane	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	110,000
Nitrobenzene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	21,000
Isophorone	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
1,2,4-Trichlorobenzene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	780,000
Naphthalene	ug/kg	250	470	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	5,200
Hexachlorobutadiene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	17,000
Hexachlorocyclopentadiene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	3,400
2-Chloronaphthalene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	610,000
Dimethylphthalate	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	1,500,000
2,6-Dinitrotoluene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	52,000
Acenaphthylene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
Acenaphthene	ug/kg	290	180	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	3,900,000
2,4-Dinitrotoluene	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	110,000
Diethylphthalate	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	670,000
4-Chlorophenyl-phenylether	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
Fluorene	ug/kg	360	250	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	470,000
4-Bromophenyl-phenylether	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
Hexachlorobenzene	ug/kg	ND (<170)	ND (<170)	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	NA	NA	ND (<830)	NA	1,300
Phenanthrene	ug/kg	3,000	670	ND (<3,300)	ND (<3,300)	ND (<3,300)	3,900	NA	NA	ND (<830)	NA	-
Anthracene	ug/kg	640	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	25,000,000
Pyrene	ug/kg	5,000	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	2,700,000
Di-n-butylphthalate	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
Fluoranthene	ug/kg	5,500	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	3,600,000
Butylbenzylphthalate	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	220,000
3,3'-Dichlorobenzidine	ug/kg	ND (<330)	ND (<330)	**ND (<6,700)**	**ND (<6,700)**	**ND (<6,700)**	**ND (<6,700)**	NA	NA	ND (<1,700)	NA	4,900
Benzo (a) anthracene	ug/kg	2,900	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	210,000
Chrysene	ug/kg	2,500	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	400,000
Di-n-octyl phthalate	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

		Sample Number										
Semi-Volatiles	**Units**	**IC-SS-2**	**IC-SS-3**	**IC-SS-4**	**IC-SS-5**	**IC-SS-6**	**IC-SS-7**	**IC-SS-8**	**IC-SS-9**	**IC-SS-10**	**IC-SS-11**	**SO_i**
Benzo (b) fluoranthene	ug/kg	2,700	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	3,600
N-Nitrosodimethylamine	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
1,2-Diphenylhydrazine (2)	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
Benzo (k) fluoranthene	ug/kg	410	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	35,000
Benzo (a) pyrene	ug/kg	1,800	ND (<170)	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	NA	NA	**ND (<830)**	NA	360
Indeno (1,2,3,-cd) pyrene	ug/kg	730	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	3,600
Dibenz (a,h) anthracene	ug/kg	250	ND (<170)	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	**ND (<3,300)**	NA	NA	**ND (<830)**	NA	360
Benzo (g,h,i) perylene	ug/kg	740	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
Benzyl alcohol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
4-Chloroaniline	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	190,000
Dibenzofuran	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	150,000
2-Methylnaphthalene	ug/kg	ND (<170)	2400	ND (<3,300)	ND (<3,300)	ND (<3,300)	5,500	NA	NA	ND (<830)	NA	-
2-Nitroaniline	ug/kg	ND (<830)	ND (<830)	**ND (<17,000)**	**ND (<17,000)**	**ND (<17,000)**	**ND (<17,000)**	NA	NA	**ND (<4,200)**	NA	920
3-Nitroaniline	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	120,000
4-Nitroaniline	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

		Sample Number										
	Units	**IC-SS-2**	**IC-SS-3**	**IC-SS-4**	**IC-SS-5**	**IC-SS-6**	**IC-SS-7**	**IC-SS-8**	**IC-SS-9**	**IC-SS-10**	**IC-SS-11**	**SO_i**
Phenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	24,000,000
2-Chlorophenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	130,000
2-Nitrophenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
2,4-Dimethylphenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	1,200,000
2,4-Dichlorophenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	230,000
4-Chloro-3-methylphenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
2,4,6-Trichlorophenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	200,000
2,4-Dinitrophenol	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	76,000
4-Nitrophenol	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	370,000
4,6-Dinitro-2-methylphenol	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	-
Pentachlorophenol	ug/kg	ND (<830)	ND (<830)	**ND (<17,000)**	**ND (<17,000)**	**ND (<17,000)**	**ND (<17,000)**	NA	NA	ND (<4,200)	NA	12,000
2-Methylphenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
4-Methylphenol	ug/kg	ND (<170)	ND (<170)	ND (<3,300)	ND (<3,300)	ND (<3,300)	ND (<3,300)	NA	NA	ND (<830)	NA	-
Benzoic acid	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	-
2,4,5-Trichlorophenol	ug/kg	ND (<830)	ND (<830)	ND (<17,000)	ND (<17,000)	ND (<17,000)	ND (<17,000)	NA	NA	ND (<4,200)	NA	7,600,000

Pesticides/PCB

	Units	**IC-SS-2**	**IC-SS-3**	**IC-SS-4**	**IC-SS-5**	**IC-SS-6**	**IC-SS-7**	**IC-SS-8**	**IC-SS-9**	**IC-SS-10**	**IC-SS-11**	**SO_i**
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
Aldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320
Endosulfan I	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
Endrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
1,3-Dichlorobenzene	ug/kg	ND (<82.9)	ND (<83.1)	ND (<82.6)	ND (<82.6)	ND (<82.6)	ND (<82.2)	NA	NA	ND (<82.8)	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<295)	ND (<296)	ND (<294)	ND (<294)	ND (<294)	ND (<293)	NA	NA	ND (<295)	NA	16,000
1,2-Dichlorobenzene	ug/kg	ND (<89.6)	ND (<89.7)	ND (<89.3)	ND (<89.3)	ND (<89.3)	ND (<88.8)	NA	NA	ND (<89.4)	NA	120,000
Hexachloroethane	ug/kg	ND (<1.66)	ND (<1.66)	ND (<1.65)	ND (<1.65)	ND (<1.65)	ND (<1.64)	NA	NA	ND (<1.66)	NA	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	10.3	9.24	8.04	6.4	ND (<1.65)	8.15	NA	NA	5.12	NA	17,000
2-Chloronaphthalene	ug/kg	ND (<431)	ND (<432)	ND (<430)	ND (<430)	ND (<430)	ND (<428)	NA	NA	ND (<430)	NA	610,000
Hexachlorobenzene	ug/kg	ND (<1.66)	ND (<1.66)	ND (<39.3)	ND (<1.65)	ND (<1.65)	ND (<1.64)	NA	NA	ND (<1.66)	NA	1,300

Total Petroleum Hydrocarbons

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_i
TPH (as Gasoline)	mg/kg	NA	NA	NA	NA	NA	NA	ND (<39.4)	ND (<39.9)	NA	NA	500
TPH (as Diesel Oil)	mg/kg	NA	NA	NA	NA	NA	NA	ND (<39.4)	123	NA	NA	500
Oil and Grease	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_1
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.0)	703	NA	NA	3,200
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	3.29	583	NA	NA	480,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.0)	5,150	NA	NA	230,000
m-/p-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<2.0)	3,560	NA	NA	-
o-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.0)	ND (<500)	NA	NA	-
Xylene (Total)	ug/kg	NA	NA	NA	NA	NA	NA	1.5	3,810	NA	NA	150,000
BTEX (Total)	ug/kg	NA	NA	NA	NA	NA	NA	5.79	10,246	NA	NA	-
Ignitability	C	>100	>100	>100	NA	NA	>100	NA	NA	NA	NA	-
Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_1
Arsenic	mg/L	ND (<0.06)	ND (<0.06)	ND (<0.03)	NA	NA	ND (<0.03)	NA	NA	NA	ND (<0.03)	5.0
Barium	mg/L	0.58	0.31	1	NA	NA	1.4	NA	NA	NA	ND (<0.05)	100.0
Cadmium	mg/L	ND (<0.01)	ND (<0.01)	ND (<0.005)	NA	NA	ND (<0.005)	NA	NA	NA	ND (<0.005)	1.0
Chromium	mg/L	ND(<0.02)	ND(<0.02)	ND(<0.01)	NA	NA	ND(<0.01)	NA	NA	NA	0.024	5.0
Lead	mg/L	ND (<0.050)	ND (<0.050)	0.17	NA	NA	ND (<0.025)	NA	NA	NA	ND (<0.025)	5.0
Mercury	mg/L	0.0004	0.001	0.0007	NA	NA	ND (<0.0002)	NA	NA	NA	0.0005	0.2
Selenium	mg/L	ND (<0.12)	ND (<0.12)	ND (<0.06)	NA	NA	ND (<0.06)	NA	NA	NA	ND (<0.06)	1.0
Silver	mg/L	ND (<0.02)	ND (<0.02)	ND (<0.01)	NA	NA	ND (<0.01)	NA	NA	NA	ND (<0.1)	5.0

TCLP Volatile Organic Compounds

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_1
Vinyl Chloride	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	200
1,1-Dichloroethylene	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	700
Chloroform	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	6,000
1,2-Dichloroethane	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	500
Carbon Tetrachloride	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	500
Trichloroethylene	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	500
Benzene	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	500
Tetrachloroethylene	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	700
Chlorobenzene	ug/L	ND (<25)	ND (<25)	ND (<25)	NA	NA	ND (<25)	NA	NA	NA	ND (<25)	100,000
Methyl ethyl ketone	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	200,000

TCLP Extractables

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_1
Pyridine	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	5,000
1,4-Dichlorobenzene	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	7,500
Hexachloroethane	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	3,000
Nitrobenzene	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	2,000
Hexachloro-1,3-butadiene	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	500
2,4-Dinitrotoluene	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	100 (3)
Hexachlorobenzene	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	100 (3)
Cresols (total)	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	200,000
2,4,6-Trichlorophenol	ug/L	ND (<50)	ND (<50)	ND (<50)	NA	NA	ND (<50)	NA	NA	NA	ND (<50)	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_1
2,4,5-Trichlorophenol	ug/L	ND (<250)	ND (<250)	ND (<250)	NA	NA	ND (<250)	NA	NA	NA	ND (<250)	400,000
Pentachlorophenol	ug/L	ND (<250)	ND (<250)	ND (<250)	NA	NA	ND (<250)	NA	NA	NA	ND (<250)	100,000

TCLP Pesticides

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_1
gamma-BHC (Lindane)	ug/L	ND (<1.60)	ND (<1.60)	ND (<1.60)	NA	NA	ND (<1.60)	NA	NA	NA	ND (<1.60)	400
Heptachlor	ug/L	ND (<1.20)	ND (<1.20)	ND (<1.20)	NA	NA	ND (<1.20)	NA	NA	NA	ND (<1.20)	-
Heptachlor epoxide	ug/L	ND (<1.20)	ND (<1.20)	ND (<1.20)	NA	NA	ND (<1.20)	NA	NA	NA	ND (<1.20)	-
Total Heptachlor	ug/L	ND (<2.40)	ND (<2.40)	ND (<2.40)	NA	NA	ND (<2.40)	NA	NA	NA	ND (<2.40)	8
Endrin	ug/L	ND (<2.40)	ND (<2.40)	ND (<2.40)	NA	NA	ND (<2.40)	NA	NA	NA	ND (<2.40)	20
Methoxychlor	ug/L	ND (<10.0)	ND (<10.0)	ND (<10.0)	NA	NA	ND (<10.0)	NA	NA	NA	ND (<10.0)	10,000
Chlordane	ug/L	ND (<5.60)	ND (<5.60)	ND (<5.60)	NA	NA	ND (<5.60)	NA	NA	NA	ND (<5.60)	30
Toxaphene	ug/L	ND (<96.0)	ND (<96.0)	ND (<96.0)	NA	NA	ND (<96.0)	NA	NA	NA	ND (<96.0)	500

TCLP Chlorinated Herbicides

	Units	IC-SS-2	IC-SS-3	IC-SS-4	IC-SS-5	IC-SS-6	IC-SS-7	IC-SS-8	IC-SS-9	IC-SS-10	IC-SS-11	SO_1
2,4-D	ug/L	ND (<240)	ND (<240)	ND (<240)	NA	NA	ND (<240)	NA	NA	NA	ND (<240)	10,000
2,4,5-TP (Silvex)	ug/L	ND (<34)	ND (<34)	ND (<34)	NA	NA	ND (<34)	NA	NA	NA	ND (<34)	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Arsenic	mg/kg	4.9	NA	5.3	6.3	3.8	8.2	9.9	NA	5.6	7.8	ND (<2.4)	4.6	3.0
Barium	mg/kg	136	NA	244	136	111	172	125	NA	173	103	125	146	13,000
Cadmium	mg/kg	ND (<0.45)	NA	ND (<2.2)	ND (<2.5)	ND (<0.5)	ND (<0.5)	ND (<2.0)	NA	ND (<0.05)	ND (<0.45)	ND (<0.5)	ND (<0.5)	94
Chromium	mg/kg	15.8	NA	18.7	18.8	23.9	24.6	36.2	NA	12.2	71.1	9.7	16.7	190,000(+3),940 (6+)
Lead	mg/kg	21.3	NA	35.1	64.6	196	213	135	NA	104	472	8.2	46.6	1,700
Mercury	mg/kg	0.057	NA	0.11	ND (<0.02)	0.098	0.41	0.18	NA	0.27	20.8	0.065	0.18	56
Selenium	mg/kg	ND (<2.1)	NA	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<2.3)	ND (<2.2)	NA	ND (<2.5)	ND (<2.4)	ND (<2.4)	ND (<2.4)	940
Silver	mg/kg	ND (<0.90)	NA	ND (<4.5)	ND (<4.5)	2.9	ND (<1.0)	ND (<4.1)	NA	ND (<0.95)	ND (<0.90)	ND (<1.0)	ND (<1.0)	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Acrolein	ug/kg	ND (<50)	NA	ND (<50)	ND (<50)	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<250)	ND (<50)	ND (<50)	-
Acrylonitrile	ug/kg	ND (<50)	NA	ND (<50)	ND (<50)	NA	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<250)	ND (<50)	ND (<50)	-
Chloromethane	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	7,400
Bromomethane	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	3,100
Vinyl Chloride	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	98
Chloroethane	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	990,000
Methylene Chloride	ug/kg	35	NA	7b	7b	NA	79b	63	50	50b	70b	25b	14b	44,000
1,1-Dichloroethene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	250
1,1-Dichloroethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	470,000
1,2-Dichloroethene (total)	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	6	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	83,000
Trichlorofluoromethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	270,000
Chloroform	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	35	ND (<5)	ND (<5)	1,200
1,2-Dichloroethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	1,800
1,1,1-Trichloroethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	590,000
Carbon Tetrachloride	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	1,200
Bromodichloromethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	4,200
1,2-Dichloropropane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	1,800
trans-1,3-Dichloropropene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	1,200 (T)
Trichloroethene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	10	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	14,000
Dibromochloromethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	5,200
1,1,2-Trichloroethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	4,300
Benzene	ug/kg	ND (<5)	NA	ND (<5)	22	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	3,200
cis-1,3-Dichloropropene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	1,200 (T)
Bromoform	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	150,000
Tetrachloroethene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	27,000
1,1,2,2-Tetrachloroethane	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	1,900
Toluene	ug/kg	21	NA	ND (<5)	31	NA	29	40	30	8	210	ND (<5)	5	480,000
Chlorobenzene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	43,000
Ethylbenzene	ug/kg	ND (<5)	NA	7	7	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	3,000	ND (<5)	ND (<5)	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	-
1,2-Dichlorobenzene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	120,000
1,3-Dichlorobenzene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	570,000
1,4-Dichlorobenzene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	16,000
Acetone	ug/kg	ND (<10)	NA	210	46	NA	120	15	18	20	2,900	ND (<10)	11	1,400,000
Carbon Disulfide	ug/kg	ND (<5)	NA	89	37	NA	29	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	ND (<10)	NA	ND (<10)	25	NA	18	ND (<10)	ND (<10)	ND (<10)	320	ND (<10)	ND (<10)	4,400,000
Vinyl Acetate	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	-
2-Hexanone	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	49b	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	-
4-Methyl-2-Pentanone	ug/kg	ND (<10)	NA	ND (<10)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<50)	ND (<10)	ND (<10)	-
Styrene	ug/kg	ND (<5)	NA	ND (<5)	ND (<5)	NA	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<25)	ND (<5)	ND (<5)	1,700,000
Xylene (Total)	ug/kg	ND (<5)	NA	ND (<5)	29	NA	10	6	ND (<5)	ND (<5)	24,000	ND (<5)	ND (<5)	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Sample Number

Semi-Volatiles	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Benzidine	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	<170d	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	-
bis (2-Chloroethyl) ether	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	**ND (<1,700)**	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	930
1,3-Dichlorobenzene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	570,000
1,4-Dichlorobenzene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	16,000
1,2-Dichlorobenzene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	120,000
bis (2-Chloroisopropyl) ether	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	14,000
N-Nitroso-di-n-propylamine	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	**ND (<1,700)**	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	330
Hexachloroethane	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	110,000
Nitrobenzene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	21,000
Isophorone	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
1,2,4-Trichlorobenzene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	780,000
Naphthalene	ug/kg	ND (<170)	NA	ND (<170)	270	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	5,200
Hexachlorobutadiene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	17,000
Hexachlorocyclopentadiene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	3,400
2-Chloronaphthalene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	610,000
Dimethylphthalate	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	1,500,000
2,6-Dinitrotoluene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	52,000
Acenaphthylene	ug/kg	ND (<170)	NA	ND (<170)	170	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
Acenaphthene	ug/kg	ND (<170)	NA	ND (<170)	170	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	3,900,000
2,4-Dinitrotoluene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	110,000
Diethylphthalate	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	26	ND (<170)	200	670,000
4-Chlorophenyl-phenylether	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
Fluorene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	470,000
4-Bromophenyl-phenylether	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
Hexachlorobenzene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	**ND (<1,700)**	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	1,300
Phenanthrene	ug/kg	ND (<170)	NA	390	1,000	NA	ND (<50)	ND (<1,700)	ND (<170)	180	ND (<10)	ND (<170)	ND (<170)	-
Anthracene	ug/kg	ND (<170)	NA	ND (<170)	280	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	25,000,000
Pyrene	ug/kg	ND (<170)	NA	320	1,500	NA	ND (<50)	ND (<1,700)	ND (<170)	330	ND (<10)	ND (<170)	ND (<170)	2,700,000
Di-n-butylphthalate	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
Fluoranthene	ug/kg	ND (<170)	NA	430	1,500	NA	ND (<50)	ND (<1,700)	ND (<170)	310	ND (<10)	ND (<170)	ND (<170)	3,600,000
Butylbenzylphthalate	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	220,000
3,3'-Dichlorobenzidine	ug/kg	ND (<330)	NA	ND (<330)	ND (<330)	NA	ND (<100)	ND (<3,300)	ND (<330)	ND (<330)	ND (<20)	ND (<330)	ND (<330)	4,900
Benzo (a) anthracene	ug/kg	ND (<170)	NA	ND (<170)	750	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	230	380	1,700	210,000
Chrysene	ug/kg	ND (<170)	NA	ND (<170)	830	NA	ND (<50)	ND (<1,700)	ND (<170)	220	ND (<10)	ND (<170)	ND (<170)	400,000
Di-n-octyl phthalate	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

		Sample Number												
Semi-Volatiles	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Benzo (b) fluoranthene	ug/kg	ND (<170)	NA	ND (<170)	960	NA	ND (<50)	ND (<1,700)	ND (<170)	240	ND (<10)	ND (<170)	ND (<170)	3,600
N-Nitrosodimethylamine	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
1,2-Diphenylhydrazine (2)	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
Benzo (k) fluoranthene	ug/kg	ND (<170)	NA	ND (<170)	500	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	35,000
Benzo (a) pyrene	ug/kg	ND (<170)	NA	ND (<170)	770	NA	ND (<50)	**ND (<1,700)**	ND (<170)	200	ND (<10)	ND (<170)	ND (<170)	360
Indeno (1,2,3,-cd) pyrene	ug/kg	ND (<170)	NA	ND (<170)	300	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	3,600
Dibenz (a,h) anthracene	ug/kg	ND (<170)	NA	ND (<170)	170	NA	ND (<50)	**ND (<1,700)**	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	360
Benzo (g,h,i) perylene	ug/kg	ND (<170)	NA	ND (<170)	300	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
Benzyl alcohol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
4-Chloroaniline	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	190,000
Dibenzofuran	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	150,000
2-Methylnaphthalene	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
2-Nitroaniline	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	**ND (<8,300)**	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	920
3-Nitroaniline	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	120,000
4-Nitroaniline	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

		Sample Number												
	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Phenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	24,000,000
2-Chlorophenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	130,000
2-Nitrophenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
2,4-Dimethylphenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	1,200,000
2,4-Dichlorophenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	230,000
4-Chloro-3-methylphenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
2,4,6-Trichlorophenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	200,000
2,4-Dinitrophenol	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	76,000
4-Nitrophenol	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	370,000
4,6-Dinitro-2-methylphenol	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	-
Pentachlorophenol	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	12,000
2-Methylphenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
4-Methylphenol	ug/kg	ND (<170)	NA	ND (<170)	ND (<170)	NA	ND (<50)	ND (<1,700)	ND (<170)	ND (<170)	ND (<10)	ND (<170)	ND (<170)	-
Benzoic acid	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	-
2,4,5-Trichlorophenol	ug/kg	ND (<830)	NA	ND (<830)	ND (<830)	NA	ND (<250)	ND (<8,300)	ND (<830)	ND (<830)	ND (<50)	ND (<830)	ND (<830)	7,600,000

Pesticides/PCB

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	ND (<1.0)	NA	NA	NA	NA	NA	NA	ND (<0.98)	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	ND (<1.99)	NA	NA	NA	NA	NA	NA	ND (<1.97)	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	ND (<2.99)	NA	NA	NA	NA	NA	NA	ND (<2.95)	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	ND (<1.31)	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	ND (<1.0)	NA	NA	NA	NA	NA	NA	ND (<0.98)	NA	NA	NA	37
Aldrin	ug/kg	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	ND (<1.31)	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	ND (<1.0)	NA	NA	NA	NA	NA	NA	ND (<0.98)	NA	NA	NA	320
Endosulfan I	ug/kg	NA	ND (<4.64)	NA	NA	NA	NA	NA	NA	ND (<4.59)	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	ND (<0.66)	NA	NA	NA	NA	NA	NA	ND (<0.65)	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	ND (<1.31)	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Endrin	ug/kg	NA	ND (<1.66)	NA	NA	NA	NA	NA	NA	ND (<1.97)	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	ND (<1.33)	NA	NA	NA	NA	NA	NA	ND (<1.31)	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	ND (<3.65)	NA	NA	NA	NA	NA	NA	ND (<3.60)	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	ND (<21.9)	NA	NA	NA	NA	NA	NA	ND (<21.6)	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	ND (<3.98)	NA	NA	NA	NA	NA	NA	12.8	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	ND (<5.84)	NA	NA	NA	NA	NA	NA	ND (<57.6)	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	ND (<6.63)	NA	NA	NA	NA	NA	NA	ND (<6.55)	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	ND (<4.64)	NA	NA	NA	NA	NA	NA	ND (<4.59)	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	ND (<79.6)	NA	NA	NA	NA	NA	NA	ND (<78.6)	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	ND (<16.4)	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	ND (<16.4)	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	ND (<16.4)	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	ND (<16.4)	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	ND (<16.6)	NA	NA	NA	NA	NA	NA	ND (<16.4)	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	ND (<33.2)	NA	NA	NA	NA	NA	NA	ND (<32.8)	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	ND (<33.2)	NA	NA	NA	NA	NA	NA	ND (<32.8)	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	ND (<149.4)	NA	NA	NA	NA	NA	NA	ND (<147.6)	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
2,4-D	ug/kg	NA	ND (<3.33)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	ND (<12.5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	ND (<13.3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	ND (<18.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dalapopn	ug/kg	NA	ND (<216)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dicamba	ug/kg	NA	ND (<13.5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	ND (<43.3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	ND (<4,160)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	ND (<3,330)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
1,3-Dichlorobenzene	ug/kg	ND (<83.2)	NA	ND (<83.3)	ND (<83.3)	NA	ND (<83.3)	ND (<83.2)	ND (<83.3)	ND (<83.2)	ND (<83.1)	ND (<83.1)	ND (<83.3)	570,000
1,4-Dichlorobenzene	ug/kg	ND (<296)	NA	ND (<297)	ND (<297)	NA	ND (<296)	ND (<296)	ND (<297)	ND (<296)	ND (<296)	ND (<296)	ND (<296)	16,000
1,2-Dichlorobenzene	ug/kg	ND (<89.9)	NA	ND (<90.0)	ND (<90.0)	NA	ND (<89.9)	ND (<89.9)	ND (<90.0)	ND (<89.9)	ND (<89.7)	ND (<89.7)	ND (<89.9)	120,000
Hexachloroethane	ug/kg	2.4	NA	3.43	ND (<1.67)	NA	ND (<1.67)	1.97	ND (<1.67)	ND (<1.66)	ND (<1.66)	ND (<1.66)	ND (<1.67)	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	ND (<1.66)	NA	7.89b	7.77b	NA	2.11	2.65	3.39	ND (<1.66)	ND (<1.66)	ND (<1.66)	ND (<1.67)	17,000
2-Chloronaphthalene	ug/kg	ND (<433)	NA	ND (<433)	ND (<433)	NA	ND (<433)	ND (<433)	ND (<433)	ND (<433)	ND (<432)	ND (<432)	ND (<433)	610,000
Hexachlorobenzene	ug/kg	ND (<1.66)	NA	ND (<1.67)	ND (<1.67)	NA	ND (<1.67)	ND (<1.66)	ND (<1.67)	ND (<1.66)	ND (<1.66)	ND (<1.66)	ND (<1.67)	1,300

Total Petroleum Hydrocarbons

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
TPH (as Gasoline)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
TPH (as Diesel Oil)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Oil and Grease	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,200
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
m-/p-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
o-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Xylene (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
BTEX (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Ignitability	C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Arsenic	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Barium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100.0
Cadmium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Chromium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Lead	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2
Selenium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Silver	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0

TCLP Volatile Organic Compounds

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Vinyl Chloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200
1,1-Dichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chloroform	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6,000
1,2-Dichloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Carbon Tetrachloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Trichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Benzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Tetrachloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000
Methyl ethyl ketone	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000

TCLP Extractables

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
Pyridine	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,000
1,4-Dichlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,500
Hexachloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,000
Nitrobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000
Hexachloro-1,3-butadiene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
2,4-Dinitrotoluene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Hexachlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Cresols (total)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400,000
Pentachlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000

TCLP Pesticides

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
gamma-BHC (Lindane)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400
Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Heptachlor epoxide	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8
Endrin	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20
Methoxychlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
Chlordane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30
Toxaphene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500

TCLP Chlorinated Herbicides

	Units	IC-SS-15	IC-TS-1	IC-TS-2	IC-TS-3	IC-TS-4	IC-TS-6	IC-TS-7	IC-TS-8	IC-1-1	IC-2-1	IC-2-2	IC-3-1	SO_1
2,4-D	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_i
Arsenic	mg/kg	4.2	ND (<2.2)	3.2	3.2	NA	NA	NA	NA	NA	NA	7	NA	3.0
Barium	mg/kg	186	22.7	102	559	NA	NA	NA	NA	NA	NA	96.1	NA	13,000
Cadmium	mg/kg	ND (<0.5)	ND (<0.45)	ND (<0.5)	ND (<2.4)	NA	NA	NA	NA	NA	NA	ND(<2.4)	NA	94
Chromium	mg/kg	44.2	3.7	19.8	10.4	NA	NA	NA	NA	NA	NA	12	NA	190,000(+3),940 (6+)
Lead	mg/kg	71.8	4.1	10.1	107	11.5	NA	NA	NA	NA	NA	354	108	1,700
Mercury	mg/kg	0.03	0.16	0.13	0.17	NA	NA	NA	NA	NA	NA	0.14	NA	56
Selenium	mg/kg	ND (<2.3)	ND (<2.2)	ND (<2.4)	ND (<2.4)	NA	NA	NA	NA	NA	NA	ND (<2.3)	NA	940
Silver	mg/kg	ND (<1.0)	ND (<0.85)	ND (<1.0)	ND (<4.8)	NA	NA	NA	NA	NA	NA	ND (<4.8)	NA	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_i
Acrolein	ug/kg	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	ND (<6.3)	ND (<50)	-
Acrylonitrile	ug/kg	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	NA	NA	NA	NA	NA	ND (<6.3)	ND (<50)	-
Chloromethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	7,400
Bromomethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	3,100
Vinyl Chloride	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	98
Chloroethane	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	990,000
Methylene Chloride	ug/kg	11b	14b	39b	21	16	NA	NA	NA	NA	NA	ND (<0.6)	15	44,000
1,1-Dichloroethene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	250
1,1-Dichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	470,000
1,2-Dichloroethene (total)	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	83,000
Trichlorofluoromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	270,000
Chloroform	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,200
1,2-Dichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	9	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,800
1,1,1-Trichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	590,000
Carbon Tetrachloride	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,200
Bromodichloromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	4,200
1,2-Dichloropropane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,800
trans-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,200 (T)
Trichloroethene	ug/kg	ND (<5)	ND (<5)	ND (<5)	17	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	14,000
Dibromochloromethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	5,200
1,1,2-Trichloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	4,300
Benzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	3,200
cis-1,3-Dichloropropene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,200 (T)
Bromoform	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	150,000
Tetrachloroethene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	27,000
1,1,2,2-Tetrachloroethane	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,900
Toluene	ug/kg	ND (<5)	ND (<5)	8	44	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	480,000
Chlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	43,000
Ethylbenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	18	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	-
1,2-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	120,000
1,3-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	570,000
1,4-Dichlorobenzene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	16,000
Acetone	ug/kg	19	ND (<10)	ND (<10)	11	14	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	1,400,000
Carbon Disulfide	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	5	ND (<10)	4,400,000
Vinyl Acetate	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	-
2-Hexanone	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	ND (<1.3)	ND (<10)	-
4-Methyl-2-Pentanone	ug/kg	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	NA	NA	NA	NA	NA	2	ND (<10)	-
Styrene	ug/kg	ND (<5)	ND (<5)	ND (<5)	ND (<5)	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	ND (<5)	1,700,000
Xylene (Total)	ug/kg	ND (<5)	ND (<5)	ND (<5)	30	ND (<5)	NA	NA	NA	NA	NA	ND (<0.6)	9	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Semi-Volatiles	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
Benzidine	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
bis (2-Chloroethyl) ether	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	930
1,3-Dichlorobenzene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000
1,2-Dichlorobenzene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
bis (2-Chloroisopropyl) ether	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	14,000
N-Nitroso-di-n-propylamine	ug/kg	**ND (<830)**	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	330
Hexachloroethane	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
Nitrobenzene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	21,000
Isophorone	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	ND (<170)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2,4-Trichlorobenzene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Naphthalene	ug/kg	ND (<830)	ND (<170)	ND (<170)	**ND (<16,600)**	ND (<166)	NA	NA	NA	NA	NA	**ND (<16,600)**	ND (<166)	5,200
Hexachlorobutadiene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,000
Hexachlorocyclopentadiene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,400
2-Chloronaphthalene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	610,000
Dimethylphthalate	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,500,000
2,6-Dinitrotoluene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	52,000
Acenaphthylene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	-
Acenaphthene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	3,900,000
2,4-Dinitrotoluene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
Diethylphthalate	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	670,000
4-Chlorophenyl-phenylether	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Fluorene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	470,000
4-Bromophenyl-phenylether	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Hexachlorobenzene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300
Phenanthrene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	-
Anthracene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	25,000,000
Pyrene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	2,700,000
Di-n-butylphthalate	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Fluoranthene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	3,600,000
Butylbenzylphthalate	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	220,000
3,3'-Dichlorobenzidine	ug/kg	ND (<1,700)	ND (<330)	ND (<330)	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,900
Benzo (a) anthracene	ug/kg	ND (<830)	ND (<170)	ND (<170)	**ND (<16,600)**	ND (<166)	NA	NA	NA	NA	NA	**ND (<16,600)**	ND (<166)	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	210,000
Chrysene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	400,000
Di-n-octyl phthalate	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

Semi-Volatiles	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_i
Benzo (b) fluoranthene	ug/kg	ND (<830)	ND (<170)	ND (<170)	**ND (<16,600)**	ND (<166)	NA	NA	NA	NA	NA	**ND (<16,600)**	ND (<166)	3,600
N-Nitrosodimethylamine	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2-Diphenylhydrazine (2)	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo (k) fluoranthene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	35,000
Benzo (a) pyrene	ug/kg	**ND (<830)**	ND (<170)	ND (<170)	**ND (<16,600)**	ND (<166)	NA	NA	NA	NA	NA	**ND (<16,600)**	ND (<166)	360
Indeno (1,2,3,-cd) pyrene	ug/kg	ND (<830)	ND (<170)	ND (<170)	**ND (<16,600)**	ND (<166)	NA	NA	NA	NA	NA	**ND (<16,600)**	ND (<166)	3,600
Dibenz (a,h) anthracene	ug/kg	**ND (<830)**	ND (<170)	ND (<170)	**ND (<16,600)**	ND (<166)	NA	NA	NA	NA	NA	**ND (<16,600)**	ND (<166)	360
Benzo (g,h,i) perylene	ug/kg	ND (<830)	ND (<170)	ND (<170)	ND (<16,600)	ND (<166)	NA	NA	NA	NA	NA	ND (<16,600)	ND (<166)	-
Benzyl alcohol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Chloroaniline	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	190,000
Dibenzofuran	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
2-Methylnaphthalene	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Nitroaniline	ug/kg	**ND (<4,200)**	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	920
3-Nitroaniline	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
4-Nitroaniline	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	ND (<33,300)	ND (<332)	NA	NA	NA	NA	NA	ND (<33,300)	ND (<333)	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_i
Phenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	24,000,000
2-Chlorophenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	130,000
2-Nitrophenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-Dimethylphenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200,000
2,4-Dichlorophenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
4-Chloro-3-methylphenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,6-Trichlorophenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4-Dinitrophenol	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	76,000
4-Nitrophenol	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	370,000
4,6-Dinitro-2-methylphenol	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Pentachlorophenol	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000
2-Methylphenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Methylphenol	ug/kg	ND (<830)	ND (<170)	ND (<170)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzoic acid	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-Trichlorophenol	ug/kg	ND (<4,200)	ND (<830)	ND (<830)	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,600,000

Pesticides/PCB

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_i
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	ND (<0.97)	NA	NA	NA	NA	NA	NA	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	ND (<1.93)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	ND (<2.90)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	NA	ND (<1.29)	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	NA	ND (<0.97)	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
Aldrin	ug/kg	NA	NA	ND (<1.29)	NA	NA	NA	NA	NA	NA	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	NA	ND (<0.97)	NA	NA	NA	NA	NA	NA	NA	NA	NA	320
Endosulfan I	ug/kg	NA	NA	ND (<4.51)	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	ND (<0.64)	NA	NA	NA	NA	NA	NA	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	NA	ND (<1.29)	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
Endrin	ug/kg	NA	NA	ND (<1.93)	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	NA	ND (<1.29)	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	ND (<3.54)	NA	NA	NA	NA	NA	NA	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	NA	ND (<21.2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	NA	ND (<3.86)	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	ND (<56.7)	NA	NA	NA	NA	NA	NA	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	NA	ND (<6.44)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	NA	ND (<4.51)	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	NA	ND (<77.3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	ND (<16.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	ND (<16.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	ND (<16.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	ND (<16.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	ND (<16.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	ND (<32.2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	ND (<32.2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	ND (<144.9)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
1,3-Dichlorobenzene	ug/kg	ND (<82.9)	ND (<83.1)	ND (<83.2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<295)	ND (<296)	ND (<296)	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000
1,2-Dichlorobenzene	ug/kg	ND (<89.6)	ND (<89.7)	ND (<89.9)	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
Hexachloroethane	ug/kg	ND (<1.66)	ND (<1.66)	ND (<1.66)	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	ND (<1.66)	ND (<1.66)	ND (<1.66)	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,000
2-Chloronaphthalene	ug/kg	ND (<431)	ND (<432)	ND (<433)	NA	NA	NA	NA	NA	NA	NA	NA	NA	610,000
Hexachlorobenzene	ug/kg	ND (<1.66)	ND (<1.66)	ND (<1.66)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300

Total Petroleum Hydrocarbons

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
TPH (as Gasoline)	mg/kg	NA	NA	NA	ND (<78.8)	NA	ND (<39.2)	39.7	ND (<39.9)	ND (<39.5)	ND (<39.6)	ND (<398)	NA	500
TPH (as Diesel Oil)	mg/kg	NA	NA	NA	4,590	NA	192	4,530	1,750	186	1,290	1,250	NA	500
Oil and Grease	mg/kg	NA	NA	NA	12,100	NA	747	3,850	14,300	ND (<50.0)	4,330	20,600	NA	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,200
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
m-/p-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
o-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Xylene (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
BTEX (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Ignitability	C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
Arsenic	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Barium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100.0
Cadmium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Chromium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Lead	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2
Selenium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Silver	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0

TCLP Volatile Organic Compounds

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
Vinyl Chloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200
1,1-Dichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chloroform	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6,000
1,2-Dichloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Carbon Tetrachloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Trichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Benzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Tetrachloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000
Methyl ethyl ketone	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000

TCLP Extractables

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
Pyridine	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,000
1,4-Dichlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,500
Hexachloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,000
Nitrobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000
Hexachloro-1,3-butadiene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
2,4-Dinitrotoluene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Hexachlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Cresols (total)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400,000
Pentachlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000

TCLP Pesticides

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
gamma-BHC (Lindane)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400
Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Heptachlor epoxide	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8
Endrin	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20
Methoxychlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
Chlordane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30
Toxaphene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500

TCLP Chlorinated Herbicides

	Units	IC-4-1	IC-5-1	IC-6-1	IC-SS-2P1	IC-SS-2P1R	IC-SS-2P2	IC-SS-2P3	IC-SS-2P4	IC-SS-2P5	IC-SS-2P6	IC-SS-4P1	IC-SS-4P1R	SO_1
2,4-D	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Arsenic	mg/kg	NA	NA	NA	NA	NA	NA	ND (<2.5)	NA	NA	NA	NA	75.7	3.0
Barium	mg/kg	NA	NA	NA	NA	NA	NA	311	NA	NA	NA	NA	490	13,000
Cadmium	mg/kg	NA	NA	NA	NA	NA	NA	ND (<2.3)	NA	NA	NA	NA	ND (<2.3)	94
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	16.9	NA	NA	NA	NA	16	190,000(+3),940 (6+)
Lead	mg/kg	NA	NA	NA	NA	NA	NA	646	NA	9.9	NA	NA	75.3	1,700
Mercury	mg/kg	NA	NA	NA	NA	NA	NA	0.094	NA	NA	NA	NA	0.1	56
Selenium	mg/kg	NA	NA	NA	NA	NA	NA	ND (<2.5)	NA	NA	NA	NA	ND (<2.3)	940
Silver	mg/kg	NA	NA	NA	NA	NA	NA	ND (<4.6)	NA	NA	NA	NA	ND (<4.6)	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Acrolein	ug/kg	NA	NA	NA	NA	NA	NA	ND (<6.3)	NA	ND (<50)	NA	NA	ND (<50)	-
Acrylonitrile	ug/kg	NA	NA	NA	NA	NA	NA	ND (<6.3)	NA	ND (<50)	NA	NA	ND (<50)	-
Chloromethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	7,400
Bromomethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	3,100
Vinyl Chloride	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	98
Chloroethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	990,000
Methylene Chloride	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	12	NA	NA	54	44,000
1,1-Dichloroethene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	250
1,1-Dichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	470,000
1,2-Dichloroethene (total)	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	83,000
Trichlorofluoromethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	270,000
Chloroform	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,200
1,2-Dichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,800
1,1,1-Trichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	590,000
Carbon Tetrachloride	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,200
Bromodichloromethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	4,200
1,2-Dichloropropane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,800
trans-1,3-Dichloropropene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,200 (T)
Trichloroethene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	14,000
Dibromochloromethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	5,200
1,1,2-Trichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	4,300
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	3,200
cis-1,3-Dichloropropene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,200 (T)
Bromoform	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	150,000
Tetrachloroethene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	27,000
1,1,2,2-Tetrachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,900
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	480,000
Chlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	0.9	NA	ND (<5)	NA	NA	ND (<5)	43,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	-
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	120,000
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	16,000
Acetone	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	12	1,400,000
Carbon Disulfide	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	NA	NA	NA	NA	NA	NA	4	NA	ND (<10)	NA	NA	ND (<10)	4,400,000
Vinyl Acetate	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	-
2-Hexanone	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	-
4-Methyl-2-Pentanone	ug/kg	NA	NA	NA	NA	NA	NA	ND (<1.3)	NA	ND (<10)	NA	NA	ND (<10)	-
Styrene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<0.6)	NA	ND (<5)	NA	NA	ND (<5)	1,700,000
Xylene (Total)	ug/kg	NA	NA	NA	NA	NA	NA	3	NA	ND (<5)	NA	NA	5	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Semi-Volatiles	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Benzidine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
bis (2-Chloroethyl) ether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	930
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
bis (2-Chloroisopropyl) ether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14,000
N-Nitroso-di-n-propylamine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	330
Hexachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
Nitrobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21,000
Isophorone	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Naphthalene	ug/kg	NA	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	**ND (<16,700)**	5,200
Hexachlorobutadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,000
Hexachlorocyclopentadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,400
2-Chloronaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	610,000
Dimethylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,500,000
2,6-Dinitrotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52,000
Acenaphthylene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	-
Acenaphthene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	3,900,000
2,4-Dinitrotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
Diethylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	670,000
4-Chlorophenyl-phenylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Fluorene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	470,000
4-Bromophenyl-phenylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Hexachlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300
Phenanthrene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	-
Anthracene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	25,000,000
Pyrene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	2,700,000
Di-n-butylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Fluoranthene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	3,600,000
Butylbenzylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	220,000
3,3'-Dichlorobenzidine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,900
Benzo (a) anthracene	ug/kg	NA	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	**ND (<16,700)**	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	210,000
Chrysene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	400,000
Di-n-octyl phthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
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MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

Semi-Volatiles	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Benzo (b) fluoranthene	ug/kg	NA	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	**ND (<16,700)**	3,600
N-Nitrosodimethylamine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2-Diphenylhydrazine (2)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo (k) fluoranthene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	35,000
Benzo (a) pyrene	ug/kg	NA	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	**ND (<16,700)**	360
Indeno (1,2,3,-cd) pyrene	ug/kg	NA	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	**ND (<16,700)**	3,600
Dibenz (a,h) anthracene	ug/kg	NA	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	**ND (<16,700)**	360
Benzo (g,h,i) perylene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	ND (<16,700)	-
Benzyl alcohol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Chloroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	190,000
Dibenzofuran	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
2-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	920
3-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
4-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	NA	NA	NA	ND (<33,300)	NA	ND (<333)	NA	NA	ND (<33,300)	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Phenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24,000,000
2-Chlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130,000
2-Nitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-Dimethylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200,000
2,4-Dichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
4-Chloro-3-methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,6-Trichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4-Dinitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	76,000
4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	370,000
4,6-Dinitro-2-methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Pentachlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000
2-Methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzoic acid	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-Trichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,600,000

Pesticides/PCB

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
Aldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320
Endosulfan I	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Endrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
Hexachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,000
2-Chloronaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	610,000
Hexachlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300

Total Petroleum Hydrocarbons

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
TPH (as Gasoline)	mg/kg	ND (<39.8)	ND (<198)	ND (<39.8)	39.3	ND (<40.1)	ND (<399)	ND (<401)	ND (<79.3)	NA	ND (<192)	ND (<118)	ND (<39.4)	500
TPH (as Diesel Oil)	mg/kg	246	5,540	1,060	319	3,170	10,900	11,000	2,850	NA	13,900	6,710	973	500
Oil and Grease	mg/kg	857	12,800	6,190	2,870	3,510	9,020	95,800	23,500	NA	98,000	49,000	2,380	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
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MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,200
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
m-/p-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
o-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Xylene (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
BTEX (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Ignitability	C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Arsenic	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Barium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100.0
Cadmium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Chromium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Lead	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2
Selenium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Silver	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0

TCLP Volatile Organic Compounds

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Vinyl Chloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200
1,1-Dichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chloroform	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6,000
1,2-Dichloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Carbon Tetrachloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Trichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Benzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Tetrachloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000
Methyl ethyl ketone	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000

TCLP Extractables

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
Pyridine	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,000
1,4-Dichlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,500
Hexachloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,000
Nitrobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000
Hexachloro-1,3-butadiene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
2,4-Dinitrotoluene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Hexachlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Cresols (total)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400,000
Pentachlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000

TCLP Pesticides

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
gamma-BHC (Lindane)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400
Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Heptachlor epoxide	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8
Endrin	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20
Methoxychlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
Chlordane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30
Toxaphene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500

TCLP Chlorinated Herbicides

	Units	IC-SS-4P2	IC-SS-4P3	IC-SS-4P4	IC-SS-4P5	IC-SS-4P6	IC-SS-4P7	IC-SS-5P1	IC-SS-5P2	IC-SS-5P3R	IC-SS-5P4	IC-SS-5P5	IC-SS-7P1	SO_1
2,4-D	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Arsenic	mg/kg	NA	NA	NA	NA	NA	NA	ND (<2.4)	NA	NA	NA	NA	NA	3.0
Barium	mg/kg	NA	NA	NA	NA	NA	NA	105	NA	NA	NA	NA	NA	13,000
Cadmium	mg/kg	NA	NA	NA	NA	NA	NA	ND (<2.2)	NA	NA	NA	NA	NA	94
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	7.6	NA	NA	NA	NA	NA	190,000(+3),940 (6+)
Lead	mg/kg	9.9	NA	NA	NA	NA	NA	124	NA	11.7	NA	NA	NA	1,700
Mercury	mg/kg	NA	NA	NA	NA	NA	NA	0.089	NA	NA	NA	NA	NA	56
Selenium	mg/kg	NA	NA	NA	NA	NA	NA	2.4	NA	NA	NA	NA	NA	940
Silver	mg/kg	NA	NA	NA	NA	NA	NA	4.4	NA	NA	NA	NA	NA	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Acrolein	ug/kg	ND (<50)	NA	NA	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	-
Acrylonitrile	ug/kg	ND (<50)	NA	NA	NA	NA	NA	ND (<50)	NA	ND (<50)	NA	NA	NA	-
Chloromethane	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	7,400
Bromomethane	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	3,100
Vinyl Chloride	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	98
Chloroethane	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	990,000
Methylene Chloride	ug/kg	15	NA	NA	NA	NA	NA	25	NA	9	NA	NA	NA	44,000
1,1-Dichloroethene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	250
1,1-Dichloroethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	470,000
1,2-Dichloroethene (total)	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	83,000
Trichlorofluoromethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	270,000
Chloroform	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	1,200
1,2-Dichloroethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	8	NA	ND (<5)	NA	NA	NA	1,800
1,1,1-Trichloroethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	590,000
Carbon Tetrachloride	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	1,200
Bromodichloromethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	4,200
1,2-Dichloropropane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	1,800
trans-1,3-Dichloropropene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	1,200 (T)
Trichloroethene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	12	NA	ND (<5)	NA	NA	NA	14,000
Dibromochloromethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	5,200
1,1,2-Trichloroethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	4,300
Benzene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	3,200
cis-1,3-Dichloropropene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	1,200 (T)
Bromoform	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	150,000
Tetrachloroethene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	7	NA	ND (<5)	NA	NA	NA	27,000
1,1,2,2-Tetrachloroethane	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	1,900
Toluene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	32	NA	ND (<5)	NA	NA	NA	480,000
Chlorobenzene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	43,000
Ethylbenzene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	12	NA	ND (<5)	NA	NA	NA	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	-
1,2-Dichlorobenzene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	120,000
1,3-Dichlorobenzene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	16,000
Acetone	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	1,400,000
Carbon Disulfide	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
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MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	4,400,000
Vinyl Acetate	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	-
2-Hexanone	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	-
4-Methyl-2-Pentanone	ug/kg	ND (<10)	NA	NA	NA	NA	NA	ND (<10)	NA	ND (<10)	NA	NA	NA	-
Styrene	ug/kg	ND (<5)	NA	NA	NA	NA	NA	ND (<5)	NA	ND (<5)	NA	NA	NA	1,700,000
Xylene (Total)	ug/kg	ND (<5)	NA	NA	NA	NA	NA	11	NA	ND (<5)	NA	NA	NA	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Semi-Volatiles	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Benzidine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
bis (2-Chloroethyl) ether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	930
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
bis (2-Chloroisopropyl) ether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14,000
N-Nitroso-di-n-propylamine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	330
Hexachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
Nitrobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21,000
Isophorone	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Naphthalene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	NA	5,200
Hexachlorobutadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,000
Hexachlorocyclopentadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,400
2-Chloronaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	610,000
Dimethylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,500,000
2,6-Dinitrotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52,000
Acenaphthylene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	-
Acenaphthene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	3,900,000
2,4-Dinitrotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
Diethylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	670,000
4-Chlorophenyl-phenylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Fluorene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	470,000
4-Bromophenyl-phenylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Hexachlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300
Phenanthrene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	-
Anthracene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	25,000,000
Pyrene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	2,700,000
Di-n-butylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Fluoranthene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	3,600,000
Butylbenzylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	220,000
3,3'-Dichlorobenzidine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,900
Benzo (a) anthracene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	NA	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	210,000
Chrysene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	400,000
Di-n-octyl phthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

Semi-Volatiles	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Benzo (b) fluoranthene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	NA	3,600
N-Nitrosodimethylamine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2-Diphenylhydrazine (2)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo (k) fluoranthene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	35,000
Benzo (a) pyrene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	NA	360
Indeno (1,2,3,-cd) pyrene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	NA	3,600
Dibenz (a,h) anthracene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	**ND (<16,600)**	NA	ND (<167)	NA	NA	NA	360
Benzo (g,h,i) perylene	ug/kg	ND (<167)	NA	NA	NA	NA	NA	ND (<16,600)	NA	ND (<167)	NA	NA	NA	-
Benzyl alcohol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Chloroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	190,000
Dibenzofuran	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
2-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	920
3-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
4-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
2,4/2,6-Diaminotoluene	ug/kg	ND (<333)	NA	NA	NA	NA	NA	ND (<33,300)	NA	ND (<333)	NA	NA	NA	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Phenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24,000,000
2-Chlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130,000
2-Nitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-Dimethylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200,000
2,4-Dichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
4-Chloro-3-methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,6-Trichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4-Dinitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	76,000
4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	370,000
4,6-Dinitro-2-methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Pentachlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000
2-Methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzoic acid	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-Trichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,600,000

Pesticides/PCB

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
gamma-BHC (Lindane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,200
Heptachlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37
Aldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160
Heptachlor epoxide	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	320
Endosulfan I	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180
4,4'-DDE	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Endrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30,000
Endosulfan II	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18,000
Endosulfan sulfate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
4,4'-DDT	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520,000
Endrin aldehyde	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Chlordane (technical)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,000
Toxaphene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100

Chlorinated Herbicides

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120,000
Hexachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17,000
2-Chloronaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	610,000
Hexachlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300

Total Petroleum Hydrocarbons

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
TPH (as Gasoline)	mg/kg	NA	ND (<79.7)	ND (<39.9)	ND (<198)	ND (<39.9)	ND (<39.6)	ND (<79.7)	ND (<40.2)	NA	ND (<39.8)	ND (<39.6)	ND (<39.4)	500
TPH (as Diesel Oil)	mg/kg	NA	8,070	2,810	14,300	1,430	331	5,860	ND (<40.2)	NA	ND (<39.8)	ND (<39.6)	ND (<39.4)	500
Oil and Grease	mg/kg	NA	21,800	4,250	8,550	1,840	3,000	37,100	261	NA	338	155	149	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,200
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230,000
m-/p-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
o-Xylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Xylene (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150,000
BTEX (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Ignitability	C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Arsenic	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Barium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100.0
Cadmium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Chromium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Lead	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0
Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2
Selenium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Silver	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0

TCLP Volatile Organic Compounds

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Vinyl Chloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200
1,1-Dichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chloroform	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6,000
1,2-Dichloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Carbon Tetrachloride	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Trichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Benzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
Tetrachloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	700
Chlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000
Methyl ethyl ketone	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000

TCLP Extractables

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
Pyridine	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,000
1,4-Dichlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,500
Hexachloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,000
Nitrobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000
Hexachloro-1,3-butadiene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
2,4-Dinitrotoluene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Hexachlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 (3)
Cresols (total)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400,000
Pentachlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100,000

TCLP Pesticides

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
gamma-BHC (Lindane)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400
Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Heptachlor epoxide	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-
Total Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8
Endrin	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20
Methoxychlor	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
Chlordane	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30
Toxaphene	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500

TCLP Chlorinated Herbicides

	Units	IC-SS-7P1R	IC-SS-7P2	IC-SS-7P3	IC-SS-7P4	IC-SS-7P5	IC-SS-7P6	IC-SS-16P1	IC-SS-16P2	IC-SS-16P2R	IC-SS-16P3	IC-SS-16P4	IC-SS-16P5	SO_1
2,4-D	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

RCRA Metals

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC S1-1	SO_1
Arsenic	mg/kg	NA	NA	NA	NA	NA	NA	NA	11.9	3.0
Barium	mg/kg	NA	NA	NA	NA	NA	NA	NA	178	13,000
Cadmium	mg/kg	NA	NA	NA	NA	NA	NA	NA	1.8	94
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	14.0	190,000(+3),940 (6+)
Lead	mg/kg	14.7	12.6	15	113	20.3	59.8	30	132	1,700
Mercury	mg/kg	NA	NA	NA	NA	NA	NA	NA	ND	56
Selenium	mg/kg	NA	NA	NA	NA	NA	NA	NA	ND	940
Silver	mg/kg	NA	NA	NA	NA	NA	NA	NA	0.84	940

Volatile Priority Pollutants/ Hazardous Substance List Compounds

Volatiles	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC S1-1	SO_1
Acrolein	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
Acrylonitrile	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
Chloromethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	7,400
Bromomethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	3,100
Vinyl Chloride	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	98
Chloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	990,000
Methylene Chloride	ug/kg	NA	NA	NA	NA	NA	NA	NA	9.0	44,000
1,1-Dichloroethene	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	250
1,1-Dichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	470,000
1,2-Dichloroethene (total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	83,000
Trichlorofluoromethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	270,000
Chloroform	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,200
1,2-Dichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,800
1,1,1-Trichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	590,000
Carbon Tetrachloride	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,200
Bromodichloromethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	4,200
1,2-Dichloropropane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,800
trans-1,3-Dichloropropene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,200 (T)
Trichloroethene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	14,000
Dibromochloromethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	5,200
1,1,2-Trichloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	4,300
Benzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	3,200
cis-1,3-Dichloropropene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,200 (T)
Bromoform	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	150,000
Tetrachloroethene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	27,000
1,1,2,2-Tetrachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,900
Toluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	480,000
Chlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	43,000
Ethylbenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	230,000
2-Chloroethyl vinyl ether (1)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	120,000
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	16,000
Acetone	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	1,400,000
Carbon Disulfide	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	260,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Volatile Priority Pollutants/ Hazardous Substance List Compounds Continued

Volatiles	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
2-Butanone (methyl ethyl ketone)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	4,400,000
Vinyl Acetate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
2-Hexanone	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
4-Methyl-2-Pentanone	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
Styrene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,700,000
Xylene (Total)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	150,000

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds

Semi-Volatiles	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
Benzidine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
bis (2-Chloroethyl) ether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	930
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	16,000
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	120,000
bis (2-Chloroisopropyl) ether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	14,000
N-Nitroso-di-n-propylamine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	330
Hexachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	110,000
Nitrobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	21,000
Isophorone	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,200,000
bis (2-Chloroethoxy)methane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	780,000
Naphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	5,200
Hexachlorobutadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	17,000
Hexachlorocyclopentadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	3,400
2-Chloronaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	610,000
Dimethylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,500,000
2,6-Dinitrotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	52,000
Acenaphthylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	1,200	-
Acenaphthene	ug/kg	NA	NA	NA	NA	NA	NA	NA	110	3,900,000
2,4-Dinitrotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	110,000
Diethylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	670,000
4-Chlorophenyl-phenylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
Fluorene	ug/kg	NA	NA	NA	NA	NA	NA	NA	250	3,100,000
N-Nitrosodiphenylamine (1)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	470,000
4-Bromophenyl-phenylether	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
Hexachlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	1,300
Phenanthrene	ug/kg	NA	NA	NA	NA	NA	NA	NA	2,700	-
Anthracene	ug/kg	NA	NA	NA	NA	NA	NA	NA	1,900	25,000,000
Pyrene	ug/kg	NA	NA	NA	NA	NA	NA	NA	13,000	2,700,000
Di-n-butylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Fluoranthene	ug/kg	NA	NA	NA	NA	NA	NA	NA	12,000	3,600,000
Butylbenzylphthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	220,000
3,3'-Dichlorobenzidine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	4,900
Benzo (a) anthracene	ug/kg	NA	NA	NA	NA	NA	NA	NA	7,000	3,600
bis (2-Ethylhexyl) phthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	90	210,000
Chrysene	ug/kg	NA	NA	NA	NA	NA	NA	NA	14,000	400,000
Di-n-octyl phthalate	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	2,100,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Base/Neutral Priority Pollutants/Hazardous Substance List Compounds Continued

Semi-Volatiles	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
Benzo (b) fluoranthene	ug/kg	NA	NA	NA	NA	NA	NA	NA	12,000	3,600
N-Nitrosodimethylamine	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
1,2-Diphenylhydrazine (2)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
Benzo (k) fluoranthene	ug/kg	NA	NA	NA	NA	NA	NA	NA	5,400	35,000
Benzo (a) pyrene	ug/kg	NA	NA	NA	NA	NA	NA	NA	7,500	360
Indeno (1,2,3,-cd) pyrene	ug/kg	NA	NA	NA	NA	NA	NA	NA	2,400	3,600
Dibenz (a,h) anthracene	ug/kg	NA	NA	NA	NA	NA	NA	NA	1,300	360
Benzo (g,h,i) perylene	ug/kg	NA	NA	NA	NA	NA	NA	NA	2,000	-
Benzyl alcohol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-
4-Chloroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	190,000
Dibenzofuran	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	150,000
2-Methylnaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
2-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	920
3-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	120,000
4-Nitroaniline	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	110,000
2,4/2,6-Diaminotoluene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NR	-

Acid Extractable Priority Pollutants/Hazardous Substance List Compounds

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
Phenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	24,000,000
2-Chlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	130,000
2-Nitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-Dimethylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	1,200,000
2,4-Dichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	230,000
4-Chloro-3-methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,6-Trichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	200,000
2,4-Dinitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	76,000
4-Nitrophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	370,000
4,6-Dinitro-2-methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
Pentachlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	12,000
2-Methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Methylphenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzoic acid	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-Trichlorophenol	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	7,600,000

Pesticides/PCB

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
alpha-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	480
beta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	1,800
delta-BHC (hexachlorocyclohexane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
gamma-BHC (Lindane)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	2,200
Heptachlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	37
Aldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	160
Heptachlor epoxide	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	320
Endosulfan I	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	530,000 (I+II)
Dieldrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	180
4,4'-DDE	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	12,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Pesticides/PCB Continued

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
Endrin	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	30,000
Endosulfan II	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	530,000 (I+II)
4,4'-DDD	ug/kg	NA	NA	NA	NA	NA	NA	NA	7.4	18,000
Endosulfan sulfate	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
4,4'-DDT	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	13,000
4,4'-Methoxychlor	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	520,000
Endrin aldehyde	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Chlordane (technical)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	11,000
Toxaphene	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	2,600
Aroclor-1016 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Aroclor-1221 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Aroclor-1232 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Aroclor-1242 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Aroclor-1248 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Aroclor-1254 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Aroclor-1260 (Polychlorinated biphenyl)	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	-
Total Polychlorinated biphenyls	ug/kg	NA	NA	NA	NA	NA	NA	NA	ND	1,100

Chlorinated Herbicides

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
2,4-D	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-TP (Silvex)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,5-T	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
Dinoseb	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	61,000
Dalapopn	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
Dicamba	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-DP (Dichloroprop)	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-
MCPP	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	-

Chlorinated Hydrocarbons

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
1,3-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	570,000
1,4-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	16,000
1,2-Dichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	120,000
Hexachloroethane	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	110,000
1,2,4-Trichlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	780,000
Hexachlorobutadiene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	17,000
2-Chloronaphthalene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	610,000
Hexachlorobenzene	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	1,300

Total Petroleum Hydrocarbons

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
TPH (as Gasoline)	mg/kg	3,040	ND (<39.8)	ND (<39.9)	413	ND (<40.1)	ND (<39.8)	ND (<39.8)	NA	500
TPH (as Diesel Oil)	mg/kg	ND (<39.8)	ND (<39.8)	ND (<39.9)	ND (<39.8)	ND (<40.1)	ND (<39.8)	ND (<39.8)	NA	500
Oil and Grease	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	-

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

Aromatic Volatiles (BTEX)

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_i
Benzene	ug/kg	ND (<5,000)	ND (<500)	ND (<500)	ND (<5,000)	ND (<500)	ND (<500)	ND (<500)	NR	3,200
Toluene	ug/kg	26,500	ND (<500)	ND (<500)	ND (<5,000)	614	ND (<500)	ND (<500)	NR	480,000
Ethylbenzene	ug/kg	37,300	ND (<500)	ND (<500)	10,900	ND (<500)	ND (<500)	ND (<500)	NR	230,000
m-/p-Xylene	ug/kg	201,000	ND (<1,000)	ND (<1,000)	54700	ND (<1,000)	ND (<1,000)	ND (<1,000)	ND	-
o-Xylene	ug/kg	82,500	ND (<500)	ND (<500)	ND (<5,000)	ND (<500)	ND (<500)	ND (<500)	NR	-
Xylene (Total)	ug/kg	283,500	750	750	57,200	750	750	750	NR	150,000
BTEX (Total)	ug/kg	349,800	1,500	1,500	73,100	1,864	1,500	1,500	NR	-
Ignitability	C	NA	NA	NA	NA	NA	NA	NA	ND	-
Asbestos	+/-	NA	NA	NA	NA	NA	NA	NA	NA	-

TCLP METALS

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_i
Arsenic	mg/L	NA	NA	NA	NA	NA	NA	NA	ND	5.0
Barium	mg/L	NA	NA	NA	NA	NA	NA	NA	1.4	100.0
Cadmium	mg/L	NA	NA	NA	NA	NA	NA	NA	ND	1.0
Chromium	mg/L	NA	NA	NA	NA	NA	NA	NA	ND	5.0
Lead	mg/L	NA	NA	NA	NA	NA	NA	NA	ND	5.0
Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	ND	0.2
Selenium	mg/L	NA	NA	NA	NA	NA	NA	NA	ND	1.0
Silver	mg/L	NA	NA	NA	NA	NA	NA	NA	ND	5.0

TCLP Volatile Organic Compounds

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_i
Vinyl Chloride	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	200
1,1-Dichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	700
Chloroform	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	6,000
1,2-Dichloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	500
Carbon Tetrachloride	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	500
Trichloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	500
Benzene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	500
Tetrachloroethylene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	700
Chlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	100,000
Methyl ethyl ketone	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	200,000

TCLP Extractables

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_i
Pyridine	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	5,000
1,4-Dichlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	7,500
Hexachloroethane	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	3,000
Nitrobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	2,000
Hexachloro-1,3-butadiene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	500
2,4-Dinitrotoluene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	100 (3)
Hexachlorobenzene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	100 (3)
Cresols (total)	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	200,000
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	2,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TCLP Extractables Continued

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	400,000
Pentachlorophenol	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	100,000

TCLP Pesticides

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
gamma-BHC (Lindane)	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	400
Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	-
Heptachlor epoxide	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	-
Total Heptachlor	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	8
Endrin	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	20
Methoxychlor	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	10,000
Chlordane	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	30
Toxaphene	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	500

TCLP Chlorinated Herbicides

	Units	IC-SS-9A	IC-SS-9B	IC-SS-9C	IC-SS-9D	IC-SS-9E	IC-SS-9F	IC-SS-9G	IHNC SI-1	SO_1
2,4-D	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	10,000
2,4,5-TP (Silvex)	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	1,000

T-total m-mixed (B=X)-blank concentration NA-not analyzed
ND-nondetect b-detected in blank d-detected but unquantifiable
MD-missing data IO-inorganic c-cis t-trans NR-not reported

TABLE 2

Previous Sample Location Data Gaps

Table 2.0 Previous Sample Location Data Gaps

Boring Number	Parameter	Source of Data Gap
BS-2	Semivolatile Organic Compounds	Sample Dilution
BS-3	Chromium Arsenic	Test Method Performed Sample Dilution
BS-3D	Semivolatile Organic Compounds	Sample Dilution
BS-6	Semivolatile Organic Compounds	Sample Dilution
BS-7	Chromium Semivolatile Organic Compounds	Test Method Performed Sample Dilution
BS-8	Arsenic	Sample Dilution
BS-8D	Semivolatile Organic Compounds	Sample Dilution
BS-9 and BS-9D	Chromium	Test Method Performed
BS-10	Chromium	Test Method Performed
BS-10D	Semivolatile Organic Compounds	Sample Dilution
BS-11	Semivolatile Organic Compounds	Sample Dilution
IC1-1	Semivolatile Organic Compounds	Sample Dilution
MS-1	Semivolatile Organic Compounds (2-nitroaniline only)	Sample Dilution
MS-3	Semivolatile Organic Compounds (2-nitroaniline only)	Sample Dilution
MS-6	Semivolatile Organic Compounds (2-nitroaniline only)	Sample Dilution
IS-3	Semivolatile Organic Compounds Chromium	Sample Dilution Test Method Performed
IS-5	Semivolatile Organic Compounds Chromium	Sample Dilution Test Method Performed
IS-6	Semivolatile Organic Compounds	Sample Dilution
IS-8	Semivolatile Organic Compounds	Sample Dilution
IC-2-1	Chromium	Test Method Performed
IC-2-2	Semivolatile Organic Compounds	Sample Dilution
DS-4	Semivolatile Organic Compounds	Sample Dilution
DS-9	Semivolatile Organic Compounds	Sample Dilution
DS-11	Semivolatile Organic Compounds	Sample Dilution
IC-5-1	Arsenic/Semivolatile Organic Compounds	Sample Dilution
SS-1	Asbestos	Missing Data
SS-3	Semivolatile Organic Compounds	Sample Dilution
SS-4	Semivolatile Organic Compounds Volatile Organic Compounds (Vinyl Chloride only)	Sample Dilution
SS-5	Semivolatile Organic Compounds Volatile Organic Compounds (Vinyl Chloride only)	Sample Dilution
SS-6	Semivolatile Organic Compounds Volatile Organic Compounds (Vinyl Chloride only)	Sample Dilution
SS-7	Semivolatile Organic Compounds Volatile Organic Compounds (Vinyl Chloride only)	Sample Dilution
SS-9D	BTEX (Benzene only)	Sample Dilution
SS-10	Semivolatile Organic Compounds	Sample Dilution
SS-11	Chromium	Test Method Performed
SS-15	Semivolatile Organic Compounds	Sample Dilution
IC-3-1	Semivolatile Organic Compounds	Sample Dilution
IC-6-1	Semivolatile Organic Compounds	Sample Dilution
SS-2P	Polyaromatic Hydrocarbons (PAH)	Sample Dilution
SS-4P	Polyaromatic Hydrocarbons (PAH)	Sample Dilution
SS-5P	Polyaromatic Hydrocarbons (PAH)/Arsenic	Sample Dilution
SS-7P	Polyaromatic Organic (PAH)	Sample Dilution
SS-16P	Polyaromatic Hydrocarbons (PAH)/Arsenic	Sample Dilution
TS-2	Semivolatile Organic Compounds	Sample Dilution
TS-6	Semivolatile Organic Compounds	Sample Dilution
TS-7	Semivolatile Organic Compounds	Sample Dilution
TS-8	Semivolatile Organic Compounds	Sample Dilution
IC-4-1	Semivolatile Organic Compounds Chromium	Sample Dilution Test Method Performed

TABLE 3

Proposed Excavated Soil Inventory - IHNC

Table 3 - Proposed Excavated Soil Inventory - IHNC

Site Name	Impacted Material	Quantity (yd^3)***
Boland Marine Total Acreage removed – 87,783yd^3	TPH	0
	SVOC	2,848
	*Arsenic	187
	**Lead	4,031
McDonough Marine Total Acreage – 35,813yd^3	TPH	0
	SVOC	381
	*Arsenic	13,716
Indian Towing Total Acreage – 23,840yd^3	TPH	119
	SVOC	1,408
	*Arsenic	17,434
Mayer Yacht/Distributor Oil Total Acreage – 34,184yd^3	TPH	1,202
	SVOC	0
	*Arsenic	26,126
Saucer Marine Total Acreage – 77,145yd^3	TPH	8,288
	SVOC	1,312
	*Arsenic	83
International Tank Terminal Total Acreage – 43,566yd^3	TPH	0
	SVOC	1,261
	*Arsenic	17,078

* Arsenic concentrations in this shallow soil inventory of the IHNC east bank are probably related to site background levels (i.e. naturally occurring with local/regional anthropogenic contributions not related to site-specific industrial activities of the east bank) and therefore may be considered as background by the LDEQ.

**Lead concentrations detected at Boland Marine may be an anomaly in the data which should be further evaluated prior to removal and disposal as a hazardous waste.

***Volume estimates have been calculated based on the impacted areas outlined in Figures 6 through 9 with an assumed depth of five feet.

NOTE: Total Acreage is the total surface area of the site times a depth of five feet.

TABLE 4

Proposed Excavation Methods with Treatment/Disposal Options - IHNC

Table 4 - Proposed Excavation Methods with Treatment/Disposal Options - IHNC

Waste Material	Excavation Methods / Equipment Needed	Special Requirements	Treatment Options	Disposal Sites
Soil Impacted with SVOC	Excavate to 5' below ground surface (bgs) or to top of groundwater using track hoe excavators and front-end loaders	Segregated in order to remove misc. debris such as metal and timbers	Thermal Treatment or Biological Treatment	Not treated, the material must be sent to a facility licensed to accept industrial solid waste.
Soil Impacted with various metals	Excavate to 5' bgs or to top of groundwater using track hoe excavators and front-end loaders	Segregated in order to remove misc. debris such as metal and timbers	Chemical Treatment or Risked Away via a Base Line Risk Assessment	Not treated or risked away, the material must be sent to a facility licensed to accept construction / demolition debris. **Note: If the material fails TCLP, it will need to be disposed at a facility licensed to accept hazardous waste.**
Soil Impacted with TPH and associated VOC	Excavate to 5' bgs or to top of groundwater using track hoe excavators and front-end loaders	Segregated in order to remove misc. debris such as metal and timbers	Thermal Treatment or Biological Treatment	Not treated, the material must be sent to a facility licensed to accept industrial solid waste.
Clean Soil	Excavate to 5' bgs or leave in-place and remove during dredging operations for the bypass channel.	Segregated in order to remove misc. debris such as metal and timbers	None	Discharged to the Mississippi River or placed at the mitigation site for wetland reconstruction. Material may also be stockpiled for reuse as backfill material around the new lock.

TABLE 5

Proposed Estimated Treatment/Disposal Cost

Table 5 – Proposed Estimated Treatment/Disposal Cost

Item	Quantity (yd^3)	Management Options	Unit Cost (yd^3	Total Cost
TPH/VOC	9,609	Landfill-San. Thermal	$45.00 $60.00	$432,405.00 $576,540.00
SVOC	7,210	Landfill-San. Thermal	$45.00 $60.00	$324,450.00 $432,600.00
Metals-Arsenic*	270	Landfill-San. Chemical	$45.00 $35.00	$ 12,150.00 $ 9,540.00
Metals-Lead	4,031	Landfill-Haz.	$75.00	$302,325.00

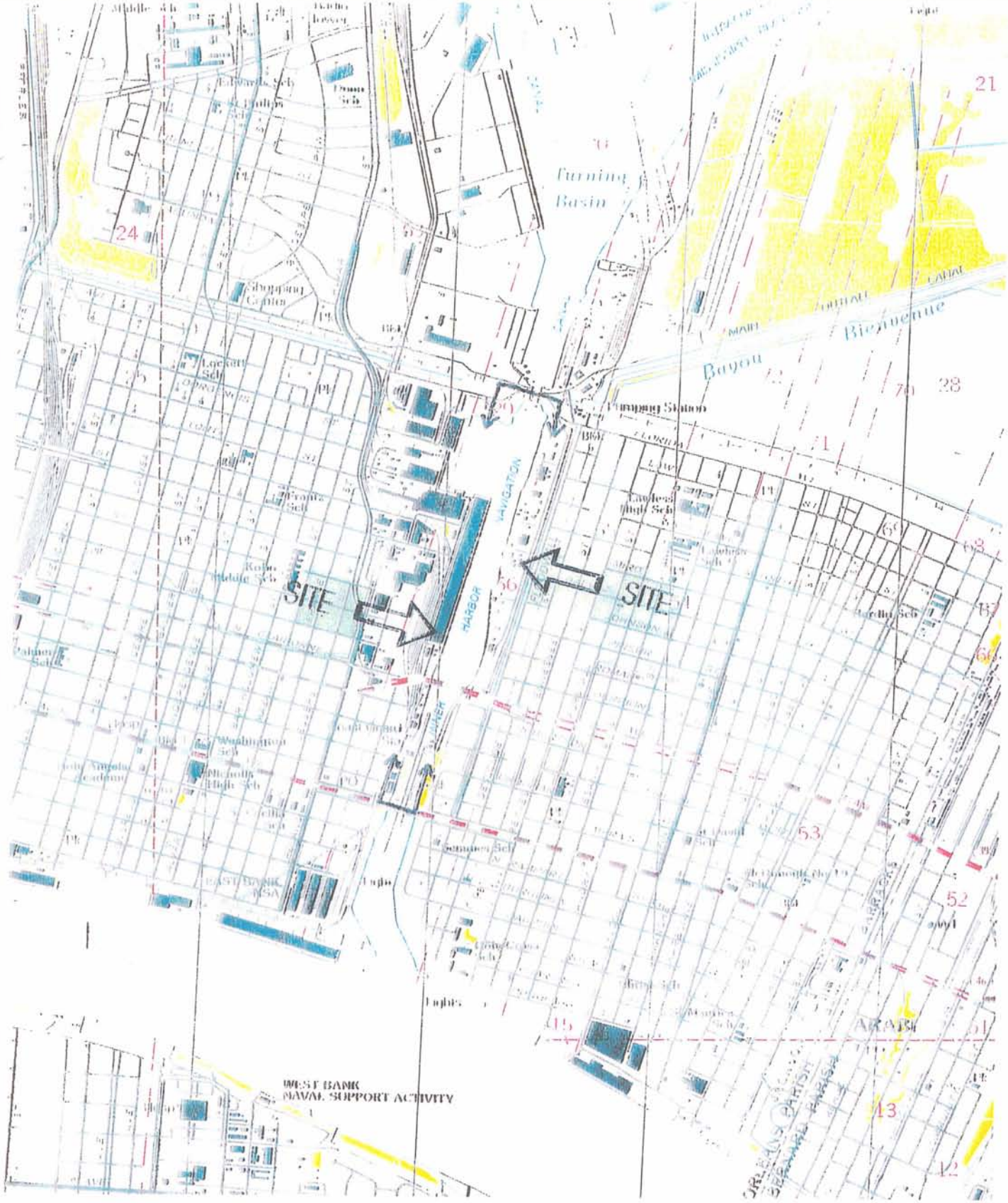
Assumptions: 15.tons = 1 yd^3

Soils have 30% moisture content.

* Quantity of arsenic-impacted soil estimated in this cost estimate are those above 17 mg/kg as shown in Figure 6. Final quantity would depend on a site background concentration acceptable to the LDEQ.

FIGURE 1

Site Location Map



Adapted from U.S. Geological Survey
NEW ORLEANS EAST
QUADRANGLE
7.5 Minute Series (Topographic)
1992

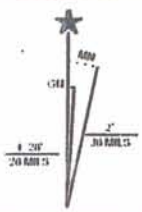


Figure 1
SITE LOCATION MAP

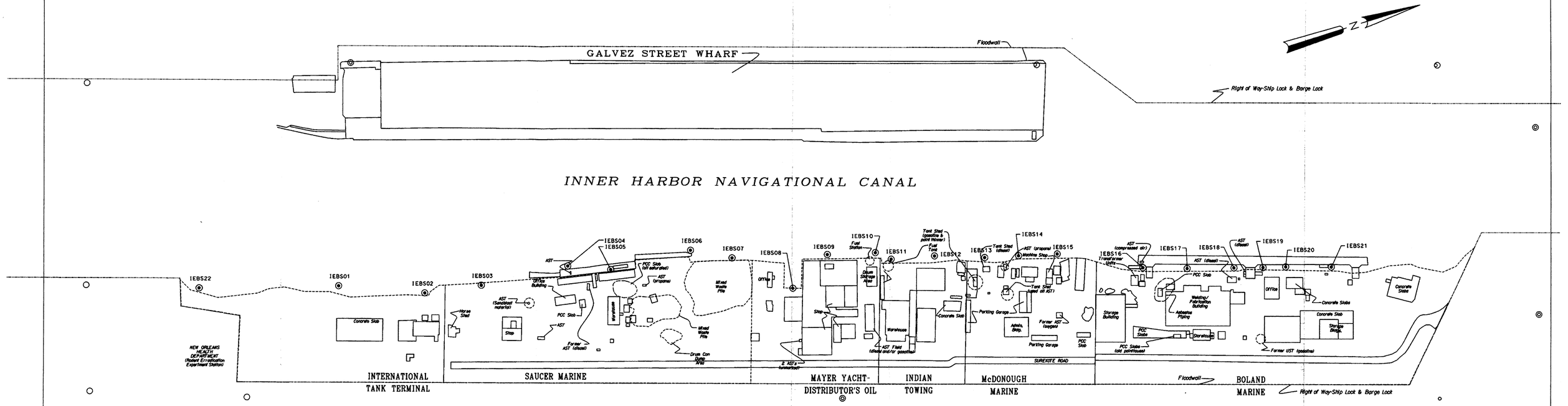
Inner Harbor Navigation Canal
New Orleans, Louisiana

Scale: 1:24 000
Contour Interval: 10'

DAMES & MOORE

FIGURE 2

Site Layout



LEGEND

PCC - Portland Cement Concrete

100 50 0 100 200 300 400

Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 2
SITE PLOT PLAN
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

FIGURE 3

Soil Sample Detection Results

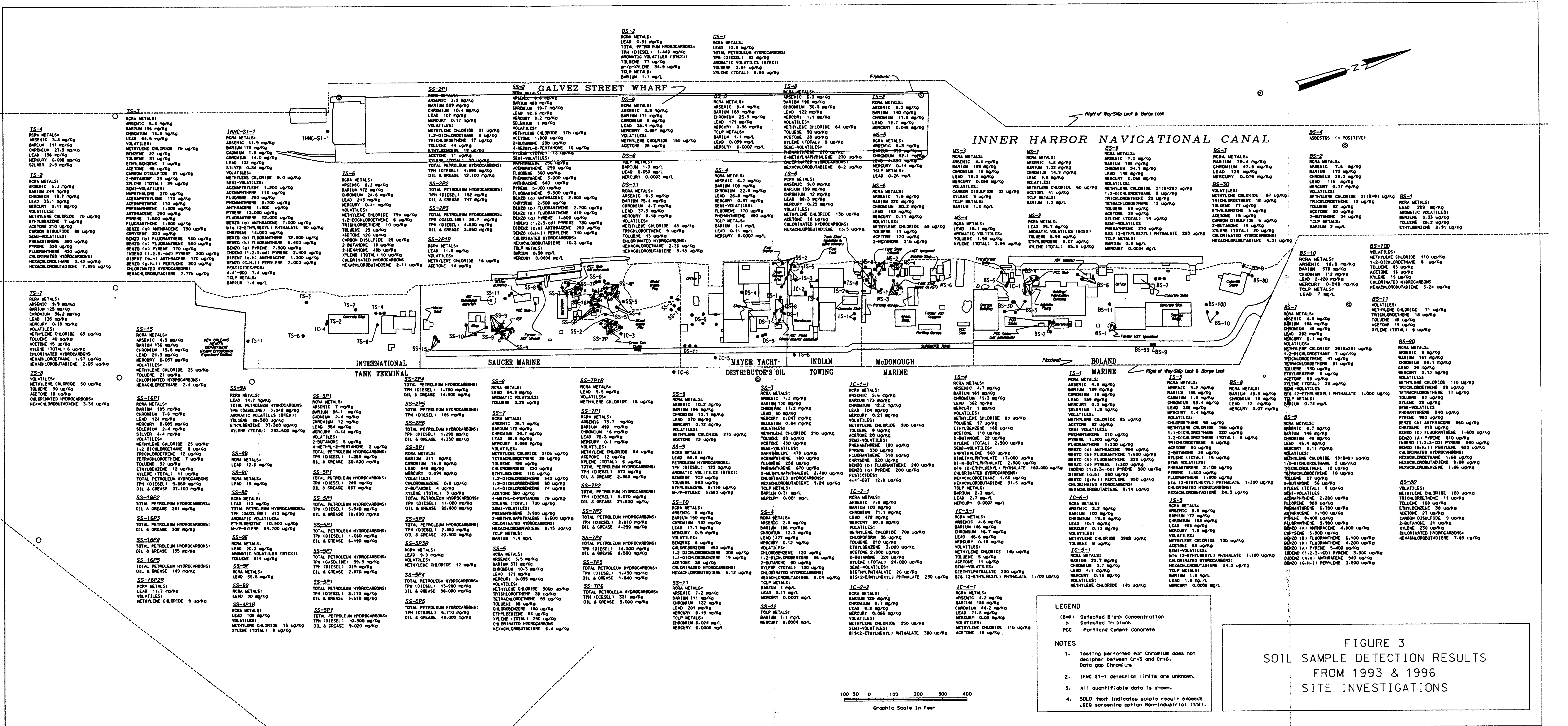


FIGURE 3
SOIL SAMPLE DETECTION RESULTS
FROM 1993 & 1996
SITE INVESTIGATIONS

FIGURE 4

Previous Soil Sampling Results – Failing SOni

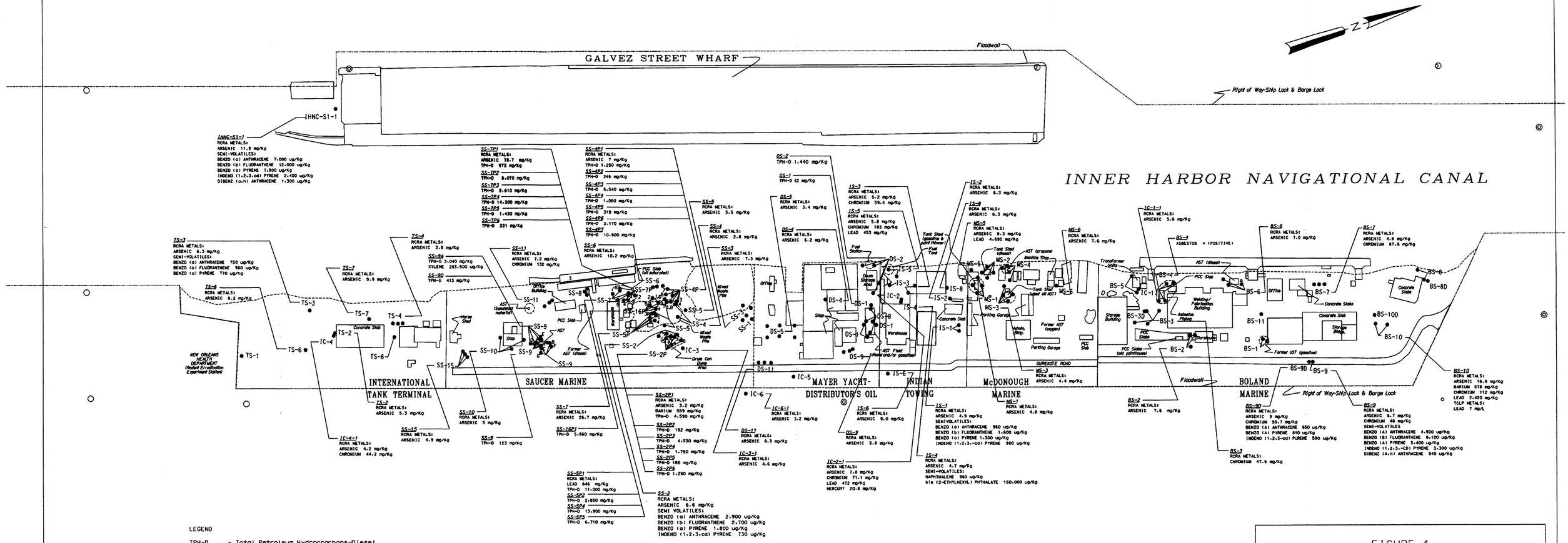
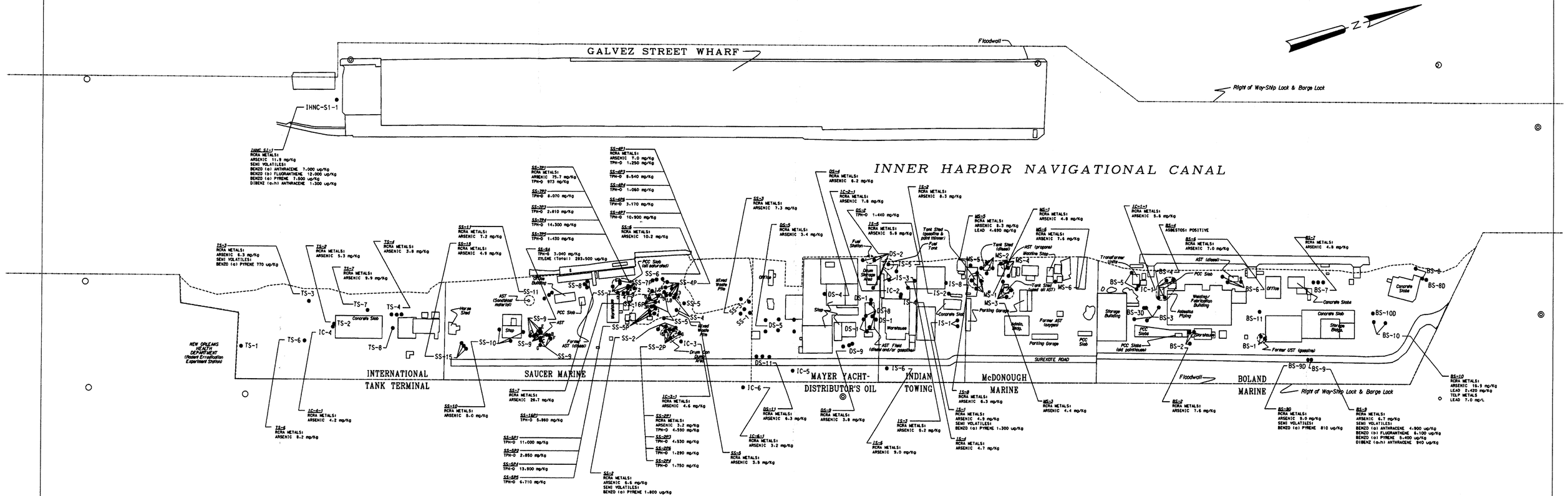

GALVEZ STREET WHARF
Floodwall
Right of Way-Ship Lock & Barge Lock
INNER HARBOR NAVIGATIONAL CANAL
IHNC-S1-1
IHNC-S1-1
RCRA METALS:
ARSENIC 11.9 mg/Kg
SEMI-VOLATILES:
BENZO (a) ANTHRACENE 7,000 ug/Kg
BENZO (b) FLUORANTHENE 12,000 ug/Kg
BENZO (a) PYRENE 7,500 ug/Kg
INDENO (1,2,3-cd) PYRENE 2,400 ug/Kg
DIBENZ (a,h) ANTHRACENE 1,300 ug/Kg
TS-1
TS-2
TS-3
RCRA METALS:
ARSENIC 6.3 mg/Kg
SEMI-VOLATILES:
BENZO (a) ANTHRACENE 750 ug/Kg
BENZO (b) FLUORANTHENE 960 ug/Kg
BENZO (a) PYRENE 770 ug/Kg
TS-4
RCRA METALS:
ARSENIC 3.8 mg/Kg
TS-5
TS-6
RCRA METALS:
ARSENIC 8.2 mg/Kg
TS-7
RCRA METALS:
ARSENIC 9.9 mg/Kg
TS-8
TS-9
RCRA METALS:
ARSENIC 5.5 mg/Kg
IC-4-1
RCRA METALS:
ARSENIC 4.2 mg/Kg
CHROMIUM 44.2 mg/Kg
SS-1P1
RCRA METALS:
ARSENIC 78.7 mg/Kg
TPH-D 973 mg/Kg
SS-1P2
TPH-D 8,070 mg/Kg
SS-1P3
TPH-D 9,810 mg/Kg
SS-1P4
TPH-D 14,300 mg/Kg
SS-1P5
TPH-D 1,430 mg/Kg
SS-1P6
TPH-D 331 mg/Kg
SS-2P1
RCRA METALS:
ARSENIC 3.2 mg/Kg
BARIUM 559 mg/Kg
TPH-D 4,590 mg/Kg
SS-2P2
TPH-D 192 mg/Kg
SS-2P3
TPH-D 4,530 mg/Kg
SS-2P4
TPH-D 1,750 mg/Kg
SS-2P5
TPH-D 186 mg/Kg
SS-2P6
TPH-D 1,290 mg/Kg
SS-2
RCRA METALS:
ARSENIC 6.6 mg/Kg
SEMI VOLATILES:
BENZO (a) ANTHRACENE 2,900 ug/Kg
BENZO (b) FLUORANTHENE 2,700 ug/Kg
BENZO (a) PYRENE 1,800 ug/Kg
INDENO (1,2,3-cd) PYRENE 730 ug/Kg
SS-3
RCRA METALS:
ARSENIC 7.3 mg/Kg
SS-4
RCRA METALS:
ARSENIC 2.8 mg/Kg
SS-4P1
RCRA METALS:
ARSENIC 7 mg/Kg
TPH-D 1,250 mg/Kg
SS-4P2
TPH-D 246 mg/Kg
SS-4P3
TPH-D 5,540 mg/Kg
SS-4P4
TPH-D 1,080 mg/Kg
SS-4P5
TPH-D 319 mg/Kg
SS-4P6
TPH-D 3,170 mg/Kg
SS-4P7
TPH-D 10,900 mg/Kg
SS-5
RCRA METALS:
ARSENIC 3.5 mg/Kg
SS-6
RCRA METALS:
ARSENIC 10.2 mg/Kg
SS-7
RCRA METALS:
ARSENIC 26.7 mg/Kg
SS-8
SS-9
TPH-D 123 mg/Kg
SS-10
RCRA METALS:
ARSENIC 5 mg/Kg
SS-11
RCRA METALS:
ARSENIC 7.2 mg/Kg
CHROMIUM 132 mg/Kg
SS-15
RCRA METALS:
ARSENIC 4.9 mg/Kg
SS-16P1
TPH-D 5,860 mg/Kg
SS-16P2
SS-5P1
RCRA METALS:
LEAD 646 mg/Kg
TPH-D 11,000 mg/Kg
SS-5P2
TPH-D 2,850 mg/Kg
SS-5P4
TPH-D 13,900 mg/Kg
SS-5P5
TPH-D 6,710 mg/Kg
SS-6A
TPH-D 3,040 mg/Kg
XYLENE 283,500 ug/Kg
SS-9D
TPH-D 413 mg/Kg
DS-1
DS-2
TPH-D 1,440 mg/Kg
DS-3
TPH-D 62 mg/Kg
DS-4
RCRA METALS:
ARSENIC 6.2 mg/Kg
DS-5
RCRA METALS:
ARSENIC 3.4 mg/Kg
DS-9
RCRA METALS:
ARSENIC 3.8 mg/Kg
DS-11
RCRA METALS:
ARSENIC 6.3 mg/Kg
IC-1
IC-2
IC-3
IC-5
IC-6
IC-6-1
RCRA METALS:
ARSENIC 3.2 mg/Kg
IC-3-1
RCRA METALS:
ARSENIC 4.6 mg/Kg
IS-1
IS-2
RCRA METALS:
ARSENIC 8.3 mg/Kg
IS-3
RCRA METALS:
ARSENIC 5.2 mg/Kg
CHROMIUM 59.4 mg/Kg
IS-4
RCRA METALS:
ARSENIC 6.3 mg/Kg
IS-5
RCRA METALS:
ARSENIC 5.8 mg/Kg
CHROMIUM 183 mg/Kg
LEAD 453 mg/Kg
IS-6
RCRA METALS:
ARSENIC 9.0 mg/Kg
IS-7
RCRA METALS:
ARSENIC 4.9 mg/Kg
SEMI-VOLATILES:
BENZO (a) ANTHRACENE 960 ug/Kg
BENZO (b) FLUORANTHENE 1,600 ug/Kg
BENZO (a) PYRENE 1,300 ug/Kg
INDENO (1,2,3-cd) PYRENE 900 ug/Kg
IS-8
IC-2-1
RCRA METALS:
ARSENIC 7.8 mg/Kg
CHROMIUM 71.1 mg/Kg
LEAD 472 mg/Kg
MERCURY 20.8 mg/Kg
IS-4
RCRA METALS:
ARSENIC 4.7 mg/Kg
SEMI-VOLATILES:
NAPHTHALENE 960 ug/Kg
bis (2-ETHYLHEXYL) PHTHALATE 160,000 ug/Kg
MS-1
MS-2
MS-3
RCRA METALS:
ARSENIC 4.4 mg/Kg
MS-4
MS-5
RCRA METALS:
ARSENIC 8.3 mg/Kg
LEAD 4,690 mg/Kg
MS-6
RCRA METALS:
ARSENIC 7.6 mg/Kg
MS-7
RCRA METALS:
ARSENIC 4.8 mg/Kg
BS-1
BS-2
RCRA METALS:
ARSENIC 7.6 mg/Kg
BS-3
RCRA METALS:
CHROMIUM 47.5 mg/Kg
BS-4
ASBESTOS + (POSITIVE)
BS-5
BS-6
RCRA METALS:
ARSENIC 7.0 mg/Kg
BS-7
RCRA METALS:
ARSENIC 4.8 mg/Kg
CHROMIUM 87.6 mg/Kg
BS-8
BS-8D
BS-9
RCRA METALS:
ARSENIC 6.7 mg/Kg
CHROMIUM 48 mg/Kg
SEMI-VOLATILES
BENZO (A) ANTHRACENE 4,900 ug/Kg
BENZO (B) FLUORANTHENE 8,100 ug/Kg
BENZO (A) PYRENE 5,400 ug/Kg
INDENO (1,2,3,-CD) PYRENE 3,300 ug/Kg
DIBENZ (A,H) ANTHRACENE 940 ug/Kg
BS-9D
RCRA METALS:
ARSENIC 9 mg/Kg
CHROMIUM 55.7 mg/Kg
BENZO (A) ANTHRACENE 650 ug/Kg
BENZO (A) PYRENE 810 ug/Kg
INDENO (1,2,3-cd) PURENE 590 ug/Kg
BS-10
RCRA METALS:
ARSENIC 16.9 mg/Kg
BARIUM 578 mg/Kg
CHROMIUM 112 mg/Kg
LEAD 2,420 mg/Kg
TCLP METALS:
LEAD 7 mg/L
BS-100
BS-11
Former UST (gasoline)
Former AST (diesel)
Former AST (gasoline)
Former AST Field (diesel and/or gasoline)
AST (Sandblast material)
AST (diesel)
AST (propane)
Tank Shed (diesel)
Tank Shed (used oil AST)
Tank Shed (gasoline & petrol Mixture)
Fuel Tank
Fuel Station
Office Building
Warehouse
Shop
Admin. Bldg.
Parking Garage
Storage Building
Concrete Slab
Concrete Slabs
Concrete Slabs (old penthouse)
Storage Bldg.
Transformer Units
Welding/Fabrication Building
Asbestos Piping
Drum Storage Area
Mixed Waste Pits
Drum Can Dump Area
PCC Slab (all saturated)
PCC Slab
PCC Slabs
Machine Shop
Office
Horse Shed
Concrete Slab
SURFSIDE ROAD
NEW ORLEANS HEALTH DEPARTMENT (Rodent Eradication Experiment Station)
INTERNATIONAL TANK TERMINAL
SAUCER MARINE
MAYER YACHT-DISTRIBUTOR'S OIL
INDIAN TOWING
McDONOUGH MARINE
BOLAND MARINE
LEGEND
TPH-D - Total Petroleum Hydrocarbons-Diesel
PCC - Portland Cement Concrete
100 50 0 100 200 300 400
Graphic Scale in Feet
Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.
NOTES
1. Testing performed for Chromium does not decipher between Cr+3 and Cr+6. Data gap Chromium.
2. IHNC S1-1 detection limits are unknown.
FIGURE 4
PREVIOUS SOIL SAMPLING
(1993 & 1996)
RESULTS FAILING SCREENING
OPTION NON-INDUSTRIAL STANDARDS

FIGURE 5

Previous Soil Sampling Results – Failing SOi



LEGEND

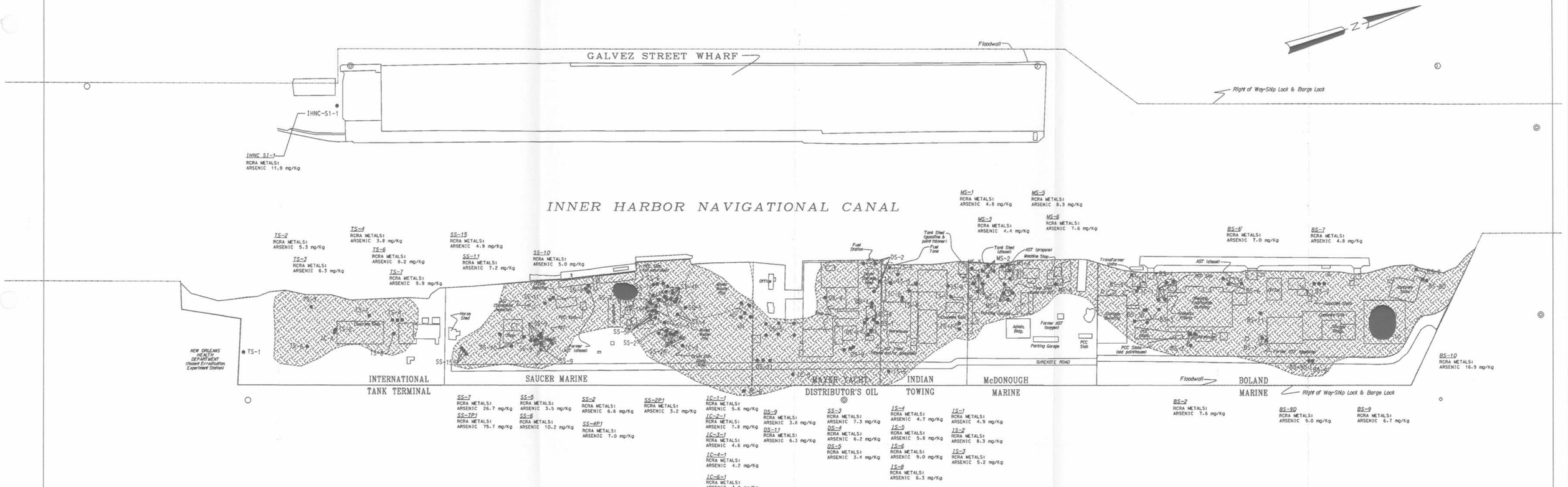
TPH-D - Total Petroleum Hydrocarbons-Diesel
PCC - Portland Cement Concrete

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 5
1993 & 1996 LOCATION OF
SOILS FAILING SCREENING OPTION
INDUSTRIAL STANDARDS

FIGURE 6

Soils Failing SOni and SOi for Arsenic



LEGEND

- Arsenic above SOi Standard
- Arsenic Above Background Levels (17 mg/Kg)
- PCC - Portland Cement Concrete

BOLD text is above Background Arsenic Level

ARSENIC SCREENING OPTION STANDARDS	
SOni (mg/Kg)	SOi (mg/Kg)
0.38	3.0

100 50 0 100 200 300 400

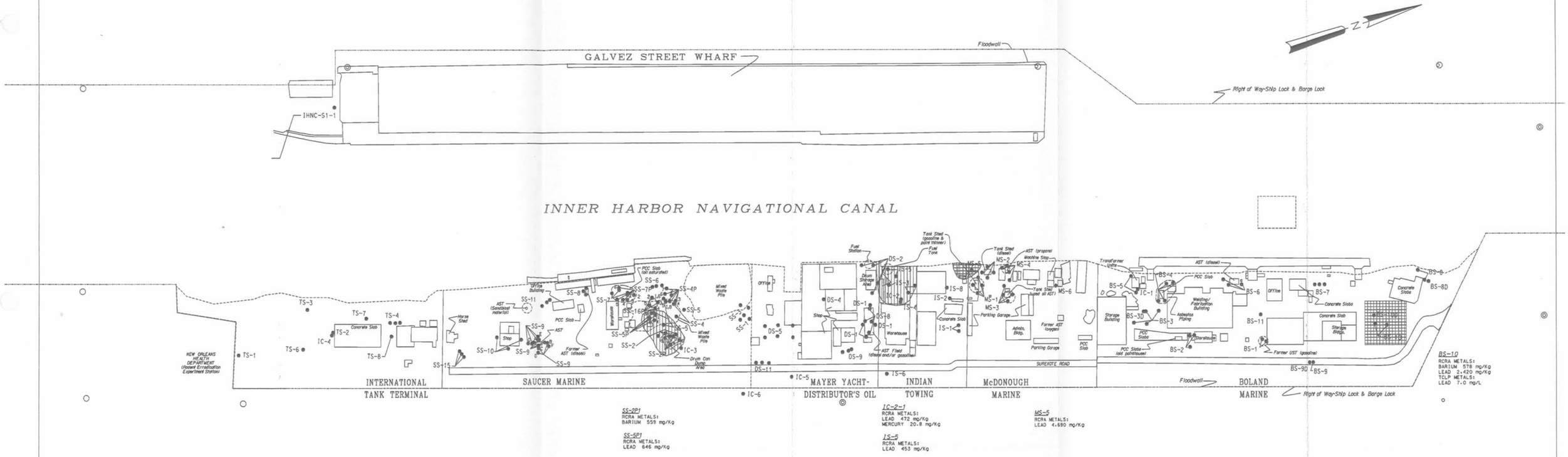
Graphic Scale In Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 6
SOIL FAILING SOni & SOi
ARSENIC STANDARDS

FIGURE 7

Soils Failing SOni and SOi for RCRA Metals



LEGEND

RCRA METALS (EXCLUDING ARSENIC) EXCEEDING SOni LEVELS

RCRA METALS (EXCLUDING ARSENIC) EXCEEDING SOi LEVELS

PCC Portland Cement Concrete

BOLD text exceeds SOi Standards

RCRA SCREENING OPTION STANDARDS

	SOni (mg/Kg)	SOi (mg/Kg)	TCLP (mg/L)
BARIUM	520	13,000	
LEAD	400	1,700	5
MERCURY	2.2	56	

100 50 0 100 200 300 400

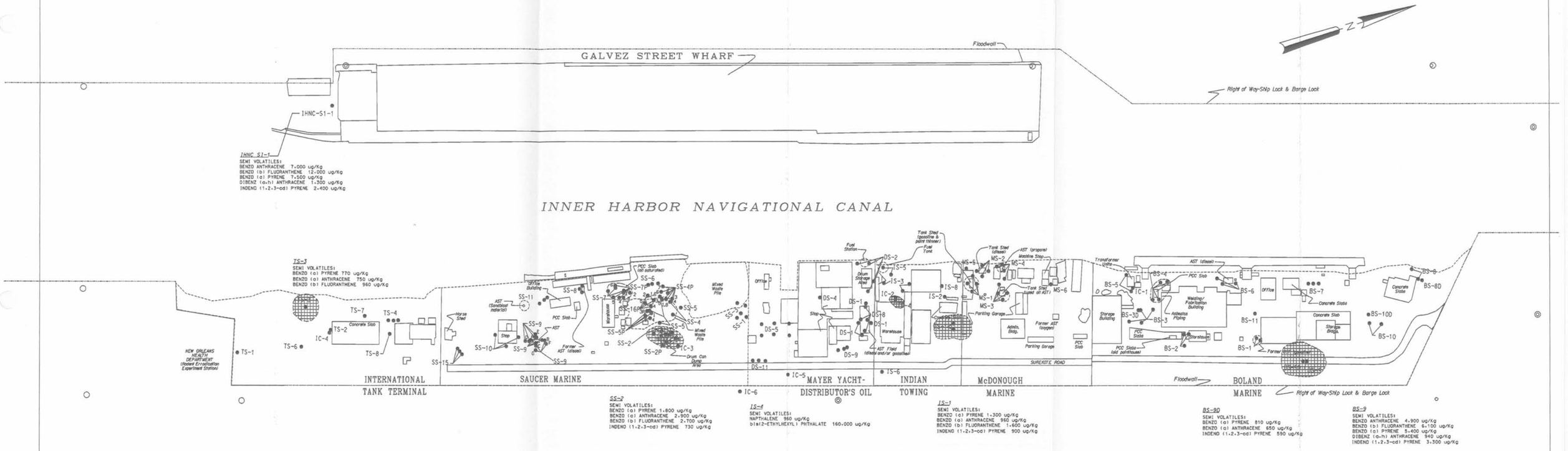
Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 7
SOIL FAILING SOni & SOi
RCRA METAL STANDARDS

FIGURE 8

Soils Failing SOni and SOi for Semi-Volatiles



LEGEND

- Semivolatiles exceeding SOni screening levels
- Semivolatiles exceeding SOI screening levels
- PCC – Portland Cement Concrete

BOLD text exceeds SOI Standards

SEMIVOLATILE SCREENING OPTION STANDARDS

	SOni (ug/Kg)	SOI (ug/Kg)
NAPHTHALENE	780	5,200
BENZO (a) ANTHRACENE	560	3,600
bis (2-ETHYLHEXYL) PHTHALATE	32,000	210,000
BENZO (b) FLUORANTHENE	560	3,600
BENZO (a) PYRENE	330	360
INDENO (1,2,3,cd) PYRENE	560	3,600
DIBENZ (a,h) ANTHRACENE	330	360

100 50 0 100 200 300 400

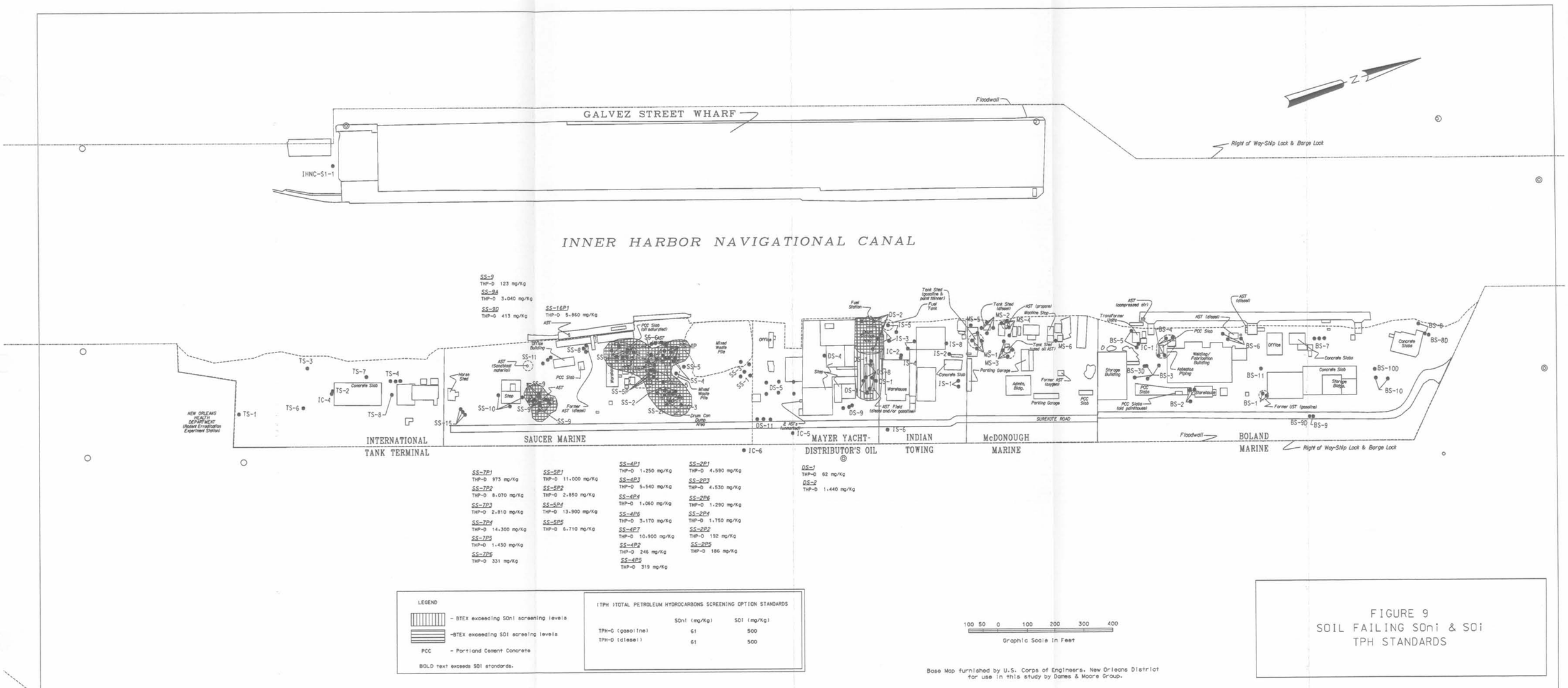
Graphic Scale In Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 8
SOIL FAILING SOni & SOI
SEMIVOLATILE STANDARDS

FIGURE 9

Soils Failing SOni and SOi for TPH



Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 9
SOIL FAILING SOni & SOi
TPH STANDARDS

APPENDIX A

Site Specific Safety & Health Plan

APPROVAL PAGE

Site-Specific Safety and Health Plan

for

Excavation, Treatment and Disposal of Contaminated Soils
of The East Bank Industrial Area of the
Inner Harbor Navigational Channel

Contract No. DACW29-97-D-0019
Delivery Order No: 0011
New Orleans COE

Approved by:

Senior Industrial Hygienist, Dennis W. Day — Date 5/2/00

QA Director, John E. Plevniak — Date 5/2/00

Project Manager, Doug Kuhn — Date 5/2/00

New Orleans COE Contracting Officers Representative, Brett Herr — Date 5/2/2000

New Orleans COE Technical Representative (TR),
Mr. George Bacuta and/or Ms. Jean Spadaro — Date 5/2/2000

INTRODUCTION

The following Site-Specific Safety and Health Plan (SSHP) is a template that will be utilized by the Contractor conducting work on the "Excavation, Treatment and Disposal of Contaminated Soils of The East Bank Industrial Area of the IHNC" project (aka Phase II). The contractor will supply company and site specific information to complete the SSHP. The contractor revised SSHP will need to be approved by the U.S. Army Corps of Engineers before any work is conducted on site. This project involves the removal of soil from 0' to 5' below surface grade in the east bank industrial area of the IHNC.

This SSHP is in a table format so that all essential site-specific information is available on just a few sheets. Additional supporting and back-up information is attached to the tables in the form of appendices.

This SSHP guide is not intended to direct the contractor or to relieve the contractor of any responsibility to ensure a safe and healthy work environment for contractor personnel and to ensure the safety and health of the public that could be impacted from work associated with this project. The contractor is expected to verify all information provided in this SSHP guide.

The following is a checklist of items that need to be completed by the Contractor prior to receiving final approval from the U.S. Army Corps of Engineers. In addition to completing blank sections and adding Contractor specific information, review completely all sections and update as necessary to reflect actual planned procedures and practices.

Title Page: Fill in the blanks including; Contract Number, Project Number, Project Manager, Site Contact and Phone Numbers.

Emergency Contacts & Approval Page: Add names and numbers of emergency contact persons. Check emergency numbers and points of contact provided; update as necessary.

History and Waste Characterization Page: Review completely all sections and update as necessary to reflect actual planned procedures and practices. (Attach final section 5: Waste Management and Disposal Procedures of "Operational Plan Report For Excavation, Treatment and Disposal of Contaminated Soils of The East Bank Industrial Area of the IHNC" as an appendices.

Hazardous Material Summary Page: Review Background information and check "Background Review Complete. Review and update as necessary. Include any hazardous materials brought on site.

Table 1: Exposure Limits and Selected Physical Characteristics: Review and update as necessary. Include any hazardous materials brought on site.

Table 2: Routes of Entry, Symptoms of Exposure, First Aid Treatment, and Target Organs: Review and update if necessary. Include any hazardous materials brought on site.

Task Description Page: Review Tasks and add any additional tasks to be performed. Add personnel (add additional sheets if necessary - keep updated throughout project if personnel change.

PPE by Task Page: Review PPE requirements and modify as necessary.

Air Monitoring by Task Page: Review air-monitoring requirements and modify as necessary.

Decontamination Page: Review decontamination requirements and modify as necessary.

Work Zone Page: Review work zones and modify as necessary.

Signature Page: All individuals performing work on the site are required to sign this sheet following the briefing where all information in the SSHP is reviewed. Add additional sheets if necessary.

Appendices: Contractor is to review and update all appendices. See table of contents for specific instructions.

TABLE OF CONTENTS

TITLE **PAGE**

SITE SPECIFIC SAFETY AND HEALTH PLAN

APPENDICES

Appendix D: Decontamination Procedures
Level C Personal Decontamination

Appendix E: Activity Hazard Analysis

Contractor to Develop and Insert Activity Hazard Analysis

Appendix F: Respiratory Protection Program

Contractors is to insert their Respiratory Protection Program.

Appendix G: Medical Surveillance Requirements and Sample Physician's Certification Form
Attach copies of employees' medical certification to this Appendix.

Appendix H: Training Requirements and On-Site Training Certification Form
Documentation Of On-Site Htrw Field Experience

Contractor is to attach Copies Of Employees' 29 CFR 1910.120 Training Certifications.

Appendix I: Contingency Evacuation Plan

Appendix J: Trenching Requirements

Contractor is to attach description of how they will meet the excavation requirements.

Appendix K: USACE Accident Reporting Form

Appendix L: Protection of the Public

Appendix M: Hazard Assessment/Risk Analysis

Appendix N: Heat Stress

Appendix O: Accident Prevention

SITE SPECIFIC SAFETY AND HEALTH PLAN

TITLE PAGE

Inner Harbor Navigational Channel - Phase II

PROJECT NAME: Excavation, Treatment and Disposal of Contaminated Soils of The East Bank Industrial Area of the IHNC or Phase II.	CONTRACT NO:
JOBSITE ADDRESS: Between Florida Avenue and the Mississippi River on the east and west side of the Inner Harbor Navigation Canal in New Orleans LA.	**PROJECT NO:**
PROJECT MANAGER:	**PHONE NO:**
SITE CONTACT:	**PHONE NO:**
OBJECTIVES OF FIELD WORK: To remove soil from 0 to 5 feet bgs on the east side of the IHNC.	**SITE TYPE:** Check as many as applicable ( ) Active ( ) Landfill ( ) Natural (X) Inactive ( ) Uncontrolled (X) Municipal ( ) Secure (X) Industrial (X) Unsecured ( ) Residential ( ) Enclosed space ( ) Well Field

DESCRIPTION AND FEATURES: The IHNC opened in 1923, and is located in the metropolitan area of New Orleans. The canal allows for barge traffic to move from the Mississippi River to Lake Pontchartrain and the intercoastal waterways of the Gulf Coast. The focus of this document is on the industrialized portion of the IHNC east bank between Florida and North Claiborne Avenues along Surekote Road. In this industrialized area are several active and inactive facilities that were associated with steel fabrication, shipbuilding, marine vessel repair and servicing, marine supplies, petroleum related facilities, barge leasing, and others.

Industrialization of the east bank area began in the 1960s and today approximately 50% of these industrialized facilities are currently unoccupied or abandoned. This area of concern is located on the east bank of the Inner Harbor Navigation Canal in an industrial area south of Florida Avenue and along Surekote Road. Six sites along Surekote Road make up the east bank industrial area. These sites are Boland Marine (2500 Surekote Road), 1800 Surekote Road, 1910 Surekote Road, 2100 Surekote Road, 2200 Surekote Road, 2300 Surekote Road, and 2500 Surekote Road.

SURROUNDING POPULATION: (X) Residential (X) Industrial ( ) Rural (X) Urban (X) Commercial: ( ) Other:

SITE SPECIFIC SAFETY AND HEALTH PLAN

EMERGENCY CONTACTS & APPROVAL PAGE

Inner Harbor Navigational Channel - Phase II

EMERGENCY CONTACTS		
Project Site Manager		
Site Safety & Health Officer		
Alternate SSHO		
Maintenance		
EPA Release Report No.		(800)-424-8802
National Meteorological Center, NOAA/NWS	5200 Auth Road Camp Spring, MD	(301) 763-8016

EMERGENCY CONTACTS	Contact/PHONE	24-Hour Hotline
Project Manager		
Safety and Health Manager		
Industrial Hygienist		
First Aid/CPR on-site responder (2 required)		
First Aid/CPR on-site responder		
EPA Region 6 Compliance Assurance and Enforcement Division	Main Branch Phone: (214)665-6468 Fax: (214)665-2168	24 Hour Noncompliance Hotline: (214)665-6595
LA HAZARDOUS WASTE DIVISION	James H. Brent, Ph.D.	(504) 765-0232 fax 0617
New Orleans Fire Department 317 Decatur Street	(504) 565-7800 fax 7848	**911**
New Orleans 5th District Police, 3900 N. Claiborne Avenue	(504) 941-4400 fax3023	**911**
LA State Police Troop B **2101 I-10 SERVICE ROAD KENNER, LOUISIANA**	Captain Mel Ryan, Troop B Commander	(504) 471-2775 fax 2784
LA OFFICE OF PUBLIC HEALTH PUBLIC HEALTH STATISTIC	Joan Borstell	(504) 568-7401 fax 8297
Poison Control Center Tulane Medical Center Emergency	(504) 588-5711 fax 7429	911
Medical Surveillance,		

CONTINGENCY PLANS

In the event that a chemical physical hazards ensue (fire, injury, criminal activity), the site will be evacuated with response delegated to local New Orleans and Louisiana State authorities. Appropriate personnel listed herein should be notified in the event of site evacuation that corresponds to their office's authority. This sheet is to be copied, laminated and posted on-site.

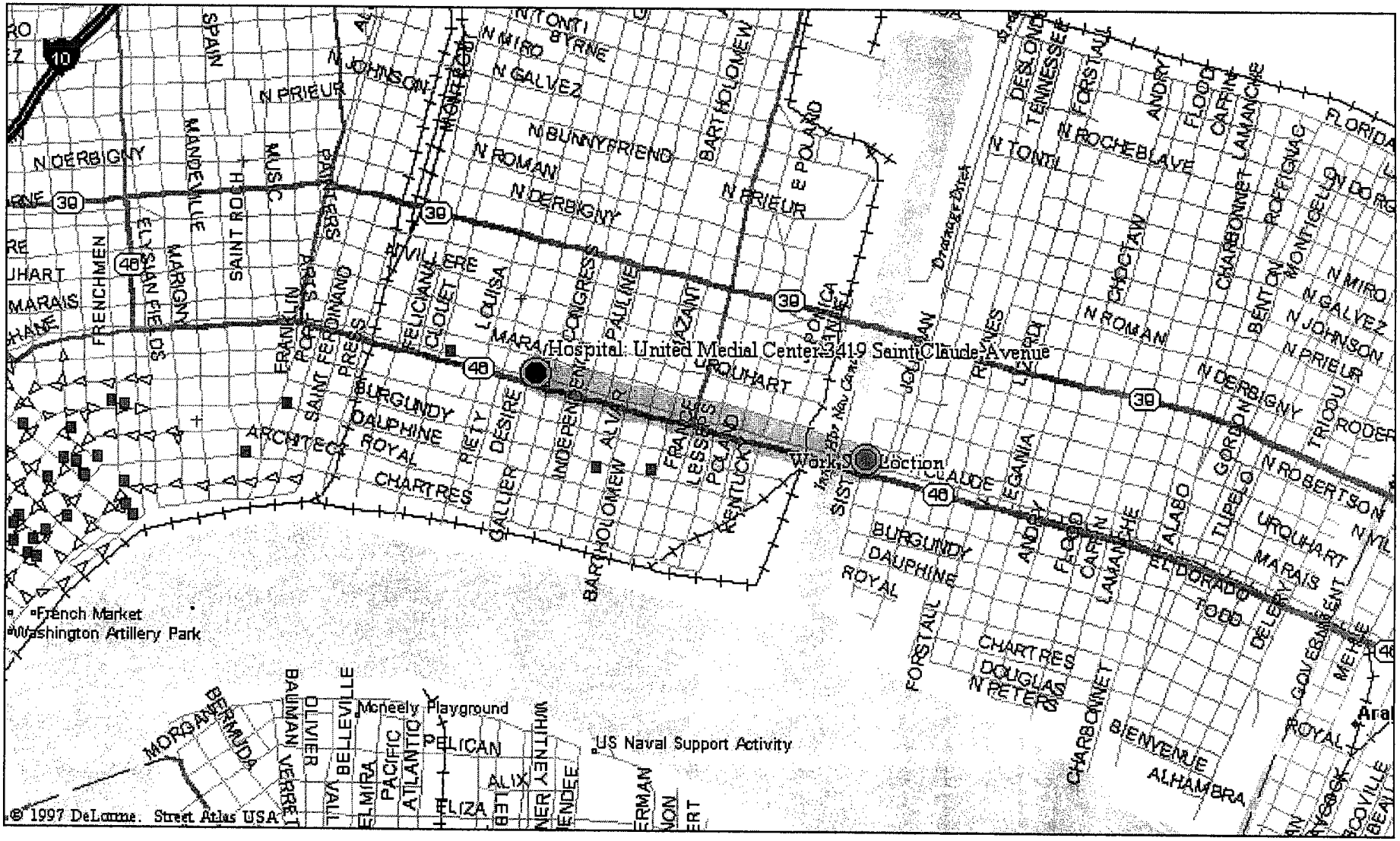
MEDICAL EMERGENCY		
Hospital Name:	**Saint Claude Medical Center**	**(504) 948-8245**
Hospital Address:	**3419 Saint Claude Avenue**	**(504) 948-8245**
Name of Contact at Hospital:	**Mr. Rusty Foster**	
Name of 24-Hour Ambulance:		Phone: **911**
Route to Hospital: - See attached map.		

SAFETY AND HEALTH PLAN APPROVALS	
Prepared by:	Date:
Reviewed by:	Date:
Project Manager:	Date:

SITE SPECIFIC SAFETY AND HEALTH PLAN

HOSPITAL MAP ROUTE

Inner Harbor Navigational Channel - Phase II



SITE SPECIFIC SAFETY AND HEALTH PLAN

HISTORY AND WASTE CHARACTERIZATION PAGE

Inner Harbor Navigational Channel - Phase II

HISTORY: According to the land use studies the IHNC location has had several businesses/activities including: warehousing, marine manufacturing, paint manufacturing equipment, marine repair, petroleum distributors, marine repair, fiberglass manufacturing occupy various facilities over the years. A detailed historical account is recounted in the Operational Plan Report For Excavation, Treatment and Disposal Of Contaminated Soils of The East Bank Industrial Area of the IHNC. All buildings and waste mounds will have been removed prior to the start of this project. Most of the soil is not contaminated.

WASTE TYPES: ( ) Liquid (X) Solid ( ) Sludge ( ) Gas ( ) Unknown ( ) Other **specify**:

WASTE CHARACTERISTICS: Check as many as applicable.

( ) Corrosive ( ) Flammable ( ) Radioactive

(X) Toxic ( ) Volatile ( ) Reactive

( ) Inert Gas ( ) Unknown

WORK ZONES: Work zones will be shown on "WORK ZONE MAP PAGE."

Work Zones around the sampling locations during sampling will include:

- EZ: Within 15 feet of invasive work activities.
- CRZ: Immediately outside the EZ.
- SZ: All other areas.

HAZARDS OF CONCERN: Check as many as applicable.

(X) Heat Stress
( ) Cold Stress
(X) Explosive/Flammable
(X) Oxygen Deficient
( ) Radiological
(X) Biological
( ) Other **specify**: Excavation

(X) Noise
(X) Inorganic Chemicals
(X) Organic Chemicals
(X) Motorized Traffic
(X) Heavy Machinery
(X) Slips, Trips & Falls

No Confined Spaces will be entered. Confined spaces are defined as trench entry when trench is greater than 4 feet in depth or contains volatile organic vapors that must be assessed. If hydrocarbon vapors are present, monitoring for benzene must be accomplished prior to entry. Benzene at 1 ppm levels will require respiratory protection and the use of a confined space entry permit.

Hazards associated with trench entry.

PRINCIPAL DISPOSAL METHODS AND PRACTICES: See section 5 of "Operational Plan Report For Excavation, Treatment and Disposal Of Contaminated Soils of The East Bank Industrial Area of the IHNC" (attach final in an appendicies)

SITE SPECIFIC SAFETY AND HEALTH PLAN

HAZARDOUS MATERIAL SUMMARY PAGE

Inner Harbor Navigational Channel - Phase II

HAZARDOUS MATERIAL SUMMARY: Previous investigations has detected constituents with concentrations elevated above the LDEQ Screening Option for Industrial soils (Soi). Other hazardous materials such as the waste mounds and structures will be removed prior to the initiation of this project. Soils have been classified with the following classifications: TPH, SVOC, Metals, Hazardous Lead, Clean. For quantities of each classification see Table 2 from Section 6; Waste Management of the Operational Plan Report For Excavation, Treatment and Disposal Of Contaminated Soils of The East Bank Industrial Area of the IHNC. See Appendix J. Hexavalent Chromium was not sampled for and may be in excess of SOi Levels.

SOILS WITH LEVELS IN EXCESS OF LDEQ SOi LEVELS	**LEDQ SOi LEVEL OR Method Detection Limit (1999 Revised RECAP)**	**SLUDGES Amounts/Units:**	**SOLVENTS Amounts/Units:**	**OILS Amounts/Units:**	**OTHER Amounts/Units:**
Arsenic / 16.9 mg/kg	3.0 mg/kg				
Lead / 2,420 mg/kg	1,700 mg/kg				
*Benzo (a) anthracene / 7,000 ug/kg	3,600 ug/kg				
*Benzo (b) fluoranthene / 12,000 ug/kg	3,600 ug/kg				
*Benzo (a) pyrene / 5,400 ug/kg	360 ug/kg				
*Dibenz (a,h) anthracene / 940 ug/kg	360 ug/kg				
*N-nitro-di-n-propylamine / <830 ug/kg	330 ug/kg (mdl)				
Indeno (1,2,3,-cd) pyrene / *<16,600 ug/kg	3,600 ug/kg (mdl)				
*2-Nitoaniline / <8,300 ug/kg	1700 ug/kg)				
TPH (as Diesel Oil) / 13,900 mg/kg	500 mg/kg				
TPH as gasoline / 3,040 mg/kg	500 mg/kg				
Xylene (Total) / 283,500 mg/kg	150 mg/kg				

BACKGROUND REVIEW: ( ) COMPLETE ( ) INCOMPLETE

*These constituents are Semi-Volatile Organic Compounds (SVOCs) and more specifically Poly-aromatic Hydrocarbons (PAHs)

TABLE 1
EXPOSURE LIMITS AND SELECTED PHYSICAL CHARACTERISTICS

COMPOUND	EXPOSURE VALUE[a] PEL/TLV	IDLH[b] LEVEL	LEL[c]	UEL[d]	IP[e]	VP[f]	CARCINOGEN
Gasoline	300 ppm- (TWA)-PEL/TLV 500 ppm (STEL)-PEL/TLV	-----	1.4%	7.6%			IARC-2B NIOSH-X
Diesel	-----	-----	1.3%	6.0%-		----	See MSDS
Xylenes (o-, m-, p-isomers)	100 ppm (TWA)-PEL/TLV 150 ppm (STEL)- PEL/TLV	1,000 ppm	1.1/1.0/1.0%	7.0/7.0/7.0%	8.56/8.56/8.44eV	7/9/9 mm	EPA-D IARC-3
Arsenic	0.010 mg/m^3 PEL/TLV	100 mg/m^3	NA	NA	NA		
Chromium	0.010 mg/m^3 PEL/TLV	100 mg/m^3	NA	NA	NA		
Lead	0.050 mg/m^3	100 mg/m^3	NA	NA	NA	0	
SVOCs/PAHs	10 ppm[l]	500 ppm[l]	NA	NA	NA		

(a) Permissible Exposure Limit (OSHA) or Threshold Limit Value (ACGIH). More Conservative Value Utilized.
(b) Immediately Dangerous to Life and Health
(c) Lower Explosive Limit
(d) Upper Explosive Limit
(e) Ionization Potential
(f) Vapor Pressure

Ceiling - The concentration that shall not be exceeded during any part of the working exposure
EPA - U.S. Environmental Protection Agency
IARC - International Agency for Research on Cancer
NTP - National Toxicology Program
STEL - Short-Term Exposure Limit. Usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hour TWA is within the TLV-TWA, or PEL-TWA.
TWA - Time-weighted average exposure concentration for a normal 8-hour (TLV, PEL) workday and a 40-hour workweek.

Carcinogen Designations:

EPA-A: Human Carcinogen: sufficient evidence from epidemiological studies to support a causal association between exposure and cancer.
-B: Probable Human Carcinogen: weight of evidence of human carcinogenicity based on epidemiological studies is limited: agents for which weight of evidence of carcinogenicity based on animal studies is sufficient.
-B2: Sufficient evidence from animal studies: inadequate evidence or no data from epidemiological studies.
-D: Not Classifiable as to Human Carcinogenicity: Inadequate human and animal evidence of carcinogenicity or no data are available.
IARC-1: Carcinogenic to Humans: sufficient evidence of carcinogenicity
-2A: Probably Carcinogenic to Humans: limited human evidence. sufficient evidence in experimental animals
-2B: Possibly Carcinogenic to Humans: limited evidence in humans in the absence of sufficient evidence in experimental animals
-3: Not Classifiable as to Carcinogenicity to Humans
NIOSH-X: Carcinogen defined with no further categorization
NTP-1: Known to be carcinogenic: sufficient evidence from human studies
-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals
OSHA-X: Carcinogen defined with no further categorization
TLV-A2: Suspected Human Carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiological studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

TABLE 2
ROUTES OF ENTRY, SYMPTOMS OF EXPOSURE, FIRST AID TREATMENT, AND TARGET ORGANS

COMPOUND	ROUTES OF ENTRY	SYMPTOMS OF EXPOSURE	GENERAL FIRST AID TREATMENT	TARGET ORGANS
Gasoline	See Appendix A			
Diesel	See Appendix A			
Xylenes (o- , m-, p- isomers)	Inhalation, ingestion, skin absorption, skin and/ or eye contact	Dizziness, excitement, drowsiness, incoherence, staggering gait, irritation, of eyes, nose, throat, corneal vacuolization, nausea, vomiting, abdominal pain, dermatitis	eye: irrigate immediately skin: soap wash promptly breath: respiratory support swallow: medical attention immediately	central nervous system, eyes, gastrointestinal tract, blood, liver kidneys, skin
Arsenic	Ingestion	Nausea, respiratory tract irritation, ulceration of nasal septum. Ca.		
Chromium	Ingestion	Flu-like illness, muscle aches, eye irritation. Ca		
Lead	Ingestion	Seizures, usually delayed symptoms		
SVOCs/PAHs	Ingestion	Potential carcinogen		

General First Aid Treatment

EYE
irrigate immediately - If this chemical contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

SKIN
soap wash immediately- If this chemical contacts the skin, immediately wash the contaminated skin with soap and water. If this chemical penetrates the clothing, immediately remove the clothing, wash the skin with soap and water and get medical attention promptly.

soap wash promptly - If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates through the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly.

water flush immediately- If this chemical contacts the skin, flush the contaminated skin with water promptly. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin with water promptly. If irritation persists after washing, get medical attention.

BREATH
respiratory support- If a person breathes large amount of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth to mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

SWALLOW
medical attention- immediately If this chemical has been swallowed, get medical attention immediately.

SITE SPECIFIC SAFETY AND HEALTH PLAN

TASK DESCRIPTION PAGE

Inner Harbor Navigational Channel - Phase II

FIELD ACTIVITIES COVERED UNDER THIS PLAN - ATTACH ACTIVITY HAZARD ANALYSIS FOR EACH TASK				HAZARD		
TASK DESCRIPTION/SPECIFIC TECHNIQUE-STANDARD OPERATING PROCEDURES/SITE LOCATION (Attach additional sheets as necessary)	Type	Primary	Contingency	SCHEDULE		
1 Mobilization & Demobilization	**Non-intrusive**	A B C **D**	A B **C** D or **Exit Area**	Hi	Med	**Low**
		Modified				
2 Trenching and Excavation and Loading for transportation	**Intrusive**	A B C **D**	A B **C** D or **Exit Area**	Hi	**Med**	**Low**
		Modified		Physical Hazard		
3 Testing soil for waste characterization	**Intrusive**	A B C **D**	A B **C** D or **Exit Area**	Hi	Med	**Low**
		Modified				
4 Hauling off-site for disposal	**Non-Intrusive**	A B C **D**	A B **C** D or **Exit Area**	Hi	Med	**Low**
		Modified				
5 On-site treatment?	**Intrusive**	A B C D	A B C D	Hi	Med	Low
		Modified	Exit Area			

PERSONNEL* AND RESPONSIBILITIES (Include subcontractors) Responsibilities are described on the following page.

NAME	OFFICE SYMBOL	HEALTH CLEARANCE?	RESPONSIBILITIES	ONSITE?
	Equipment Operators	Y	Soil Excavation, Loading and Hauling	Y
	Project Manager	Y	MANAGER/Alternate SSHO	Y
	Sampler	Y	OVERSIGHT/MONITORING/SAMPLING	Y
	SSHO Alternate	Y	SSHO alternate	Y
	Safety Manager	Y	SSHO	Y

DESCRIPTION OF RESPONSIBILITIES

Site Safety and Health Personnel. The Site Safety and Health Officer (SSHO) in conjunction with the Site Supervisor ensures that the provisions of this SSHP are adequate and implemented in the field. Project Managers and Technical Managers are to take all necessary actions to guarantee site safety. Changing field conditions may require decisions to be made concerning adequate protection programs. Personnel assigned as SSHO must be experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120 and this SSHP. The SSHO is also responsible for conducting site inspections on a regular basis in order to ensure the effectiveness of this plan.

Organizational Responsibility

Project Manager

- Overall responsibility for project schedule;
- Manage and schedule and coordinate changes;
- Develop cost estimates for work identified.
- Identify scope of work;
- Estimate schedule for work;
- Request that a technical team be appointed;
- Identify resources needed (specialized expertise);
- Suggest schedule or contingencies.
- Enforce disciplinary action when unsafe acts or practices occur;
- Grant permission for site access;
- Designate site security;
- Enforce the buddy system.

Safety Manager

- Keep safety and health records;
- Prepare safety and health reports;
- Confirm an employee's suitability for work based on the physician's recommendation;
- Enforce site control;
- Designate signs.

Site Safety and Health Officer (SSHO)

- Conduct safety meetings.
- Monitor on-site hazards and conditions;
- Audit compliance with the Site Safety and Health Plan (SSHP);
- Enforce safety procedures;
- Designate facilities, and equipment for health and safety;
- Select, dispense, and ensure availability of Personal Protective Equipment (PPE);
- Periodically inspect PPE and ensure proper storage and maintenance;
- Monitor for heat and cold stress;
- Set up decontamination lines, control decontamination, prepare decontamination solutions, and monitor;
- Notify and serve as liaison with emergency response personnel;
- Train employees on emergency procedures and evacuation routes;

Equipment Operator

- Conduct daily equipment checks
- Operate equipment safely

Sampler (Project or Field)

- Conduct sampling;
- Package and ship samples off site;
- Dispose of contaminated materials (Re: Work Plan).

SITE SPECIFIC SAFETY AND HEALTH PLAN

PPE BY TASK PAGE

Inner Harbor Navigational Channel - Phase II

PROTECTIVE EQUIPMENT: Specify by task. Indicate type and/or material as necessary. Use copies of this sheet if needed.

TASKS: **1 - 2 - 3 - 4 - 5**
LEVEL: A - B - C - **D - Modified**

(X) Primary
( ) Contingency

Respiratory: (X) Not Needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not Needed
(X) Safety Glasses:
( ) Face Shield:
(X) Goggles*
(X) Hard Hat:
*Either safety glasses or over-goggles

Boots: ( ) Not Needed
(X) Boots: Leather steel-toed & shank work boots
( ) Overboots:Latex or Nitrile
( ) Rubber:

Prot. Clothing: (X) Not Needed
( ) Encapsulated Suit:
( ) Splash Suit:
( ) Apron
( ) Tyvek Coverall:
( ) Saranex Coverall:
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Undergloves:
(X) Gloves: Nitrile
(X) Overgloves*: optional
*Cotton to preclude abrasion of Nitrile
( ) Other - specify below:

TASKS: **1 - 2 - 3 - 4 - 5**
LEVEL: A - B - **C** - D - Modified
natural ventilation

( ) Primary *
(X) Contingency or Back-off and wait for

Respiratory: ( ) Not Needed
( ) SCBA, Airline:
(X) APR:Full Face
(X) Cartridge: OV
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not Needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
(X) Hard Hat:
(X) Other:Incl w Respirator full-face

Boots: ( ) Not Needed
( ) Boots: Leather steel-toed & shank work boots
( ) Overboots:
(X) Rubber: steel-toed & shank work boots

Prot. Clothing: ( ) Not Needed
( ) Encapsulated Suit:
( ) Splash Suit:
( ) Apron
(X) Tyvek Coverall:
( ) Saranex Coverall:
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Undergloves:
(X) Gloves: Nitrile
(X) Overgloves: optional

( ) Other - specify below:

TASKS: 1 - 2 - 3 - 4 - 5
LEVEL: A - B - C - D - Modified

( ) Primary
( ) Contingency

Respiratory: ( ) Not Needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not Needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

Boots: ( ) Not Needed
( ) Boots: Leather steel-toed & shank work boots
( ) Overboots:
( ) Rubber:

Prot. Clothing: ( ) Not Needed
( ) Encapsulated Suit:
( ) Splash Suit:
( ) Apron
( ) Tyvek Coverall:
( ) Saranex Coverall:
( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Undergloves:
( ) Gloves:
( ) Overgloves:

( ) Other - specify below:

TASKS: 1 - 2 - 3 - 4 - 5 -
LEVEL: A - B - C - D - Modified

( ) Primary
( ) Contingency

Respiratory: ( ) Not Needed
( ) SCBA, Airline:
( ) APR:
( ) Cartridge:
( ) Escape Mask:
( ) Other:

Head and Eye: ( ) Not Needed
( ) Safety Glasses:
( ) Face Shield:
( ) Goggles:
( ) Hard Hat:
( ) Other:

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( ) Cloth Coverall:
( ) Other:

Gloves: ( ) Not Needed
( ) Undergloves:
( ) Gloves:
( ) Overgloves:

( ) Other - specify below:

SITE SPECIFIC SAFETY AND HEALTH PLAN

AIR MONITORING BY TASK PAGE

Inner Harbor Navigational Channel - Phase II

MONITORING EQUIPMENT: Specify by task. Indicate type as necessary. Attach additional sheets as necessary.

INSTRUMENT	TASK	ACTION GUIDELINES	COMMENTS (Includes schedules of use)
Combustible Gas with Oxygen Indicator	1 - **2 - 3 - 4**	0-10% LEL — No explosion hazard 10% — Proceed w/caution, continuous monitoring **>10% LEL** — **Explosion hazard; interrupt task/evacuate, reassess** 21.0% 02 — Oxygen normal <19.5% 02 — Oxygen deficient; notify SSHO. **>22.5% 02** — **Interrupt task/evacuate**	Monitor prior to any intrusive work in the general area to establish a baseline; monitor during intrusive work continuously and while doing any trench entry. Monitor every 30 minutes during initial trench excavation.
Radiation Survey Meter	1 - 2 - 3 - 4 - 5 - __	3X Background — Notify SSHO **>2mR/hr** — **Interrupt task/evacuate**	(X) Need not anticipated
Photoionization Detector Type _____ ( ) 11.7 ev (X) 10.2 ev ( ) 9.8 ev ( ) __ ev	1 - **2 - 3 - 4** - __	**Specify:** 0-10 ppm — Level D At 5 ppm — monitor continuously if sustained (5 minutes) check for benzene with detector tube 10-50 ppm — Level C >50 ppm — Stop work	Monitor prior to any intrusive work in the general area to establish a baseline; monitor during intrusive work continuously and while doing any trench entry. Monitor every 30 minutes during initial trench excavation.
Flame Ionization Detector Type	1 - 2 - 3 - 4 - 5 - __	**Specify:**	(X) Need not anticipated
Detector Tubes Type Benzene Type	1 - **2 - 3 - 4** - ___	**Specify: If greater than 1 ppm - Stop work**	Use whenever PID readings exceed 5 ppm for 5 minutes
Respirable Dust Monitor Type Type	1 - 2 - 3 - 4 - 5 - ___	**Specify:**	
Other **Specify**	1 - 2 - 3 - 4 - 5 - ___	**Specify:**	

SITE SPECIFIC SAFETY AND HEALTH PLAN

DECONTAMINATION PAGE

Inner Harbor Navigational Channel - Phase II

DECONTAMINATION PROCEDURES

ATTACH SITE MAP INDICATING EXCLUSION, DECONTAMINATION, AND SUPPORT ZONES AS PAGE TWO

Personnel Decontamination	**Sampling Equipment Decontamination**	**Heavy Equipment Decontamination**
Level D decon will be used. Wipe down leather boots with wet wipes. Wipe off exterior of safety glasses or goggles with wet wipes. Wipe off exterior of gloves with wet wipes and bag for disposal as sanitary waste. Wash hands and face as soon as practical. Summarize below and/or attach diagram of decon area.	All small equipment will be bagged for later decon. Bags are to be labeled. Later decon will be soap and water wash using Alconox. All personnel deconning equipment will wear latex gloves. See: Sampling Plan for details as to sample container decon. Summarize below and/or attach diagram of decon area.	Heavy equipment will be deconned on-site. Work Plan includes equipment decontamination procedures.
Containment and Disposal Method	**Containment and Disposal Method**	**Containment and Disposal Method**

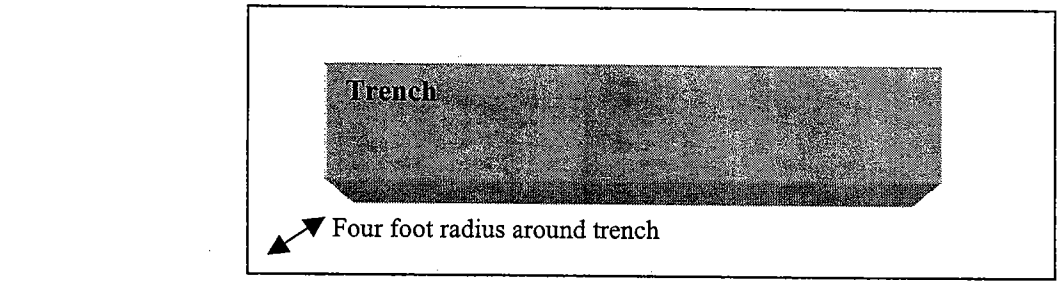
SITE SPECIFIC SAFETY AND HEALTH PLAN

WORK ZONE PAGE

Inner Harbor Navigational Channel - Phase II

THIS PAGE RESERVED FOR MAP (Show Exclusion, Contamination Reduction, and Support Zones. Indicate evacuation and reassembly points.)

Site Boundary



Exclusion Zone is area within 15 foot Radius of Trench boundary

Contamination Reduction Zone is outside Exclusion Zone Radius

SITE SPECIFIC SAFETY AND HEALTH PLAN

SIGNATURE PAGE

Inner Harbor Navigational Channel - Phase II

The following personnel have read and fully understand the contents of this Site Safety and Health Plan and referenced appendices and further agree to all requirements contained herein. Further more the individuals are fully trained and have required clearances. Attach copies of current HTRW and first aid training, medical clearance, and respiratory fit test records.

Name	Affiliation	Date	Signature

Site Safety and Health Plan

ADDENDUMS

ADDENDUMS

Table of Contents

Addendum B: MSDS for Major Chemicals Brought On-site and Potential Contaminants On-site

Addendum C: Logs

Addendum D : Level C Decon Procedures

LEVEL C PERSONAL DECONTAMINATION

1. Remove tape on boot covers and outer gloves.

2. If safety boots are to be reused, step into wash tub and scrub boots.

3. Step directly onto "clean" plastic sheet or tarp.

4. Unzip outer protective suit.

   With mask and respirator harness on, remove upper portion of outer suit and outer gloves as a unit and "step out" of outer suit. If outer gloves are removed separately, they should be removed before outer suit. Place suit into disposal bag. *Note: Do not wear suits with booties or this procedure will not work properly.*

5. Step to a rinse water tub, and then step out onto clean plastic sheet.

6. Remove safety boots and step onto clean pad.

7. For Level C: Wipe down the Air Purifying Respirator (APR) harness

   Remove respirator harness and mask.

8. For Level C: Discard the HEPA-OV combo cartridges, or tape and bag for reuse.

   Remove inner suit (if worn) and discard. If you are wearing scrubs, a nylon swimsuit, or disposable underwear, exit to an approved doffing area before removing undergarments.

9. Remove inner gloves.

Addendum E: Activity Hazard Analysis

Contractor is to Insert Activity Hazard Analysis for each task

SAMPLE ONLY CONTRACTOR TO DEVELOP FOR EACH TASK

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Sediment Sampling

Analyzed By/Date _____

Reviewed By/Date _____

ACTIVITY	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Trenching/backhoe equipment	Utilities	• A thorough underground utilities search should be conducted before the commencement of a trenching project.
	Fumes	• Review contaminants suspected to be on-site and perform air monitoring as required. Shut down backhoe and/or divert exhaust fumes.
	Noise	• Sound levels above 85 dBA mandates hearing protection.
	High pressure lines	• All high pressure lines should be checked prior to and during use.
	Moving parts	• Hard hats should be worn at all times when working around heavy equipment. • Secure loose clothing. • Check boom prior to approaching backhoe. • All chains, lines, cables should be inspected daily for weak spots, frays, etc.

Addendum F: Respiratory Protection Program

Insert Respiratory Protection Program

Addendum G: Medical Surveillance Requirements and Physician's Certification Form

Attach copies of employees' medical certification to this Addendum.

MEDICAL SURVEILLANCE REQUIREMENTS

Physician's opinion

The physician's written opinion about employees' ability to perform hazardous remediation work shall contain:

The physician's recommended special protective measures or limitations upon the employee's assigned work

The physician's opinion about any detectable medical condition that would place the employee at increased risk of material impairment of the employees health given the anticipated exposures to hazardous and toxic wastes

Any recommended limitations upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if a physician determines that the employee cannot wear a negative air pressure respirator.

A statement that the employee has been informed and advised about the results of the examination. The statement must clarify that the patient understands that given his/her past medical history and anticipated on-site working conditions, the additional qualitative risk to his/her health.

Addendum H: Training Requirements and Training Certification

Attach copies of employees' 29 CFR 1910.120 training and refresher training certification to this Addendum.

Hazardous Waste Operations Training Requirements:

Employees (general equipment operators, general laborers and labor supervisory personnel not assigned HAZWASTE supervisory duties) who may be exposed to hazardous materials:

- Receive at least 40 hours of safety and health instruction before engaging in hazardous waste operations
- Receive a minimum of 3 days of actual field experience under the direct supervision of a trained, experienced HAZWASTE Foreman/Supervisor

Employees (ground water monitoring technicians, land survey crews who stay on the site boundary, geo-physical monitoring technicians who monitor only undisturbed surface soil location) who are on site only occasionally for limited periods of time:

- Receive at least 24 hours of safety and health instruction before engaging in hazardous waste operations
- Receive a minimum of 1 day of actual field experience under the direct supervision of a trained, experienced HAZWASTE Foreman/Supervisor

Employees who may be exposed to hazardous materials also receive 8 hours annual refresher training thereafter. Site documentation of training will include the original training certificate and all refresher-training certificates. Personnel will be required to carry on their person to the site, wallet cards showing the latest refresher training certification.

HAZWASTE Foreman/Supervisors directly responsible for, or who supervise employees at this hazardous waste site, will receive at least 8 additional hours of specialized training on managing such operations. (29 CFR 1910.120 Hazardous Waste Operations Supervisor Course).

FORM TO

DOCUMENT ON-SITE HTRW FIELD EXPERIENCE

NAME:

DATE:

SITE:

ON SITE SUPERVISOR:

DURATION OF SUPERVISED SITE ACTIVITY:

TYPE OF SUPERVISED SITE ACTIVITY:

As a site supervisor trained in accordance with 29 CFR 1910.120 (40 hours of initial training, required annual refreshers, and an additional 8 hours of supervisory training), I supervised the above named individual.

SITE HAZWASTE FOREMAN/SUPERVISOR'S SIGNATURE:

ADDITIONAL INFORMATION RELEVANT TO THIS SUPERVISED FIELD EXPERIENCE (optional entry):

Instructions for use of this form:

The site worker is to enter each of the required queries. (I.e. Date, Site, etc.)
The site supervisor is to sign the above statement and initial each of the query entries.
The worker is responsible for maintaining this form, and all other such forms used to document three days total supervised field experience.

Addendum I: Contingency Evacuation Plan Outline

Addendum J: Trenching and Excavation Requirements

Contractor is to attach site specific excavation plan.

Addendum K: USACE Accident Reporting Form

Addendum L: Protection of the Public

PROTECTION OF THE PUBLIC

In order to assure that the public is safe, several safeguards designed to help the public are discussed in this section.

Site Access

While on site, the contractor will have strict control of who goes on and off the site. In some situations, this may mean installing a fence with a lock. Machines left on site overnight will not be left with the key in them, unless they are in an isolated locked area. During the day, the area of concern will be clearly marked with yellow tape. A qualified person will periodically inspect the perimeter markings and the storage of materials. Visitors should not be allowed inside the yellow boundary (or locked fenced area) unless they are part of the contractor's group.

All ditches, holes, excavations, and trenches not located in a locked fensed area will either be filled prior to sundown, or marked with a brightly covered fence or construction barriers.

Emergency Preparedness

All employees will know the emergency telephone numbers for the police and fire department, should an incident occur. Should a release occur that is believed to be large enough to leave the site, Fire Department personnel must be contacted immediately.

Off-Site Monitoring

This project will not produce significant quantities of dust. No off-site or perimeter monitoring is necessary.

Addendum M: HAZARD ASSESSMENT/RISK ANALYSIS

HAZARD ASSESSMENT/RISK ANALYSIS

This section provides a general description of potential hazards anticipated during work at the IHNC sites. Pre-construction briefing and subsequent safety meetings will serve to address the hazards particular to each task. If new hazards are identified, the SSHO will then add them to the SSHP in the field, along with the date of modification.

Chemical Hazards

Specific chemical hazards in the SSHP based on information from the previous site investigations. In general, chemical hazards include: exposure in excessive levels to toxic chemicals found in the environmental media at the site.

Hazardous chemicals can be absorbed into the body through various pathways. These pathways include:

- Inhalation of vapors, gases, or particulates;
- Ingestion of contaminated particulates from hand-to-mouth contact; and
- Dermal and eye absorption from direct, unprotected contact, or from exposure to airborne concentrations.

The following sections describe the chemical exposure guidelines for each of the above chemical exposure scenarios. Each site has a specific exposure pathway(s) is addressed in the SSHP.

ADDENDUM N: HEAT STRESS

Addendum O: Accident Prevention

ACCIDENT PREVENTION

Daily safety and health meetings will be conducted by the SSHO to determine if operations are being performed in accordance with this SSHP, and OSHA regulations. Personnel will be alert for potentially hazardous situations and symptoms in themselves and others that warn of hazardous conditions and exposures. Each meeting conducted will be recorded on a Site Safety Meeting form and kept as part of the permanent record.

Some topics that will be covered in the meetings are as follows:

- Emergency Response Procedures;
- Chain of Command;
- Standard Operating Procedures;
- Slip, trip, and fall prevention;
- Symptoms associated with heat or cold stress;
- Vehicle accidents/drill rig accidents;
- Electrical safety;
- Physical injuries (blows, cuts, impacts);
- Insect/animal hazards;
- Good housekeeping practices (accident prevention); and
- Use of emergency hand signals.

Additional topics will be addressed as warranted by site-specific field activities and conditions.

Addendum A: Toxicological Assessment and Decision Logic for Major Potential Contaminants On-site

POTENTIAL EXPOSURE VIA DUST DETERMINATION

The following calculations are used to determine if the site has the potential to overexpose workers to contaminants in the soil that become airborne as dust particles. The following assumptions are made to produce a very conservative estimate of potential exposure to contaminants on site. The site has been well characterized. The highest known concentrations detected of suspected contaminants found anywhere on the site are used for the calculation. The calculation assumes that 10 mg/m^3 of dust is in the air during the entire 8 hours. Actually dust will be controlled so that no visible dust will be on the site. The calculations shown below indicate that there is not a potential for workers to be exposed above the Permissible Exposure Limit (PEL) via dust for contaminants located on site. Additionally the sediment samples will be wet and dust is not likely to be created.

EXPOSURE CALCULATION VIA DUST

	Highest Conc. Mg/kg	Highest Conc. mg/mg	Conc. With Nuisance dust levels in the air	PEL
Arsenic	16.9	0.0000169	0.000169	0.01
Lead	2420	0.00242	0.0242	**0.03
*Benzo (a) anthracene	7	0.000007	0.00007	0.2
*Benzo (b) fluoranthene	12	0.000012	0.00012	0.2
*Benzo (a) pyrene	5.4	0.0000054	0.000054	0.2
*Dibenz (a,h) anthracene	0.94	0.00000094	0.0000094	0.2
*N-nitro-di-n-propylamine	0.83	0.00000083	0.0000083	0.2
Indeno (1,2,3,-cd) pyrene	16.6	0.0000166	0.000166	0.2
*2-Nitoaniline	8.3	0.0000083	0.000083	0.2

Contaminated particulate limit (mg total dust/M3 of air) = PEL of contaminant (mg contaminant/M3 x (kg soil/mg contaminant {highest or representative measured contaminant}) x E6 (mg soil/kg soil).

16.9 mg/kg Arsenic in soil
PEL for Arsenic is 0.01 mg/m3
16.9 mg/kg = 0.0000169 mg/mg Arsenic in soil

Assume nuisance dust levels are present (10 mg/m3); therefore, there are now 0.000169 mg/m3 Arsenic that could be in the air.

0.000169 mg/m3 is below the PEL for arsenic; therefore, the danger is from overexposure to dust rather than the arsenic in the dust.

Chemical and Toxicological characteristics of the Contaminants of Concern.

Note: The toxicological effects (i.e. effects that result in toxic effects in the body) listed here range from those that are simply annoying to serious health effects. These effects are discussed in this section without regard to actual potential exposure risk at this site.

Cadmium. Cadmium compounds have low volatility and exist in air primarily as suspensions of fine particulate matter.

- When inhaled, a fraction of this particulate matter is deposited in the airway.
- Large particles (e.g., 10 um) tend to be deposited in the upper airway, while small particles (e.g., 0.1 um) tend to penetrate to the alveoli.
- While some soluble cadmium compounds may undergo limited absorption in the upper respiratory tree, the major site of absorption is the alveoli.

Cadmium can affect you when breathed in. Cadmium is a CARCINOGEN, a TERATOGEN, and may cause REPRODUCTIVE DAMAGE. HANDLE WITH EXTREME CAUTION. Breathing Cadmium can irritate the lungs causing coughing and/or shortness of breath. Higher exposures can cause a build-up of fluid in the lungs (pulmonary edema), a medical emergency, with severe shortness of breath.
Repeated low exposures can cause permanent kidney and lung damage, anemia, and loss of smell. High exposure to Cadmium may cause nausea, salivation, vomiting, cramps, and diarrhea. Cadmium can cause a flu-like illness with chills, headache, aching and/or fever.
OSHA: The legal airborne Permissible Exposure Limit (PEL) for Cadmium is **5 ug/m^3 (.005 mg/m^3)** averaged over an 8-hour workshift.

Chromium
Chromium powder can affect you when breathed in.
Chromium fumes can cause "metal fume fever," a flu-like illness lasting about 24 hours with chills, aches, cough and fever.

OSHA: The legal airborne Permissible Exposure Limit (PEL) is **1 mg/m3** averaged over an 8-hour workshift.

Lead. Heavy, soft gray metal. Lead exposure can cause a variety of health problems. The earliest symptoms may be tiredness, trouble sleeping, stomach problems, constipation, headaches, irritability, and depression. Higher levels may cause aching and weakness in the arms and legs, trouble concentrating and remembering things, and may cause a low blood count (anemia). Lead exposure increases the risk of high blood pressure.

Repeated exposure can result in the build-up of lead in the body. This build-up results in lead being deposited in the bones. When referring to the amount of lead in the bones, the term "body burden" is often used. Body burden implies that the body is storing lead rather than excreting the lead through waste products or carrying the lead in the blood. Because this lead is not being excreted in urine or carried in the blood, urine and blood samples will not be an indicator of the total lead present in the body. Blood samples are an indication of lead exposure for approximately 2-4 weeks after the exposure incident. Then as the body begins to deposit lead in the bone, blood samples become a less accurate indication of lead exposure.

The lead in the bone may be released from the bone tissue when certain processes within the body occur. One of these processes is be when the body begins to use the calcium stored in the bone as a substitute for calcium lacking in the diet. When the calcium is removed from the bone, the lead held in the bone tissue, also, begins to enter the blood stream. This process is one of the reasons why women of childbearing age are cautioned to avoid exposure to lead. Lead is a probable terratogen, that means that a developing fetus can be severely injured by exposure to lead.

Lead can cause serious permanent kidney or brain damage when exposures are high.

Lead exposure can occur by inhalation or ingestion.

OSHA: The legal airborne Permissible Exposure Limit (PEL) for Lead is **50 ug/m^3 (.05 mg/m^3)** averaged over an 8-hour workshift.

Total PAHs. PAHs can be formed in any hydrocarbon combustion process and may be released from oil spills. The less efficient the combustion process, the higher the PAHs emission factor is likely to be. The major sources are stationary sources, such as heat and power generation, refuse burning, industrial activity, such as coke ovens, and coal refuse heaps. Because of the large number of sources, most people are exposed to very low levels of PAHs. The PAHs tend to adsorb on particulate matter. In the environment,

PAHs are photo-oxidized, and react with oxidants and oxides of sulfur.

Exposure to PAH's will be based on the concept of Additive Effect of Threshold Limit Values for Mixtures as defined by the American Conference of Industrial Hygienists (ACGIH). Since PAH's have the same target organ effects and environmental dispersion pathway, the assumption will be that the total amount of PAH component present will be affecting the work force.

PAH's can be expected as adsorbed contaminant on soils that are obviously stained and/or exuding an aromatic odor indicative of generalized volatile contaminant spillage. Exposure to a work force would be expected via the inhalation of soil particulate.

Since most PAH contaminated sites where creosote has been used, are also contaminated with hydrocarbons, the relative amount of hydrocarbon contamination is a good indication of PAH contaminant concentration associated with creosote. In areas where the soil is stained, both misting and slow, deliberate sampling methods must be used to minimize airborne dusts. If visible dust is observed, workers must move to Level C contingency PPE.

Environmental Fate.

Chromium and Cadmium. If released or deposited in the soil, lead will be retained in the upper 2-5 cm. of soil, especially in soils with at least 5% organic matter or a pH of 5 or above. Leaching is not a significant process under most circumstances. When released to the atmosphere, lead will generally be in a dust or adsorbed to particulate matter.

Lead. If released or deposited in the soil, lead will be retained in the upper 2-5 cm. of soil, especially in soils with at least 5% organic matter or a pH of 5 or above. Leaching is not a significant process under most circumstances. Lead enters water from runoff or wastewater. Lead is effectively removed from the water column to the sediment by adsorption to organic matter and clay minerals. When released to the atmosphere, lead will generally be in a dust or adsorbed to particulate matter.

Visitors Log

Date	Name	Time IN	Time OUT	PPE Used	Training Date	Meds Date	RPP Fit Test Dates

Daily Safety Inspection Log

The SSHO will develop a code for each Work Area, PPE, and Work Equipment

Date	Work Area Checked	Employees Present	PPE Used	Work Equipment Used	Safety & Health Issues

	Preparers Signature

Daily Instrument Calibration Check Sheet

The SSHO will develop a code for each piece of equipment and calibration method used.

Date	Equipment Checked	Employee Initials	Gas Used	Calibration Method	Issues

	Preparers Signature

Daily Air Monitoring Readings

The SSHO will develop a code for each Work Area, PPE, and Work Equipment

Date	Work Area Checked	Employees Present	PPE Used	Time	Air Monitoring Readings

Preparers Signature

EMERGENCY RESPONSE/CONTINGENCY PLAN

Personnel Roles and Lines of Authority

- The SSHO has primary responsibility for responding to and correcting emergency situations involving on site personnel. This includes taking appropriate measure to ensure the safety of site personnel and the public. Possible actions may involve evacuation of personnel from the site area, and evacuation of adjacent residents.
- The SSHO is additionally responsible for ensuring that corrective measures have been implemented, appropriate authorities notified, and follow-up reports completed when the emergency is directly related to activities on-site.

Pre-Emergency Planning

The SSHO must coordinate an emergency response/contingency plan.

Prior to initiating on-site activities, the appropriate local emergency response teams listed in *EMERGENCY CONTACTS & APPROVAL PAGE,* page 2 of this SSHP will be contacted and informed as to the site location, the activities to be conducted, the anticipated hazards, the levels of personal protection equipment required on-site, and any other pertinent information.

In the event of a worker-related injury; the -Safety Manager will be notified. The associated SSHO responsibilities include the following:

- Establishing site evacuation routes and zones.
- Notifying offsite emergency response teams.
- Assessing emergencies.

Safety equipment will be maintained on site. This safety equipment will include:

- Emergency eyewashes and showers in compliance with ANSI Z358.1
- Fire Extinguishers with a minimum rating of 20-A: 120-B: C will be maintained on the site and in all vehicles that enter the EZ.

Emergency phone numbers and area maps to nearest medical facilities will be laminated and posted on-site.

Lines of Authority in an Emergency

In the event of an emergency:

- The Contractor SSHO will be in charge, or;
- When an offsite emergency response team is on-site, this team will be lead by an Incident Commander or officer in charge. The -Safety Manager will act as a liaison to Incident Commander or the officer in charge.

Site Security and Control

In cases where an emergency situation does not pose a threat to the public and offsite emergency response teams will not be dispatched to the site, the SSHO will be responsible for coordinating the appropriate emergency response and communicating with the public as necessary.

However, if an emergency arises that presents an immediate threat to the public or otherwise requires additional support, the SSHO may activate the emergency response system in the manner prescribed by the offsite emergency response organization.

In an emergency situation when the police, fire department, or other local emergency response team has been dispatched to the site, the local authorities will mandate site security and control.

Emergency/Accident Recognition and Prevention

All personnel will bring to the attention of the SSHO any unsafe condition, practice, or circumstance associated with or resulting from the on-site activities.

In cases of **immediate hazard** to employees or the public:

- Any employee on the scene will take all practicable steps to eliminate or neutralize the hazard; this may include leaving the site.
- Follow-up consultation with the -Safety Manager must be made at the first opportunity.
- In such circumstances, the SSHO will take the necessary steps to ensure that the investigation can be completed safely. Such steps will include: notification changes in procedures, removal or neutralization of a hazard, consultation with appropriate experts, or the use of a specialist.

In cases where the hazard is **not an immediate danger** to the employees, the SSHO will be consulted regarding appropriate corrective measures.

If a hazard poses an **immediate threat to the public**, the SSHO will be responsible for activating the emergency response system in the manner prescribed by the local fire and police departments.

In the event that any member of the team experiences any **extreme adverse effects or symptoms of chemical exposure** while on-site; the entire team will immediately leave the site and seek appropriate medical aid.

In the event that any member of the work force is **overcome, incapacitated, or traumatically injured** while on-site:

1. The remaining members will immediately call for assistance and make reasonable efforts to rescue the affected person.
2. At least one person will remain outside the problem area until help arrives.
3. Once removed from the problem area the affected person will not be left unattended.
4. If possible, limited personnel decontamination will be conducted, but only if time is not critical to getting the injured person to medical aid.
   Note: In cases where personnel contamination has occurred, those persons involved will make every reasonable effort to **decontaminate themselves**, so minimal spreading of contaminants occur.
5. Medical aid will be acquired either via ambulance or SSHO directed transfer of personnel to the medical facility using site vehicles.
   - The SSHO will determine the fitness of the driver.
   - If the driver's fitness is questioned, medical assistance must be contacted by phone.

INCIDENT/ACCIDENT REPORT

An Incident/Accident Report will be completed by the SSHO following any accident involving on-site personnel. A copy of the report will be attached to this SSHP or filed and referenced from this SSHP. A copy of the report will be submitted to the Safety Manager within 24 hours.

Safety Distances and Places of Refuge

The SSHO will establish safe evacuation distances prior to initiation of field activities.

- An emergency evacuation assembly point will be designated daily by the SSHO based on the current wind direction.
- The emergency evacuation assembly point will be located upwind and will be updated as needed.
- The location of the evacuation points will be recorded in the **Safety & Health Log**.

Evacuation Routes and Procedures

All evacuation routes will be designated to move personnel away from an affected area in a safe and efficient manner and to establish efficient traffic patterns for fire and emergency equipment during an emergency response.

- These evacuation routes will be located at a safe distance upwind of all areas of activities.
- The SSHO will be responsible for personnel accounting at each emergency evacuation assembly point.

Emergency Decontamination

In addition to routine decontamination procedures, emergency decontamination procedures must be established. In an emergency, the primary concern is to prevent the loss of life or severe injury to site personnel.

- If immediate medical treatment is required to save a life; limited decontamination will be performed or the person will be wrapped in a blanket.
- Any person, who is not fully decontaminated and requires transportation to a medical facility, will be wrapped in a blanket to protect the emergency vehicle. As an alternative, the seats of the emergency vehicle will be covered with polyethylene or a blanket.
- If a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination will be performed immediately.
- The SSHO will designate personnel who are not directly involved in the emergency to properly dispose of contaminated clothing and equipment.

Emergency Medical Treatment and First Aid

At least **two** team members will have successfully completed a Red Cross sponsored course in adult first aid and cardiopulmonary resuscitation.

Prior to the start of work, the SSHO will make arrangements for medical facilities, ambulance service, and medical personnel to be available for prompt attention to the injured.

On-site activities will require a first aid kit located within the support zone.

Emergency telephone numbers and reporting instructions for ambulance, hospital, poison control center, fire department, and police will be conspicuously posted or available.

If the SSHO determines that a situation exists that could threaten human health or the environment outside the site area, he/she will immediately notify the local fire department, Safety Manger, and the National Response Center. The telephone report will include:

- Name and telephone number or reporter
- Name and address of facility
- Time and type of incident (e.g., release, fire)
- Name and quantity of material(s) involved, to the extent known, and the location of the discharge within the facility
- The extent of injuries, if any
- The possible hazards to human health, or the environment, outside of the site area
- Actions the person reporting the discharge proposed to take to contain, clean up, and remove the substance

Exclusion Zone Personnel Decontamination.

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible.

- If the injury or illness is minor, full decontamination must be completed prior to transport.
- If the patient's condition is serious, at least partial decontamination must be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket.)

All injuries and illnesses must immediately be reported to the project manager.

Any person being transported to a clinic or hospital for treatment must take with them information on the chemical(s) at the site.

Any vehicle used to transport contaminated personnel will be treated and cleaned as necessary.

Emergency Response Procedure

All site personnel will be responsible for responding to incipient fires and other minor emergencies. The SSHO will have ready access to all fire fighting equipment and first-aid supplies during site operations.

In the event of fire, spill, or other emergencies that cannot be controlled, all site personnel will evacuate to a predesignated location. Site personnel will wait in the designated zone for further instructions from the SSHO or emergency response personnel.

During an emergency, the SSHO will direct all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the site. These measures will include, where applicable, collecting and containing release material and removing or isolating containers.

Critique of Response and Follow-up

A follow-up meeting will be held after any emergency situation to assess the actions taken. The Safety Manager, the SSHO, and other individuals as appropriate will attend the meeting.

- A record of the meeting will be kept by the SSHO.
- Recommendations from the meeting will be incorporated into the future responses to emergency situations.

The SSHO will ensure that all emergency equipment listed in this contingency plan is cleaned and fit for use before operations are resumed.

Emergency Response Briefings and Review

- During the site briefings, all employees will be trained in and reminded of provisions of the emergency response plan, communication systems, and evacuation routes.
- The plan will be reviewed and revised if necessary, on a regular basis by the SSHO. This will ensure that the plan is adequate and consistent with prevailing site conditions.

Evacuation Alarm Procedures

In the event of an emergency which necessitates an evacuation of the site; the following alarm procedures may be implemented:

- Verbal notification of other employees.
- Personnel will be expected to proceed to the Support Zone with their buddy.
- Personnel will remain at the SZ until the SSHO provides further instructions.

Fire or Explosion

The -SSHO will advise the fire commander of the location, nature, and identification of the hazardous materials onsite.

Spill or Leaks

In the event of a spill or a leak caused by activities on-site; site personnel will:

- Inform the SSHO immediately;
- Locate the source of the spillage and stop the flow if this can be done safely; and,

- Begin containment and recovery of the spilled materials.

Regulatory Protective Exposure Standards

Permissible Exposure Limits (PELs) are the OSHA regulatory standards (enforceable by law) for personal protection from exposure to hazardous chemicals. The OSHA PEL is usually weighted over an 8-hour time period to represent the exposure over the average work day. The PEL is the airborne concentration of a chemical to which nearly all workers may be exposed, day after day, without adverse effects. PELs for specific chemicals are listed in the SSHP.

Nonregulatory Protective Exposure Guidelines

Nonregulatory guidelines for occupational exposure to chemicals are threshold limit values (TLVs). TLVs are analogous to OSHA's PEL, but, as guidance, are not legal standards enforceable by law. TLVs are established by the American Council of Governmental Industrial Hygienists (ACGIH) and are usually time-weighted over an average 8-hour work day. TLVs for specific chemicals are listed in the SSHP.

Action Levels

This section describes the criteria upon which personal protective equipment (PPE) will be selected, upgraded, or downgraded through the use of real time monitoring devices. By monitoring, on-site personnel not only can monitor for their own safety on-site, but can also monitor for off-site releases to protect those off-site.

Action Levels: Organic Vapors Photoionization Detector and Detector Tubes

Ambient air in the breathing zone will be monitored for organic vapors at least once every 30 minutes during site operations involving intrusive activities and with every change in task or work location. A photoionization detector (PID) will be used to monitor for volatile organic vapors.

Continuous monitoring will be conducted at locations where vapor buildup is a potential hazard. Because the PID/FID provides only quantitative readings, chemical-specific detector tubes may be used in conjunction with the PID/FID to monitor for the presence of specific organic vapors, as required. When not using any chemical specific detector tubes

during sampling, upgrading of PPE should occur at the following PID/FID readings. All intrusive activities require the use of a PID/FID meter during the work.

PID Value*	PPE Level
0-10 ppm	Level D
10-50 ppm	Level C
>50 ppm	Stop work
*PID readings are considered to be above background and taken in the breathing zone.	

When levels of organics are detected at levels >50 ppm, personnel must consult with the SSHO. Efforts should be initiated to identify the contaminants.

Non-intrusive activities require no monitoring with a PID/FID.

Action Levels: Oxygen

Oxygen levels in the breathing zone will be monitored continuously using a O2/CGIor oxygen meter during intrusive activities. Action levels for oxygen are not site-specific and are pertinent for all sites at IHNC . Therefore, action levels based on oxygen levels are presented below:

Oxygen Level	Action
19.5 - 22.0%	None; normal oxygen level.
<19.5%	Oxygen deficient atmosphere; stop work, notify Site Safety and Health Officer (SSHO), ventilate area until normal oxygen levels are present; or upgrade to Level B PPE.
>22.5%	Fire/explosion hazard; stop work, ventilate area until normal oxygen levels are present.

Action Levels: Combustible Gases

Combustible gas monitoring will be performed continuously during intrusive site activities, using a O2/CGIor combustible gas indicator. Action levels based on Lower Explosive Limit (LEL) readings monitored in the breathing zone are as follows:

LEL Level	Action
<10% LEL	None; proceed with work and continue monitoring.
10 - 20% LEL	Potential explosion hazard; proceed with caution and monitor LEL levels closely.
>20% LEL	Explosion hazard exists; stop work; evacuate site and ventilate area until levels of combustible gases fall below 20% LEL.

All ventilation processes will be detailed in the SSHP. Nonintrusive activities require no monitoring for combustible gases.

Action Levels: Hydrogen Sulfide Gas

Hydrogen Sulfide is not a suspected contaminant for this job.

The O2/CGI will be used during intrusive activities performed at landfills to monitor for the presence of hydrogen sulfide gas. The toxic effects of hydrogen sulfide gas are of particular concern because H_2S has poor warning signs for exposure (i.e., is not detected by odor at levels that are subtoxic and rapid olfactory desensitization to H_2S occurs). Monitoring for H_2S gas will occur in the breathing zone.

H_2S Levels	Action
0-5 ppm	Safe level
>5 ppm	Exposure hazard; stop work; evacuate site, notify site manager.

Nonintrusive activities require no monitoring for H_2S gas.

Physical Hazards

Potential physical hazards that may be encountered during work at IHNC include the following:

- Heat or cold stress, depending on work season;
- Physical/electrical hazards associated with working in the vicinity of overhead power lines and/or underground utilities;
- Physical hazards associated with the use of heavy equipment;
- Excessive noise levels from heavy equipment operations and/or aircraft;
- Physical hazards associated with local flora and fauna;
- Physical hazards associated with sampling bodies of surface water; and
- Physical hazards associated with entering confined spaces.

Electrical and Utility Hazards

Electrical hazards exist from the use of electrical equipment at any given site. All electrical equipment shall be visually inspected for external defects to the equipment, including the cord. Should there by any evidence of damage, that equipment shall not be used.

All electrical equipment must be using a ground fault circuit interrupter (GFCI) system, or an assured equipment grounding program as required in 29 CFR 1926.405(j)(1)(iii)(A-D). Electrical equipment must be stored in a dry area and not be used outside in the rain. Monitoring equipment must be intrinsically safe.

No heavy or tall equipment will be used on this job therefore overhead electrical hazards should not be of a concern.
Dames & Moore will need to verify with the utility company to ensure that there are no buried utility lines in the IHNC.

Electrical hazards associated with tasks could include contact with buried utility lines or overhead power transmission lines and lightning striking during electrical storms. During heavy equipment operations, the equipment and any overhead power transmission lines will be separated by at least 10 feet. Equipment operation should be halted, and personnel are to maintain at least a 10-foot distance from equipment in the event of a lightning storm.

Safe working distances of drill rigs/heavy equipment from power lines are indicated below (USACE, EM385-1-1 Most Recent edition).

When operating near high voltage power lines	
Normal Voltage (phase-to-phase)	Minimum Required Clearance
< 50 kV	10 ft. (3.05 m)
50 to 100 kV	12 ft. (3.66 m)
101 to 200 kV	15 ft. (4.60 m)
201 to 300 kV	20 ft. (6.10 m)
301 to 500 kV	25 ft. (7.62 m)
501 to 750 kV	35 ft. (10.67 m)
751 to 1000 kV	45 ft. (13.72 m)

While in transit with no load and boom/mast lowered	
Normal Voltage (phase-to-phase)	Minimum Required Clearance
< 50 kV	4 ft. (1.22 m)
50 to 345 kV	10 ft. (3.05 m)
> 345 kV	16 ft. (4.87 m)

Dig permits must be obtained and signed by proper personnel prior to any intrusive activity on any site. To initiate the dig permitting process, personnel should call Louisiana One-Call.

Heavy Equipment Hazards

Heavy equipment will not be utilized during this phase of the project.

Remember that the operator's visibility may be obscured by the load being handled, dusty conditions, complicated terrain, or other equipment. Requirements during the use of heavy equipment include:

- Backup alarms are required. Personnel should be constantly aware of moving equipment.
- Operators must stay in moving equipment and wait until it stops before getting off.
- Personnel must be aware of rotating equipment. Do not wear loose clothing or jewelry. Tie long hair back.
- Observe traffic patterns and stay out of the way.
- Assure equipment is in working order, check daily and/or monthly inspection records.
- All heavy equipment must be shutdown, if unoccupied.

Noise Hazards

Unacceptable levels of noise can be expected when working in close proximity to aircraft and heavy machinery. Assume that hearing protection will be required when working within 250 feet of an aircraft that is revving its engines or when working in a fly-over zone at IHNC and when working within 15 feet of an operating heavy equipment. Hearing protection is required when the decibel (db) level is above 85 dbs. As a rule of thumb, the db level is above 85 dbs when you have to speak loudly to a person at an arms length or less away.

Hearing Protection

Expandable foam earplugs will be worn whenever personnel are working and heavy protection is required.

Minimum Noise Reduction Rating (NRR) for earplugs or muffs is 25dBA.

Hand signals will be used when noisy conditions exist and/or when hearing protection equipment is used. The hand signals to be used will be discussed and agreed upon by site personnel before continuing work with hearing protection.

Water Hazards

All personnel collecting sediment samples shall wear a coast guard personal floatation devices, such as a life jacket.

Confined Space Hazards

Under no circumstances should personnel enter a confined space without having filled out a permit and obtained an authorized signature. Entry into a confined space must be done in accordance with 29 CFR 1910.146.

A confined space is defined by OSHA as a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work;
2. Has limited or restricted means of entry or exit; and
3. Is not designed for continuous employee occupancy.

Examples of confined spaces include tanks, trenches, pits, and vessels.

Biological Hazards

The following paragraphs identify the potential hazardous flora and fauna at IHNC . If additional concerns are identified, these concerns will be listed and addressed by the contractor.

Hazardous Flora

The incidence of contact by individuals to poisonous/thorny plants is high when working in vegetated areas; therefore, bare skin should be covered (i.e., long pants and long-sleeved shirt, boots, leather or cotton gloves, safety glasses, and head protection) as much as practical. Personnel should avoid entering an area in the direct path of known poisonous flora (i.e., poison ivy or poison oak); a secondary route should be selected. Care should also be taken when walking in areas where uneven terrain or vines may present a tripping hazard.

While attempting to cut into dense underbrush, hazards exist from the sharp machete and gas-powered weed cutter; therefore, care should be taken when using such devices. (Note: Hearing protection, steel toe boots, gloves, and safety glasses are required when using weed cutters.) Rashes or other injuries will be reported to the SSHO as soon as they occur or are recognized.

Hazardous Fauna

Mosquitoes and gnats pose a nuisance and physical hazard to field personnel; they distract workers, leading to accidents, and pose a physical threat by transmitting live micro-organisms. Avoiding the use of perfumes and scented deodorants and donning light colored clothing is preferable. The use of insect repellents while sampling should be minimal because of the possibility of contaminating the samples.

There is a potential to come in contact with other dangerous insects; these include fire ants, chiggers, bees, wasps, hornets, mites, fleas, spiders, and ticks. All personnel should perform "checks" on each other periodically and at the end of the work shift. When walking or working in forested areas, provisions should be made to avoid encountering elaborate spider webs that are strung between trees. All insect bites must be reported to the SSHO. Personnel should always be aware of individual reactions to bee stings or insect bites. Should an individual start to have shortness of breath and become covered in hives, that

individual may be having an intense allergic reaction. Medical attention should be sought immediately.

If a tick is found on one's body, it should be removed immediately. Tweezers should be used to ensure the entire head is pulled out as well as the body. If the head cannot be removed, medical attention must be sought at the end of the day.

Prior to initiating site activities, each individual shall be questioned as to any known sensitivities to the previously mentioned organisms or agents.

Radiation Hazards

IHNC has no sources that emit ionizing radiation that would harm personnel. Nonionizing radiation sources are present in the form of ultraviolet (UV) light from the sun and radio frequency microwaves from radar installations.

Prolonged exposure of the skin to the sun's ultraviolet rays even on overcast days, can result in sunburn, which can be severe enough to be incapacitating, especially with fair-skinned individuals. Repeated sunburning can eventually cause premature aging of the skin and skin cancer. Always wear clothing to reduce the amount of exposed skin and frequently use sunblock creams or lotions.

Explosion and Fire

In general, the following items present potential explosion or fire hazards. Explosion and fire may result from:

- ·Heavy equipment malfunction;
- Penetration into underground utility/service lines (i.e., gas, electric, fuel);
- Ignition of trapped flammable vapors;

Provisions for monitoring of potential fire/explosive conditions will include the use of an Oxygen/Combustible Gas Indicator (O2/CGI), the performance of utility checks prior to conducting intrusive activities.

HEAT STRESS MONITORING

The SSHO will provide all project personnel with the necessary training and monitoring designed to prevent injury due to heat or cold stress, as dictated by weather conditions. This monitoring will commence when the ambient environmental temperature exceeds 70°F (for heat stress) or falls below 40°F (for cold stress). In addition, all field personnel will be provided rest breaks. Break areas will be situated so that personnel may remove the chemical-protective clothing, rest in a protected area, and drink cool or warm fluids (as the weather dictates). Working within protective clothing, such as may be required for this project, places a significant physiological stress upon the worker. For this reason, the personnel and environmental measurements described below will be conducted for those personnel required to wear chemical-protective clothing as a part of this project.

Heat Stress Monitoring

Heat stress may be severe when physical exertion is combined with high ambient temperatures and/or impermeable clothing which prevents the evaporative cooling effects of sweating. The stress level still may be high even though ambient temperatures are not high.

Three major categories of heat illnesses include:

1. Heat stroke,
2. Heat exhaustion, and
3. Heat cramps.

Heat stroke is the most serious, occurs when the body's heat regulation system breaks down under stress and sweating, and the body's cooling mechanism stops. Symptoms of heat stroke include hot, dry skin that is often red in color or spotted. At this point, the body's temperature is at critical levels (106°F or higher and increasing). There is a lack of or reduced perspiration. The pulse is rapid, and the victim may be confused due to a lack of blood supply to the brain. Immediate action must be taken to move the victim from the hot environment and cool rapidly to prevent collapse, unconsciousness, convulsions, coma, and death from occurring in a short time. Heat stroke victims may be laid down in a shaded

area, and large quantities of ice may be applied to body surfaces to initiate rapid cooling. Preferably, they should be immersed in an ice bath. If ice is not available, the victim should be drenched in cool water and fanned vigorously to enhance evaporative cooling. For all cases of heat stroke, emergency response must be summoned.

Heat exhaustion is a condition where the ability of the body to cool itself by sweating is not sufficient to maintain normal temperature. It may be caused by dehydration (due to an inadequate water intake or excessive sweating) or cardiovascular insufficiency. Individuals who are more susceptible to heat exhaustion include those who are unacclimated, those who do not drink sufficient quantities of fluids, or those who have a low level of cardiovascular fitness. Individuals suffering heat exhaustion are sometimes nauseous and still sweating (heavy in most cases) and their skin is still moist but pale in color and cool to the touch. They may be confused, dizzy, prone to fainting, or unconscious because of low blood pressure in the brain. Blood pressure may be low because blood has been diverted to the extremities and skin (to enhance sweating). Recovery is usually prompt if the victim is allowed to rest in a cool, shaded area (or preferably in an air-conditioned area) and drinks water. A victim of heat exhaustion should see a physician before resuming work.

Heat cramps may occur in skeletal muscles due to low levels of salt or electrolytes in the body, usually lost during heavy sweating. Signs and symptoms are typically muscle spasms and pain in the hands, feet, and abdomen. Cramps may be rapidly alleviated by drinking a 0.1 percent NaCl solution to replace lost salt, followed by equal volumes of water.

A worker who exhibits any symptoms of these three heat illnesses will be immediately relieved of responsibilities and requested to consume cool water while resting in a shaded area. The individual should not return to work until symptoms are no longer recognizable. If symptoms appear critical, persist, or get worse, the SSHO will seek immediate medical attention for the employee. If the individual does resume work, he or she will be monitored for any increase in heart rate or body temperature for the remainder of their shift. In addition, the worker will be requested to consume cool water every hour.

Another common form of heat stress, but not as harmful as the three heat illnesses discussed earlier, is heat rash. Heat rash is typically the result of continuous exposure to heat or humid air. It usually precedes the three major heat illnesses. When these symptoms appear, the victim should be moved to a shaded area where he or she can rest and consume water.

Heat Stress Prevention

The following procedures should be utilized by the SSHO to greatly reduce, if not prevent, the possibility of heat stress occurring:

- Work/rest periods must be scheduled according to workload and ambient temperatures (as a guideline, moderately warm weather dictates a 5-minute rest break in the shade between 1-hour work periods in the sun).
- Adequate supplies of cool drinking water must be provided by the contractor to its own employees to replace body fluids lost through perspiration. Water containers for drinking must be labeled as such to distinguish them from containers used for other purposes.
- Work periods must be shortened by 15 minutes if, at the beginning of a rest period, the 1-minute recovery pulse exceeds 110 beats/minute or body temperature exceeds 100°F.
- The elimination of personnel drinking antidiuretic fluids such as coffee or tea prior to going to work during hot weather or when work is expected to be strenuous.

The SSHO will monitor all workers hourly when:

- Symptoms of heat stress are reported or observed;
- Ambient temperatures exceed 70°F, and workers are dressed in impervious clothing; monitoring for heat stress will be more frequent as ambient temperatures rise (i.e., every 30 minutes over 87.5°, every 15 minutes over 90°); or
- Ambient temperatures exceed 90°F, and workers are dressed in normal clothing.

Heat Stress Monitoring

The SSHO will monitor workers for heat stress conditions according to the following instructions:

Measure heart rate (HR) by the radial pulse for 30 seconds after 1-minute of rest. The HR after one minute rest should not exceed 110 beats per minute. If higher, the next work period will be shortened by 33 percent, while the length of the rest period remains the same. If the pulse rate is still 110 beats per minute after 1 minute of rest in the next rest period, the following work cycle will be shortened by 33 percent. This shortening of the work period must continue until the worker's heart rate is no greater than 110 beats per minute after 1 minute of rest.

ACCIDENT PREVENTION

Daily safety and health meetings will be conducted by the SSHO to determine if operations are being performed in accordance with this SSHP, and OSHA regulations. Personnel will be alert for potentially hazardous situations and symptoms in themselves and others that warn of hazardous conditions and exposures. Each meeting conducted will be recorded on a Site Safety Meeting form and kept as part of the permanent record.

Some topics that will be covered in the meetings are as follows:

- Emergency Response Procedures;
- Chain of Command;
- Standard Operating Procedures;
- Slip, trip, and fall prevention;
- Symptoms associated with heat or cold stress;
- Vehicle accidents/drill rig accidents;
- Electrical safety;
- Physical injuries (blows, cuts, impacts);
- Insect/animal hazards;
- Good housekeeping practices (accident prevention); and
- Use of emergency hand signals.

Additional topics will be addressed as warranted by site-specific field activities and conditions.

APPENDIX B

Site Specific Quality Assurance Project Plan and Sampling & Analysis Plan

SAMPLING AND ANALYSIS PLAN

for

IHNC East Bank Data Gaps

Environmental Support to IHNC Lock Replacement Project
Contract Number: DACW29-97-D-0019
Delivery Number 0011
New Orleans COE

Dames & Moore Job Number 08768-040-149
May 2, 2000

APPROVAL PAGE

Quality Assurance Project Plan
for
IHNC East Bank Data Gaps

Environmental Support to
IHNC Lock Replacement Project

Contract Number: DACW29-97-D-0019
Delivery Order Number: 0011
New Orleans COE

Approved by:

Dames & Moore Certified Industrial Hygienist, Dennis W. Day — May 2, 2000

Dames & Moore QA Director, John E. Plevniak — May 2, 2000

Dames & Moore Project Manager, Douglas E. Kuhn — May 2, 2000

New Orleans COE Contracting Officers Representative, Brett Herr — May 2, 2000

New Orleans COE Technical Representative (TR)
Mr. George Bacuta and/or Ms. Jean Spadaro — May 2, 2000

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INTRODUCTION

The Quality Assurance Project Plan (QAPP) represents the first level of quality assurance/quality control (QA/QC) detail for the US Army Corps of Engineers New Orleans District (USACE-NOD) at the east bank of the Inner Harbor Navigation Canal (IHNC), New Orleans, Louisiana. According to previous reports, several areas of environmental impact have been identified in the shallow soils and sediments of the IHNC project area. Potential sources for these environmental impacted areas along the east bank of the IHNC include past and present industrial facilities and marine activities.

This continued Site Investigation comprises an overall strategy to fully characterize the areas of environmental impact and determine whether past industrial and marine activities are the source of contamination to the shallow soils and sediments along the IHNC.

The QAPP addresses the objectives of the site investigation which can be modified or further developed as the scope of the project changes during the construction of the new lock. This QAPP, when combined with its companion document, the Field Sampling Plan (FSP), comprises the Sampling and Analysis Plan (SAP). The SAP documents are prepared following the USACE protocols as described in Engineering Manual, EM 200-1-3.

Quality assurance is defined as the integrated program designed for assuring reliability of monitoring and measurement data. Quality control is defined as the routine application of procedures for obtaining prescribed standards of performance in the monitoring and measuring process. Quality assurance procedures such as tracking, reviewing and auditing are implemented as necessary to ensure that all project work is performed in accordance with professional standards, regulations and guidelines, and specific project goals and requirements.

This QAPP addresses the requirements set forth in U.S. Environmental Protection Agency (EPA) guidance and regulations (40 CFR [Code of Federal Regulations] 300) including procedures to ensure the precision, accuracy, completeness, comparability and representativeness of data collected and generated during the course of this Site Investigation. It is intended to guide field, laboratory and management personnel in the relevant aspects of data collection, management and control while on or off site.

Standard operating procedures (SOPS) for project activities are included in Appendix A of the FSP. Field activities will include sample collection and field measurements. Quality control, tabulation, analyses, computations and interpretation of field data will be provided by technical project personnel. Equipment used to take field measurements will be maintained and calibrated in accordance with established procedures and records of these activities will be kept during the course of this project.

1.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

1.1 PROJECT ORGANIZATION

This project will involve the Planning, Programs and Project Management Division (CEMVN-PM) and Engineering Division (CEMVN-ED) of the US Army Corps of Engineers New Orleans District (USACE-NOD) as well as the staff of the Environmental Contractor (Contractor). Preparation of plans and reports will be the responsibilities of the Contractor under USACE Contract Number _____. The Contractor will also handle supervision and oversight of all field activities as well as manage the testing of sediment samples. Drilling and laboratory activities will be conducted via a subcontract with the Contractor.

At the New Orleans District Office, the following personnel will be responsible for the management of budget and schedules; final review of plans and reports; and coordination with State regulatory agencies, if necessary.

_____ - Contracting Officer Representative
_____ - Project Manager
_____ - Technical manager
_____ - Quality Assurance Manager

The following Contractor personnel will be responsible for the management of budget and schedules; the preparation of plans and reports; the coordination with state agencies; the managing of subcontractors; the execution of the field sampling plan; the collection and submittal of sediment samples to the contracting laboratory; the completion of the abandoned barge inventory; and addressing site health and safety issues.

_____ - Lead Consultant
_____ - Project Manager
_____ - Quality Assurance Manager
_____ - Field Site Manager
_____ - Health & Safety Coordinator

1.2 RESPONSIBILITIES

The following is a summary of the responsibilities of the USACE-NOD, the Contractor as well as the contract laboratory involved in this project:

1. Project Management (USACE-NOD)

   - funding and overall management of the project

Technical Engineering Support (Contractor)

- develop draft and final plans (Quality Assurance Project Plan (QAPP), Field Sampling Plan (FSP) and Site Specific Safety and Health Plan (SSHP)

- provide all office technical support related to the technical coordination, plan execution, field technical oversight and reconciliation of activities to the requirements of the plans

- provide technical information to LDEQ through USACE-NOD's Project Management on all required plans and results of USACE's investigations of IHNC

- conduct all field activities including waste inventory, soil and sediment sampling, and GPS survey of sampling locations

- provide sampling location results, field notes and records, input to the investigation report

- evaluate results of the sampling investigation as well as soil and sediment sampling and testing

- provide statistical analysis of data as the results would allow and provide data validation

- prepare a Sampling and Analysis Report (SAR) to document the results of the investigation of the east bank areas of environmental impact.

- test and dispose of Investigation Derived Materials

2. Contract Chemical Laboratory (Contract Laboratory)

- will perform all required laboratory chemical analysis of soil and sediment samples collected during the course of this project. At a minimum, the Contract Laboratory(ies) shall have a valid laboratory certification from the State of Louisiana.

1.3 PROBLEM DEFINITION/BACKGROUND

The objective of this project is to characterize areas of environmental impact and investigate the data gaps identified by Dames & Moore in previous environmental investigations (Dames & Moore Reports, 2000) completed along the east bank of the Inner Harbor Navigation Canal (IHNC) between Florida and North Claiborne Avenues. The shallow soils and sediments along the east bank of the IHNC have been impacted as a result of the various industrial and marine activities that have occurred along the canal. Potential sources for the environmental impact

identified include existing contamination associated with past industrial and marine activities, abandoned barges, and discharges from pipe drains and canal drains originating from existing and former industrial sites along the canal.

This investigation will be divided into two (2) tasks. The first task is to address the data gaps raised by the analytical data collected from the shallow soils of the east bank industrial area, and the second task will be to address the data gaps raised by the analytical data collected from the sediments of the IHNC. Additional samples will be collected in the areas of concern in order to document and delineate the extent of environmental impact. The successful completion of these tasks will allow for a detailed characterization of shallow soil and sediment conditions along the industrial east bank of the IHNC. The completion of these tasks should also aide in determining waste classification (Special Waste vs Hazardous Waste), waste inventory, and disposal options for the waste generated during the completion of the by-pass channel.

1.3.1 Site History

The project area is located along the east bank of the IHNC, between Florida and North Claiborne Avenues, New Orleans, Orleans Parish, Louisiana. The project location covers and area of approximately 38 acres. Figure 1 presents a generalized map of the project location.

The IHNC opened in 1923 and is located in the metropolitan area of New Orleans. The canal was constructed in order to allow for the movement of barge traffic from the Mississippi River to Lake Pontchartrain and the inter-coastal waterways of the Gulf Coast. There are several active and inactive facilities in this industrialized area that were associated with steel fabrication, shipbuilding, marine vessel repair and servicing, marine supplies, petroleum related facilities, barge leasing, and others.

Industrialization of the east bank area began in the 1960s and today approximately 50% of these industrialized facilities are currently unoccupied or abandoned. Six sites along Surekote Road make up the industrial east bank area (IEB). These sites are Boland Marine (2500 Surekote Road), McDonough Marine (2300 Surekote Road), Indian Towing Company (2200 Surekote Road), Mayer Yacht/Distributor Oil (2100 Surekote Road), Saucer Marine (1910 Surekote Road), and International Tank Terminal (1800 Surekote Road).

The Boland Marine property, located at 2500 Surekote Road, historically was used for ship repairs. Operated by Boland Marine for nearly twenty years, the site is now occupied by an unaffiliated ship repair company. From the mid 1970s to the early 1990s, Boland Marine developed and utilized site facilities for storage, office space, painting operations, and fabrication/welding. Signs of obvious site contamination, sandblast materials, discarded drums and electrical transformers were noted on the property. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. An estimated 6,879 cubic yards (yd^3) of material have been identified at the site as impacted above LDEQ screening options for semi-volatile organic compounds (SVOCs) and lead.

The McDonough Marine property, located at 2300 Surekote Road, was used for barge leasing and chartering services for more than three decades. Originally operating under the name

McDonough Marine, this company has been known as Marmac Corporation since 1972. Sandblast materials were noted on the ground surface near the southwest property corner and discarded drums were abandoned near the paint house. Several ASTs have also been identified on the McDonough property. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. An estimated 381yd^3 of material impacted above LDEQ screening options for SVOCs have been identified at the site.

The Indian Towing Company began operations at 2200 Surekote Road in 1954. In addition to being a nautical towing company, Indian used the Surekote location for the sale, storage, and repair of marine equipment. It has been reported that on numerous occasions the Dock Board sited Indian Towing with lease violations that included illegal barge discharging and general disregard for the environment. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. An estimated 1,527 yd^3 of material impacted above LDEQ screening options for SVOCs have been identified at the site.

Mayer Yacht currently performs boat repairs on the property located at 2100 Surekote Road. Originally developed in 1951, the site was primarily used for fueling operations, boat repairs, and the distribution of marine supplies. Mayer Yacht was also cited for several lease violations that included a general disregard for the environment. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. An estimated 1,202 yd^3 of material impacted above LDEQ screening options for total petroleum hydrocarbons (TPH) have been identified at the site.

Saucer Marine Service began leasing the property located at 1910 Surekote Road in 1954. Saucer Marine used this site for ship building practices over the next four decades. Several aboveground storage tanks, discarded 55-gallon drums and mixed waste mounds of sandblasting material have been documented at this location. Several abandoned barges have also been inventoried along the banks of Saucer Marine. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. An estimated 9,600 yd^3 of material impacted above LDEQ screening options for SVOCs and TPH have been identified at the site.

The site referred as the International Tank Terminal (ITT) is located at 1800 Surekote Road. Former operations at this site include a steel fabrication, trucking, and ship repairs. Tanks of undisclosed size and contents were at one time located on the property. Sandblast materials were also reported to be present on the north end of the site. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. An estimated 1,261 yd^3 of material impacted above LDEQ screening options for SVOCs have been identified at the site.

Several reports from previous investigations along the industrial east bank of the IHNC have been reviewed so that the above summary on site history could be completed (see Section 5.0 for References). These reports include USACE-NOD documents dated 1993, a Christopher

Goodwin and Associates report dated 1992, a Materials Management Group report dated 1994, and a Abandoned Barge Inventory report completed by the State of Louisiana. Reports prepared by Dames & Moore, such as The Above Ground Structure Report, The Above Ground Storage Tank Report and the Mix-Waste Mound Report, were also reviewed and incorporated in the above section.

1.3.2 Proposed Remedial Action.

If the results of this investigation indicate that the shallow soils and sediments along the east bank of the IHNC are clean or slightly impacted with regulated compounds/chemicals at concentrations below the State of Louisiana Risk Evaluation/Corrective Action Program (RECAP) standards, the soils and sediments will be used as either an on-site re-use material such as stabilizing the slopes of the east bank and fill around the new lock or an off-site re-use material at a mitigation site for wetland creation. Soils and sediments determined to be highly impacted and either hazardous or non hazardous may require further investigations. A remedial action plan for the materials must be developed and approved by the LDEQ prior to the construction of the new lock

1.4 PROJECT/TASK DESCRIPTION (PROJECT DESCRIPTION)

This project consists of the collection and testing of shallow soil, sediment and possible sludge for volatile organic compounds (VOCs), SVOCs, 8 RCRA metals, TPH, oil/grease and pesticides/PCBs analyses. These samples will be collected in the vicinity of documented "environmental hot spots" in order to delineate areas of impact.

1.4.1 Field Sampling

The objectives of sampling procedures and field measurements are to obtain representative samples of soil and sediment in areas adjacent to "environmental hot spots" associated with past industrial activities along the east bank of the IHNC. Proper sampling techniques, sampling equipment, decontamination procedures and experienced field personnel will be used to meet the data quality objectives of the project.

Field measurements and sampling will be performed in accordance with accepted federal and state procedures. The FSP for this project specifies the standard operating procedures to be used. The details of the field procedures are provided in Section 4 of the FSP. The FSP follows USACE protocols as described in EM-200-1-3.

Should site conditions differ from the conditions defined in the FSP or the QAPP, the Site Manager and the Site Safety and Health Officer with approval of the USACE, have the authority to alter or change the standard operating procedures so long as all relevant and appropriate regulations are addressed and in compliance.

1.5 DATA QUALITY OBJECTIVES FOR MEASUREMENT DATA

1.5.1 Quality Assurance Objectives

The overall quality assurance objective for measurement data is to ensure that the data generated are of documented quality and are legally defensible for the intended data uses. In order to achieve these objectives, data will be: (1) representative of actual site physical and chemical

conditions, (2) comparable to previous and subsequent data, (3) complete to the extent that necessary conclusions may be reached, and (4) of known quantitative statistical significance in terms of precision and accuracy, at levels appropriate for each stated data use for the project. Quality assurance objectives for measurement

data are usually expressed in terms of precision, accuracy, representativeness, completeness and comparability (also known as the PARCC parameters).

1.5.1.1 Precision

Precision is a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation around the mean or relative percent difference (RPD) between two samples. Precision of reported results is a function of sample homogeneity, inherent field-related variability, shipping variability and laboratory analytical variability. Various measures of precision exist depending upon "prescribed similar conditions". Field duplicate (co-located) samples will provide a measure of the contribution to overall variability of field-related and to some extent laboratory-related sources.

Contribution of laboratory-related sources to overall variability is also measured through various laboratory QC samples (laboratory duplicates, etc.)

1.5.1.2 Accuracy

Accuracy is the degree of conformity of a measurement (or an average of measurements of the same parameter), X, with an accepted reference or true value, T, usually expressed as the difference between the two values, X-T, or the difference as a percentage of the reference or true value, 100 (X-T)/T, and sometimes expressed as a ratio, (X/T) 100 (equal to percent recovery). Accuracy is a measure of the bias in a system. Internal laboratory QC samples (matrix spikes, laboratory control spikes, blank spikes and standards) will also yield accuracy information.

Computer programs are used to report and store analytical data. Entry accuracy is assessed by checking all output and comparing it against the laboratory data reports. Hard copies of the computer database will be printed and the information will be manually checked against the laboratory reports. As each database entry is checked, it will be highlighted. At the completion of the accuracy check, the hard copy will be filed as a checkpoint to serve as verification of the check. The proper collection, transfer and storage of data are the responsibility of the analyzing laboratory. The contract laboratory will perform an accuracy check of the reported data before the data is released to the Corps of Engineers.

1.5.1.3 Representativeness

Representativeness is the degree to which data accurately and precisely represent the true value of a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition.

Representativeness of reported results depends upon a number of considerations including, but not limited to, proper monitoring design, selection of appropriate field methodology, proper sample preparation, preservation and handling, selection and execution of appropriate analytical methodology, and proper sample identification and reporting of results.

1.5.1.4 Completeness

Completeness, expressed as a percentage, is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions.
Field and analytical data may be specified at different completeness levels. The completeness criterion should be consistent with the project data quality objectives. In general, a completeness criterion of 90 percent for specified project data uses is the completeness target for the site.

1.5.1.5 Comparability

Comparability is the confidence with which one data set can be compared to another. Comparability may be assessed by comparing sampling methodology, analytical methodology and units of reported data.

1.5.2 Data Quality Objectives

Data quality objectives (DQOS) are qualitative and quantitative statements specified to ensure that data generated is of known and appropriate quality to support remedial response activities and decisions. DQOs are an integrated set of thought processes, which define data quality requirements based on identified end uses of the database.

Table 1.5-1 below describes analytical support levels for data collection, as given in EPA DQO guidance documents.

Table 1.5-1
Analytical Support Levels for Data Collection Activities

The analytical options available to support data collection activities are presented in five general levels (ref. EPA Data Quality Objective [DQO] Guidance). These levels are distinguished by the types of technology and documentation used, and their degree of sophistication as follows:

> *LEVEL V - Non-Standard Methods: Analyses, which may require method modification and/or development. CLP Special Analytical Services (SAS) are considered Level V.*

Required detection limits for Site groundwater analyses will be lower than standard detection limits, for several of the volatile organics.

LEVEL IV - CLP Routine Analytical Services (RAS): This level is characterized by rigorous QA/QC protocols and documentation and provides qualitative and quantitative analytical data. Some regions have obtained similar support via their own regional laboratories, university laboratories, or other commercial laboratories.

LEVEL III - Laboratory Analysis Using Methods Other than the CLP RAS: This level is used primarily in support of engineering studies using standard EPA approved procedures. Some procedures may be equivalent to CLP RAS without the CLP requirements for documentation.

LEVEL II - Field Analysis: This level is characterized by the use of portable analytical instruments which can be used on site or in mobile laboratories stationed near a site (close-support labs). Depending upon the types of contaminants, sample matrix, and personnel skills, qualitative and quantitative data can be obtained.

LEVEL I - Field Screening: This level is characterized by the use of portable instruments which can provide real-time data to assist in the optimization of sampling point locations and for health and safety support. Data can be generated regarding the presence or absence of certain contaminants (especially volatiles) at sampling location.

For this site investigation activity, Level I will be used for health and safety monitoring as well as for screening sediment samples to be sent to an offsite laboratory for confirmatory testing. Level III will be used for testing soil and sediment samples, the results of which will be the basis for determining the nature and extent of contamination and for classifying whether these materials are not contaminated, slightly contaminated, highly contaminated but not hazardous, and highly contaminated and hazardous. Various disposal and/or remediation options will then be explored to determine the final disposition of these materials.

The DQOs are developed using the following seven-stage process:

Stage 1 - State Problem

What is the extent and nature of impact in the shallow soils and sediments along the east bank of the IHNC.

Stage 2 - Identify the Decision

If the soils and sediments are impacted, the nature and volume or extent of impact will be delineated and cost-effective disposal option(s) will be defined.

Stage 3 - Identify Inputs to the Decision

Analytical results of soil and sediment samples collected and analyzed, near surface geology or soil/sediment stratigraphy, inventory of barges, contaminant release pathway evaluation. Sediment analytical results will be compared with background values as well as with State and Federal regulated cleanup criteria.

Stage 4 - Define the Site Boundaries

Spatial Boundary - The study area is the east bank of the IHNC between Florida Avenue and North Claiborne Avenue, New Orleans, Louisiana.

Temporal Boundary – Contamination of the soils and sediments, if present, may have resulted from past and current activities of the adjacent industrial facilities as well as possibly from the abandoned barges.

Time Frame Impacts on the Sampling parameters - Seasonal variations are not considered to be a factor in this project. The urgency of sample collection is primarily a function of the schedule for lock replacement. The project is located in an industrial
area and the samples to be collected are sediments located below the Canal water line where human contact is assumed to be minimal.

Stage 5 - Develop a Decision Rule

If the results of the analytical data are below State and Federal regulated cleanup criteria as well as background values, the materials along the east bank of the IHNC will be considered clean and may either be re-used pn-site for grading of the east bank clope or as fill material around the new lock or maybe re-used off-site such as wetland creation at a mitigation site.

If the results of the analytical data are above State and Federal regulated cleanup criteria as well as background values, the impacted materials along the east bank of the IHNC will be isolated and either treated for on-site/off-site re-use or properly disposed off-site.

Stage 6 - Acceptable Limits on Decision Errors

Because the goal of this investigation is to delineate the "environmental hot spots" along the east bank of the IHNC which are contaminated with various compounds, the accuracy of every individual chemical laboratory measurement must be within tolerable limits. Precision (RPD) for field duplicates should be <50 RPD and for lab duplicates should be <25% R-PD. Laboratory accuracy for matrix spike recovery should be compound specific (about 0-140% Recovery).

The distinction between background sample concentrations and impacted soil and sediment concentrations must be statistically distinguishable, within a standard deviation for each data group such that if:

B = average background concentration,
P = average impacted sediment/ soil concentration,
SB = standard deviation for the background data, and
SD = standard deviation for the impacted sediment/soil data
... then
B+SB < P- SD, and

B <.IO(P)

Stage 7 - Optimize the Design
The main objective of this investigation is to confirm and delineate "environmental hot spots" along the east bank of the IHNC which are contaminated as a result of potential releases from past and present industrial operations and marine services. Sampling points will be selected and strategically located in order to collect environmental samples from the east bank of the IHNC around potential source areas (barges, drainage ways, tanks, documented areas of environmental impact, discharge points, etc.). Field investigation is optimized by assuming each of these areas is a point source and by strategically placing sampling points between the barges or drainage ways and the canal to intercept and confirm the presence or absence of an assumed plume or runoff pathway migrating from these areas of concern. Data from the laboratory will be optimized after the evaluation of the outcome of data validation to be performed on the results of laboratory analysis.

These stages have been and will be undertaken in an interactive manner whereby all the elements of the DQO process are continually reviewed and applied during execution of data collection and assessment activities. As such, DQO's have been developed at the outset of the project and will be revised or expanded as needed based upon the results of each data collection activity.

2.0 MEASUREMENT/DATA ACQUISITION

2.1 SAMPLING METHODS REQUIREMENTS (SAMPLING PROCEDURES).

2.1.1 Field Sampling: Sediment Samples

Sediment samples will be obtained from 0 to 60 inches below the mud line using either a stainless steel core barrel or stainless steel hard core sediment sampler depending on canal water depth. In water depths greater than three feet, a barge mounted drill rig will be used to advance a stainless steel core barrel. When water depths are less than three feet, the sediment samples will be collected using a stainless steel hard core sediment sampler with acetate liner tubes. The sampling locations are shown on Figure 2 of the FSP. A total target number of 30 sediment samples, including QA/QC samples, will be collected during the course of this project. TCLP samples for Lead by EPA Test Method 1311 may also be collected in areas of detectable lead concentrations that fail the Rule of 20. **It should be noted that these samples are not included in the target sample number.** Sediment samples will be collected and sent for chemical analysis to evaluate the presence or absence, as well as the preliminary extent and magnitude, of the contamination at and around the suspected source areas. The sediment sampling strategy involves the collection of sediment samples for each sampling location which will be based on current and past industrial activities, surface water and industrial discharge points, and documented environmental impacts along the canal. The sample locations will be selected to increase the probability of detecting the source of contamination or any surface migration of the contamination

Collected sediment samples will be submitted to a Louisiana certified off-site laboratory(ies) for SVOC, TPH (gasoline and diesel range), RCRA 8 metals, and PCB analyses.

The following is an outline of sampling procedures:

- *Upon retrieval of the sediment sample, the sample will be screened with a PID for Volatile Organic Analysis (VOA).*
- *Place sample into laboratory-provided certified cleaned containers.*
- *Complete the boring log entry.*
- *Fill out field notebook, labels and chain of custody forms for analytical samples.*
- *Cool analytical samples to 4° C. Samples will be transported to the laboratory.*

Upon completion of drilling and sampling operations for the day.

- *Sampling and drilling equipment will be decontaminated.*

2.1.2 Field Sampling: Shallow Soil Samples

Shallow soil samples will be obtained from 0 to 60 inches below ground surface using either a stainless steel core barrel or stainless steel hand auger depending on site conditions. A total target number of 79 soil samples including TCLP and QA/QC samples will be collected during the course of this project. Soil samples will be collected and sent for chemical analysis to evaluate the presence or absence as well as the preliminary extent and magnitude of the contamination at and around the suspected "hot spots". The soil sampling strategy involves the collection of samples for each sampling location which will be based on current and past industrial activities, surface water and industrial discharge points, and documented environmental impacts along the canal. The sample locations will be placed to increase the probability of detecting the source of contamination or any surface migration of the contamination. TCLP samples for lead by EPA Test Method 1011 will also be collected in areas of detectable lead concentrations.

Collected sediment samples will be submitted to a certified Louisiana off-site laboratory(ies) for VOC, SVOC, TPH (gasoline and diesel range, RCRA 8 metals, pesticides/herbicides, and PCB analyses. TCLP lead samples will also be submitted for analyses.

The following is an outline of sampling procedures:

- *Upon retrieval of the sediment sample, the sample will be screened with a PID for Volatile Organic Analysis (VOA).*

- *Place sample into laboratory-provided certified cleaned containers.*
- *Complete the boring log entry.*
- *Fill out field notebook, labels and chain of custody forms for analytical samples.*
- *Cool analytical samples to 4° C. Samples will be transported to the laboratory.*

Upon completion of drilling and sampling operations for the day.

- *Sampling and drilling equipment will be decontaminated.*

Soil/Sediment Samples

The following outlines field characterization of subsurface soil/sediment samples.

Organic Vapor Analysis - Upon retrieval of the sampler, on-site environmental personnel (usually a certified field geologist, chemist, environmental engineer) will immediately measure the sample using a PID. After the sample his been homogenized, environmental personnel will take a second organic vapor reading. The readings will be recorded on the HTW boring log.

Plugging of Boreholes - All boreholes will be grouted if necessary. Under no circumstance will a borehole be left opened after the conclusion of sampling activities at each site. All cuttings will be containerized and properly and safely secured at the IHNC site pending disposal.

Field Documentation - The following outlines procedures for field documentation and labeling for samples:

> Immediately before the sample is collected, each container will be labeled with the following information: sample identification number, project number, date, time, analysis requested, preservation and name of person sampling. The labels will be covered with transparent plastic tape. After samples have been collected the sample bottles will be
>
> either taped at the lid or encased in a "zip-lock' type bag for shipment. A sample "travel blank' will be shipped with every ice chest of samples to be analyzed for organic volatiles. Pertinent information will be recorded in the bound field notebook and all chain of custody documents completed. The bound field notebook will have pre-numbered pages and entries will be made in indelible ink (Skilcraft - Black). Data from the sampling episode will also be recorded in the field log.

2.2 SAMPLING HANDLING AND CUSTODY REQUIREMENTS.

2.2.1 Sample Numbering.

Samples should be numbered according to the following pattern:

Sample Location (AAaa) - depth of sample interval (bb-cc') - sample qualifier (dd) where:

AA is the site name
aa is the sample location number
bb is the beginning of the sample interval, if necessary
cc is the end of the sample interval, if necessary
dd is the sample identification qualifier

Sample qualifiers should be as listed to maintain the "double blind" standard of quality assurance.

01 - Field Sample
02 - Quality Assurance Sample
03 - Quality Control Sample
04 - Rinsate Blank
05 - Trip Blank

For example:

IEBS01-SS-00 indicates a shallow soil sample from location 1 of the Industrial East Bank Sediment (IEBS), taken by a stainless steel hand auger sampler. The qualifiers SS (for shallow soil sample) and S (for a sediment sample) are added as pre-fix to the sample number to identify sample matrix.

2.2.2 Chain-of-Custody Requirements

The purpose of the chain-of-custody procedures is to document the identity of the sample and its handling. Custody records will trace a sample from its collection through all transfers of custody until it is accepted by the analytical laboratory. Internal laboratory records then document the custody of the sample through its final disposition.

A sample is under custody if one or more of the following criteria are met:

- The sample is in the custodian's (sampler, lab personnel, etc.) possession.
- It is in the custodian's view after being in possession.
- It was in the custodian's possession and was locked up to prevent tampering.
- It is in a designated secure area.

Sample identification records and custody records to satisfy the requirements of EPA will be used. The National Enforcement Investigations Center (NEIC) Policies and Procedures Manual provides chain-of-custody and document control procedures. The remainder of this section discusses the chain-of-custody and document control requirements specified in the above

document, which are appropriate to this duty. These procedures will be followed. If any deviations occur, appropriate personnel will be notified and deviations will be noted on the field forms.

2.2.3 Field Custody Requirements

Chain-of-custody for samples collected in the field and transported or shipped to laboratories for analysis and study will be maintained. The field team will have a designated field sample custodian with overall responsibility for sample custody and for field document control. The custodian will ensure that the sampling teams have and use the appropriate identification and custody records, will resolve custody problems in the field and will handle the shipment of samples to the analytical laboratories.

2.2.4 Sample Labels

Each collected sample will have a completely filled-in sample label securely attached to it. Sample labels will be preprinted to ensure that the required information is provided on each label. Labels will include the sample identification number, project number, date, time, analysis requested, preservation and name of person sampling. The person who physically collects the sample is the sampler and will initial the sample label.

2.2.5 Chain-of-Custody Record Sheets

Custody records will be used for the samples collected at the site. The multi-part carbonless copy forms will be correlated with the sample collection labels; requested information will have the same heading on both. The sampler or sample custodian will complete a chain-of-custody record to accompany each sample shipment from the field to the laboratory.

The custody records will be used for either a single sample or a packaged lot of samples; more than one sample can usually be recorded on one form. More than one custody record sheet may be used for one shipment, if necessary. Their purpose is to document the transfer of a group of samples traveling together; when the group of samples changes, a new custody record is initiated. The original custody record travels with the samples; the initiator of the record keeps a copy. When custody of the same group of samples changes hands several times, some people will not have a copy of the custody record. This is acceptable as long as the original custody record shows that each person who had received custody has properly relinquished custody.

General use instructions follow:

Using a Multi-Part Custody Record Sheet

- *The originator fills in all requested information from the sample labels.*
- *The originator signs in the top left "Relinquished by" box and keeps the copy*
- *The original record sheet travels with the samples.*
- *The person receiving custody checks the sample label information against the custody record. He also checks sample condition and notes anything unusual under "Comments" on the custody form. The receiving laboratory should also maintain a "cooler receipt" form for*

each ice chest received. The information on this form should define the condition of the sample upon receipt, including physical condition, completeness of the chains-of-custody, and directions received by the laboratory concerning the samples.

- *The person receiving custody signs in the adjacent "Received by" box and keeps the original.*
- *The Date/Time will be the same for both signatures since custody must be transferred to another person. When samples are shipped via common carrier (e.g., Federal Express), the date/time will not be the same for both signatures.*
- *When samples are shipped via common carrier, the original travels with the samples and the shipper (e.g., Field Sample Custodian) keeps the copy. The shipper also keeps all shipping papers, bills of lading, etc.*
- *In all cases, it must be readily seen that the same person receiving custody has relinquished it to the next custodian.*
- *If samples are left unattended or a person refuses to sign, this must be documented and explained on the custody record.*

If a discrepancy between sample label numbers and custody record listings is found, the person receiving custody should document this and properly store the samples. The samples should not be analyzed until the problem is resolved by contacting the field sample custodian or other designated responsible authority; e.g., the appropriate QA manager.

The responsible person receiving custody should attempt to resolve the problem by checking all available information (other markings on sample container, type of sample, etc.). He should then document the situation on the custody record and in his project logbook and notify the appropriate sample custodian by the fastest available means, followed by written notification.

Changes may be written in the "Comments" section of the Custody record and should be initialed and dated. A copy of this record should accompany the written notification to the sample custodian. A complete copy of the documentation of the problem and its resolution should also be provided to the QA manager and submitted to the project files.

2.2.6 Custody Seals

Custody seals are narrow strips of adhesive paper used to demonstrate that no tampering has occurred. They will be used on sample transport containers such as sample coolers or the ends of sampling tubes. The field investigator shall write the date, a unique custody seal number and signature on the seal.

2.2.7 Sample Shipment

Each properly labeled and sealed sample containers will be placed in plastic "zip-lock" bags and sealed. Inert cushioning and absorbing material will be placed in the coolers to prevent excess shock to the samples. Proper spacing will be used to prevent samples from touching. Samples should be maintained at 4°C. Chain-of-custody forms will be sealed in airtight bags and taped to the inside of the cooler lid. Samples will be transported to the lab immediately upon completion of sampling. In addition, each sample will be identified with a sample identification label and will be listed on the chain-of-custody record completed for each sample-shipping container. The

field sample custodian will notify the laboratory sample custodian of impending sample delivery the day the samples are to be delivered.

3.0 ASSESSMENT/OVERSIGHT

3.1 ASSESSMENT AND RESPONSE ACTIONS

3.1.1 Audit Procedures

Audits will be the responsibility of the appropriate QA manager (Field Quality Assurance Manager or Laboratory QA Manager) and will be performed as described below.

Evidentiary audits are checks on all of the project documentation that could potentially be required for defensible data. An evidentiary audit will be performed at least once during the investigation by the Field QA Manager and a report submitted to the New Orleans District project

manager. This audit should include items that relate to sample custody, sample documentation, sample numbering, adherence to SOPs and sampling methodology, sample labeling requirements, custody seal requirements, chain-of-custody, and other field methods, practices and procedures that relate to evidentiary concerns.

System and performance audits are conducted for laboratory procedures and analytical methods to be used for the sample analysis. The laboratory QAPP should define the system and performance audits and their frequency.

The field and lab personnel will be notified of any issues of concern while the audit is being conducted. All corrections that can be made immediately will be made concurrently with the audit. Subsequent to an audit, the appropriate QA manager will develop an audit report that summarizes the audit findings,

including those areas found to be in nonconformance if any and the proposed corrective measures. This report will be prepared in memo form and submitted to the project managers and copied to the project file.

3.1.2 Corrective Actions

An important part of a quality assurance program is a well-defined, effective policy for correcting problems. The QA program operates to prevent problems, but it also serves to identify and correct those that exist. Usually these problems require either on the spot, immediate corrective action or long-term corrective action.

The corrective action system used during this study is designed to quickly identify problems, and solve them efficiently. The appropriate QA manager is responsible for the direction of this

system and receives full support from management for its implementation. The essential steps are:

- *Identify and define the problem*
- *Assign responsibility for investigating the problem*
- *Determine a corrective action to eliminate the problem*
- *Assign and accept responsibility for implementing the corrective action*
- *Implement the corrective action*
- *Verify that the corrective action has eliminated the problem*
- *Document the problem identified, the corrective action taken and its effectiveness in eliminating the problem*

Corrective action procedures which will be used to resolve deficiencies found during routine activities or QA audits of field, laboratory or office activities will be as described in the following section.

3.1.2.1 Corrective Action Resulting from Routine Activities

Deficiencies found during normal routine activities will be resolved by implementing corrective action as part of normal operating procedures by staff. Corrective actions of this type will be noted in the field or

laboratory notebook; no other formal documentation is necessary unless further corrective action is required. If normal procedures do not solve the problem, the staff will document the problem in a formal memo addressed to the QA/QC managers and copied to the project file.

3.1.2.2 Corrective Action Resulting from QA Audits

Deficiencies encountered during a QA audit will be corrected as soon as possible. The appropriate QA manager with the project manager is responsible for completion of appropriate corrective action. The procedures used to expedite corrective action will be:

- *Auditor verbally notifies the work assignment manager and field and lab personnel immediately during audits of deficiencies found. Work assignment manager institutes corrective action as soon as possible. QA managers distributes the audit reports promptly*

3.2 REPORTS TO MANAGEMENT

During the site field sampling activities associated with the investigation, field logs and other related field documentation will be maintained. The evidentiary audit report and a narrative event report will be generated to document the activities associated with the field sampling event. These reports will be distributed in accordance with Paragraph 1.1 of this QAPP. Anytime during the studies, any significant deviation from work plans will be documented and distributed in accordance with this QAPP.

4.0 DATA VALIDATION AND USABILITY

4.1 DATA REVIEW, VALIDATION AND VERIFICATION REQUIREMENTS

4.1.1 General Approach

Data quality and utility depends on many factors, including sampling methods, sample preparation, analytical methods, quality control, and documentation. Subcontractors or other organizations, such as laboratories or sampling personnel, must be advised of all applicable documentation and procedural requirements. All data generated will be reviewed by NOD for completeness.

4.1.2 Final Reporting and Report Archival

Upon successful completion of the data assessment and validation process, all data generated for the investigation will be summarized in the final investigation report. Data summaries and results will be submitted with the studies final report.

Copies of all analytical data and/or final reports are retained in the laboratory files and, at the discretion of the laboratory manager, data will be stored on computer disks for a minimum of six months.

4.2 RECONCILIATION OF DATA QUALITY OBJECTIVES

Reconciliation of the results of the DQO process will be accomplished by identifying specific decision rule criteria and addressing the potential outcomes for each of those decisions. The specific decisions for the study are numbered and reconciled as follows:

- "Hazardous hot spots" along the industrial east bank of the IHNC which are above background concentrations and/or State and Federal regulated cleanup criteria and fail TCLP will be managed as hazardous waste. These materials will be excavated, segregated, and disposed as a hazardous waste.

- "Highly impacted hot spots" along the industrial east bank of the IHNC which are above background concentrations and/or State and Federal regulated cleanup criteria but are not hazardous (i.e., pass TCLP) will be managed as a special waste. These materials will be excavated, segregated, and either re-used at the site or placed as dredged material in the MRGO/mitigation sites, or disposed of off site as an industrial solid waste. **Note: The re-use of these materials on site or off site require LDEQ approval.**

- "Impacted hot spots" along the industrial east bank of the IHNC which are below background concentrations and/or State and Federal regulated cleanup criteria will be either re-used in the grading of the slopes of the banks during demolition of the east bank structures or placed as dredged material in the MRGO/mitigation sites. These materials may also be disposed of off site as an industrial solid waste. **Note: The re-use of these materials on site or off site require LDEQ approval.**

5.0 REFERENCES

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SAMPLING AND ANALYSIS PLAN

for

IHNC East Bank Data Gaps

Environmental Support to IHNC Lock Replacement Project
Contract Number: DACW29-97-D-0019
Delivery Number 0011
New Orleans COE

Dames & Moore Job Number 08768-040-149
May 2, 2000

APPENDIX B

Site Specific Quality Assurance Project Plan and Sampling & Analysis Plan

SAMPLING AND ANALYSIS PLAN

for

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APPROVAL PAGE

Quality Assurance Project Plan
for
IHNC East Bank Data Gaps

Environmental Support to
IHNC Lock Replacement Project

Contract Number: DACW29-97-D-0019
Delivery Order Number: 0011
New Orleans COE

Approved by:

Dames & Moore Certified Industrial Hygienist, Dennis W. Day — May 2, 2000

Dames & Moore QA Director, John E. Plevniak — May 2, 2000

Dames & Moore Project Manager, Douglas E. Kuhn — May 2, 2000

New Orleans COE Contracting Officers Representative, Brett Herr — May 2, 2000

New Orleans COE Technical Representative (TR)
Mr. George Bacuta and/or Ms. Jean Spadaro — May 2, 2000

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1.0 PROJECT DESCRIPTION

1.1 PROJECT OBJECTIVE AND INVESTIGATIVE STRATEGY

The objective of this project is to characterize areas of environmental impact and investigate the data gaps identified by Dames & Moore in previous environmental investigations (D&M Reports, 2000) completed along the east bank of the Inner Harbor Navigation Canal (IHNC) between Florida and North Claiborne Avenues. The shallow soils and sediments along the east bank of the IHNC have been impacted as a result of the various industrial and marine activities that have occurred along the canal. Potential sources for the environmental impact identified include existing contamination associated with past industrial and marine activities, abandoned barges, and discharges from pipe drains and canal drains originating from existing and former industrial sites along the canal.

This investigation will be divided into two (2) tasks. The first task is to address the data gaps raised by the analytical data collected from the shallow soils of the east bank industrial area, and the second task will be to address the data gaps raised by the analytical data collected from the sediments of the IHNC. Additional samples will be collected in the areas of concern in order to document and delineate the extent of environmental impact. The successful completion of these tasks will allow for a detailed characterization of shallow soil and sediment conditions along the industrial east bank of the IHNC. The completion of these tasks should also aide in determining waste classification (Special Waste vs. Hazardous Waste), waste inventory, and disposal options for the waste generated during the completion of the by-pass channel.

1.2 SITE LOCATION AND HISTORY

The project area is located along the east bank of the IHNC, between Florida and North Claiborne Avenues, New Orleans, Orleans Parish, Louisiana. The project location covers and area of approximately 38 acres. Figure 1 presents a generalized map of the project location.

The IHNC opened in 1923 and is located in the metropolitan area of New Orleans. The canal was constructed to allow for the movement of barge traffic from the Mississippi River to Lake Pontchartrain and the inter-coastal waterways of the Gulf Coast. There are several active and inactive facilities in this industrialized area that were associated with steel fabrication, shipbuilding, marine vessel repair and servicing, marine supplies, petroleum related facilities, barge leasing, and others.

Industrialization of the east bank area began in the 1960s and today approximately 50% of these industrialized facilities are currently unoccupied or abandoned. Six sites along Surekote Road make up the east bank industrial area of the IHNC. These sites are Boland Marine (2500 Surekote Road), McDonough Marine (2300 Surekote Road), Indian Towing Company (2200 Surekote Road), Mayer Yacht/Distributor Oil (2100 Surekote Road), Saucer Marine (1910 Surekote Road), and International Tank Terminal (1800 Surekote Road).
For more details concerning site history on the facilities located along the industrial east bank of the IHNC, refer to the Site History Section of the Quality Assurance Project Plan.

1.3 SUMMARY OF EXISTING SITE DATA

1.3.1 Chemical Results

Analytical data from shallow soil samples collected along the east bank of the IHNC indicate areas of environmental impact above the Louisiana Department of Environmental Quality (LDEQ) Risk Evaluation/Corrective Action Program (RECAP) standards. These areas of concern have been impacted with total petroleum hydrocarbons (TPH), semi-volatile organic compounds (SVOCs), and RCRA 8 metals (lead and arsenic).

Analytical data from sediment samples collected along the east bank of the IHNC indicate areas of environmental impact above the LDEQ RECAP standards. These areas of concern have been impacted with TPH, SVOCs, poly-chlorinated biphenyls (PCBs), and RCRA 8 metals (lead and arsenic).

1.4 GEOLOGY AND HYDROGEOLOGY

The east bank of the IHNC is comprised of approximately 38 acres. The area investigated for the Bypass Channel excavation site is about 4,200 feet long, 400 feet wide and is roughly bounded by the canal, the floodwall, Florida Avenue and North Claiborne Avenue. The industrial east bank of the IHNC is underlain at the near surface by fill material. This material is a mixture of shells, limestone gravel, fine grain sand, clay, and silt which has a reported thickness of 14 to 16 feet across the site. The coarser materials (shells, limestone gravel and sand) usually constitute the ground surface and are irregularly distributed throughout the industrialized areas of the east bank. A majority of the sand stockpiled on ground surface is blast sand that was associated with the former industrial operations that were located along the east bank of the IHNC. The fill material may also contain concrete blocks, bricks, metallic plates and sheets, metallic rods, timbers, and blasting sand.

Below the coarser grained materials at the near surface, the fill grades to a more clayey soil. The contact between these clays and the underlying natural clays of the original IHNC ground surface is not well defined. Underlying the fill material are interbedded organic-rich clays of high moisture contents typical of deposits in swamp environments. These interbedded clays have an average thickness of about eight feet.

The shallow water table between the floodwall and the canal at the east industrial bank of the IHNC is characteristic of a perched water table. Depths to the shallow water table are reported to be in the range of 0.1 to 3.25 feet. Movement of groundwater under the east bank is basically influenced by the physical conditions at each industrial site. Physical conditions include the topography of the ground surface, the nature of the contact between the coarse material and the fine grain clays and silts within the fill material, buried building foundations and utilities, surface drainage systems, and the activities of nearby pumping stations.

1.4.1 Preliminary Interpretation of Available Chemical, Geological and Hydrogeologic Data

Several potential source areas have been identified from previous investigations completed along the east bank of the canal, but these investigations have been focused on the shallow soils and past operations along the canal. Analytical data from these previous investigations have indicated several areas of concern which are impacted with TPH, volatile organic hydrocarbons (VOCs), SVOCs, and various metals at concentrations above LDEQ RECAP standards. It has also been reported that large areas of metal debris and industrial waste may have been used as backfill along the canal.

Therefore, as a result of these areas of concern and the potential for runoff from these industrial sites, additional sampling of the shallow soils and sediments along the east bank of the IHNC will be performed in order to supplement early investigations and to fully characterize the site.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

2.1 PROJECT ORGANIZATION

This project will involve the Planning, Programs and Project Management Division (CEMVN-PM) and Engineering Division (CEMVN-ED) of the US Army Corps of Engineers New Orleans District (USACE-NOD) as well as the staff of the Environmental Contractor (Contractor). Preparation of plans and reports will be the responsibilities of the Contractor under USACE Contract Number _____. The Contractor will also handle supervision and oversight of all field activities as well as manage the testing of sediment samples. Drilling and laboratory activities will be conducted via a subcontract with the Contractor.

At the New Orleans District Office, the following personnel will be responsible for the management of budget and schedules; final review of plans and reports; and coordination with State regulatory agencies, if necessary.

_____- Contracting Officer Representative
_____- Project Manager
_____- Technical manager
_____- Quality Assurance Manager

The following Contractor personnel will be responsible for the management of budget and schedules; the preparation of plans and reports; the coordination with state agencies; the managing of subcontractors; the execution of the field sampling plan; the collection and submittal of sediment samples to the contracting laboratory; the completion of the abandoned barge inventory; and addressing site health and safety issues.

_____ - Lead Consultant
_____ - Project Manager
_____ -Quality Assurance Manager
_____ - Field Site Manager
_____ - Health & Safety Coordinator

2.2 RESPONSIBILITIES

The following is a summary of the responsibilities of the USACE-NOD, the Contractor as well as the contract laboratory involved in this project:

1. Project Management (USACE-NOD)

   - funding and overall management of the project

2. Technical Engineering Support (Contractor)

   - develop draft and final plans (Quality Assurance Project Plan (QAPP), Field Sampling Plan (FSP) and Site Specific Safety and Health Plan (SSHP)

   - provide all office technical support related to the technical coordination, plan execution, field technical oversight and reconciliation of activities to the requirements of the plans

   - provide technical information to LDEQ through USACE-NOD's Project Management on all required plans and results of USACE's investigations of IHNC

   - conduct all field activities including waste inventory, soil and sediment sampling, and GPS survey of sampling locations

   - provide sampling location results, field notes and records, input to the investigation report

   - evaluate results of the sampling investigation as well as soil and sediment sampling and testing

   - provide statistical analysis of data as the results would allow and provide data validation

   - prepare a Sampling and Analysis Report (SAR) to document the results of the investigation of the east bank areas of environmental impact.

   - test and dispose of Investigation Derived Materials

3. Contract Chemical Laboratory (Contract Laboratory)

   - will perform all required laboratory chemical analysis of soil and sediment samples collected during the course of this project. At a minimum, the Contract Laboratory(ies) shall have a valid laboratory certification from the State of Louisiana.

3.0 PROJECT SCOPE AND OBJECTIVES

The purpose of this field investigation is to sample and analyze shallow soils and sediments along the east bank of the IHNC in order to fully characterize each site. The objective is to determine if the extent of environmental impact and to develop handling and disposal requirements/protocols for the impacted materials. These determinations will, for the most part, be based on the analytical data generated from the shallow soil and sediment samples collected.

The primary method for achieving the goals of this project will be through the establishment of specific Data Quality Objectives (DQOs). These objectives will specify the data type, quality, quantity, and uses and will become the basis for determining the data collection activities required for this project. The categories of data to be collected include screening data and definitive laboratory data. A more detailed discussion of the project DQOs is presented in Section 1.5 of the QAPP.

Definitive laboratory data are produced using standard U.S. EPA or other reference methods, usually in an off-site laboratory. The data are analyte-specific and have the standardized Quality Control (QC) and documentation requirements necessary to verify all results. Definitive data are not restricted in their use unless quality control problems are encountered which require the data to be qualified. This type of data will be generated to identify the type and concentration of contaminants at the site.

A Quality Assurance/Quality Control (QA/QC) program will be implemented to ensure that the above objectives are met. Sample collection data quality will be controlled through the use of standard collection methods and field logbooks. Selected field procedures are discussed in Section 4.0 of this FSP. Adherence to these field procedures will ensure sample representativeness and minimal potential for sample contamination.

4.0 FIELD ACTIVITIES

4.1 CANAL SEDIMENT SAMPLING

4.1.1 Sample Locations and Rationale

Sediment samples will be collected along the east bank of the canal at various locations, as shown on Figure 2. A total target number of 30 sediment samples (23 sediment sampling locations) will be collected, including QA/QC samples during the course of this project.

The sediment sampling strategy involves the collection of sediment samples from locations around documented areas of environmental impact along the east bank of the canal. The selection of sample locations will be biased toward locations which increase the probability of detecting environmental impact, have it be at a documented source area or as a result from surface migration (runoff). The sediment sampling locations and the rationale for the locations are as shown on Table 1.

Table 1 – Sediment Sampling Rationale

Sample Identification	Sample Location	Rationale – Location	Environmental Impact
IEBS01-S-00	International Tank 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS02-S-00	International Tank 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS03-S-00	International Tank 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS04-S-00	Saucer Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS05-S-00	Saucer Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS06-S-00	Saucer Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS07-S-00	Mayer Yacht/Distributor 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS08-S-00	Mayer Yacht/Distributor 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS09-S-00	Mayer Yacht/Distributor 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS10-S-00	McDonough Marine 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS11-S-00	McDonough Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS12-S-00	McDonough Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS13-S-00	McDonough Marine 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS14-S-00	Boland Marine 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease PCBs
IEBS15-S-00	Boland Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease PCBs
IEBS16-S-00	Boland Marine 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease PCBs
IEBS17-S-00	Boland Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS18-S-00	Boland Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS19-S-00	Boland Marine 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease

IEBS20-S-00	Boland Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease
IEBS21-S-00	Boland Marine 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease SVOC
IEBS22-S-00	Boland Marine 10 to 15 feet of water.	Plume Delineation	TPH Oil and Grease SVOC
IEBS23-S-00	Boland Marine 0 to 5 feet of water.	Plume Delineation	TPH Oil and Grease SVOC

Sediment samples will be collected from several locations along the canal as illustrated on Figure 2. As stated in Table 1, the rationale for each sampling location will be to delineate the extent of environmental impact documented along the canal.

The sediment samples will be submitted to an off-site laboratory and analyzed for SVOC by EPA Test Method 8270, TPH by Test Methods 8015 modified, RCRA 8 metals by EPA Test Methods 6000-7000, and PCB by EPA Test Method 8080. Sediment samples collected during the course of this project will be sent to Pace Analytical of New Orleans.

4.2 SHALLOW SOIL SAMPLING

4.2.1 Rationale

Shallow soil samples will be collected along the east bank of the canal at various locations, as shown on Figure 3. A total target number of 79 soil samples (39 soil sampling locations) will be collected including TCLP and QA/QC samples during the course of this project.

The sampling strategy involves the collection of soil samples from locations around documented areas of environmental impact along the east bank of the canal. The selection of sample locations will be biased toward locations which increase the probability of detecting environmental impact, have it be at a documented source area or as a result from surface migration (runoff). The sampling locations and the rationale for the locations are as shown on Table 2.

Table 2 – Soil Sampling Rationale

Sample Identification	Sample Location	Rationale – Location	Environmental Impact
IEBS01-SS-00	International Tank	Plume Delineation	SVOC
IEBS02-SS-00	International Tank	Plume Delineation	SVOC
IEBS03-SS-00	International Tank	Plume Delineation	SVOC
IEBS04-SS-00	Saucer Marine	Plume Delineation	TPH BTEX
IEBS05-SS-00	Saucer Marine	Plume Delineation	TPH BTEX

IEBS06-SS-00	Saucer Marine.	Plume Delineation	TPH BTEX
IEBS07-SS-00	Saucer Marine	Plume Delineation	TPH BTEX
IEBS08-SS-00	Saucer Marine	Plume Delineation	TPH BTEX
IEBS09-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS10-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS11-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS12-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS13-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS14-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS015-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS16-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS17-SS-00	Saucer Marine	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS18-SS-00	Mayer Yacht/Distributor	Plume Delineation	TPH BTEX
IEBS19-SS-00	Mayer Yacht/Distributor	Plume Delineation	TPH BTEX
IEBS20-SS-00	Mayer Yacht/Distributor	Plume Delineation	TPH BTEX
IEBS21-SS-00	Mayer Yacht/Distributor	Plume Delineation	TPH BTEX
IEBS22-SS-00	Mayer Yacht/Distributor	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS23-SS-00	Indian Towing	Plume Delineation	TPH BTEX Metals – Lead - TCLP

IEBS24-SS-00	Indian Towing	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS25-SS-00	Mayer Yacht/Distributor	Plume Delineation	TPH BTEX Metals – Lead - TCLP
IEBS26-SS-00	Indian Towing	Plume Delineation	Metals – Lead - TCLP
IEBS27-SS-00	McDonough Marine	Plume Delineation	Metals – Lead - TCLP
IEBS28-SS-00	Indian Towing	Plume Delineation	SVOC
IEBS29-SS-00	Indian Towing	Plume Delineation	SVOC
IEBS30-SS-00	McDonough Marine	Plume Delineation	SVOC
IEBS31-SS-00	Indian Towing	Plume Delineation	SVOC
IEBS32-SS-00	Boland Marine	Plume Delineation	SVOC
IEBS33-SS-00	Boland Marine	Plume Delineation	SVOC
IEBS34-SS-00	Boland Marine	Plume Delineation	SVOC
IEBS35-SS-00	Boland Marine	Plume Delineation	SVOC
IEBS36-SS-00	Boland Marine	Plume Delineation	Metals – Lead - TCLP
IEBS37-SS-00	Boland Marine	Plume Delineation	Metals – Lead - TCLP
IEBS38-SS-00	Boland Marine	Plume Delineation	Metals – Lead - TCLP
IEBS39-SS-00	Boland Marine	Plume Delineation	Metals – Lead - TCLP

Soil samples will be collected from several locations along the canal as illustrated on Figure 3. As stated in Table 2, the rationale for each sampling location will be to delineate environmental impact along the canal.

The soil samples will be submitted to an off-site laboratory and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Test Method 8020, SVOC by EPA Test Method 8270, TPH by Test Methods 8015 modified, and RCRA 8 metals by EPA Test Methods 6000-7000, pesticides/herbicides by EPA Test Method 8082. TCLP samples for Lead by EPA Test Method 1311 will also be collected in areas of detectable lead concentrations.

4.3 SAMPLING LOCATIONS

The location of each sample shall be coordinated with the USACE project manager prior to initiating field activities. The proposed sediment sampling locations are presented on Figure 2. A compass and tape or transit traverse shall tie the sediment sampling locations to a permanent physical structure or a benchmark. In addition, geographical coordinates of each location shall be required by the USACE-NOD using a Global Positioning System (GPS) unit to record the actual geographical location of the sediment sampling locations. A topographical survey map of the project area utilizing a state certified surveyor will be employed, as necessary, to establish detailed ground maps when work at the site would proceed to the construction of the by-pass channel.

4.4 SAMPLE COLLECTION AND ANALYSIS

The Contractor's standard operating procedures (SOP) for sampling and analysis applicable to the SAP is included in Addendum A.

4.4.1 Sample Collection

Table 3 lists the analytical parameters and the required sample container, sample preservative, holding time, and laboratory detection limits.

TABLE 3 – Sample Container, Preservative and Holding Time Requirements, Sediment Sampling, IHNC, New Orleans, LA

Analytical Parameter	Container Volumes	Container	Preservation	Maximum Holding Time	Laboratory Detection Limits
BTEX EPA Test Method 8020	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	5-10 ug/kg
SVOC EPA Test Method 8270	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	333-667 ug/kg
TPH Test Method 8015 Modified Oil & Grease EPA Test Method 413.1	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	Gasoline – 5000 ug/kg Diesel – 10 mg/kg 5 mg/kg
RCRA 8 Metals EPA Test Methods 6000-7000 TCLP EPA Test Method 1311	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	0.1 – 20.0 mg/kg
PCBs EPA Test Methods 8080	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	10 ug/kg

4.4.2 QA/QC Samples

Assessment of the sampling program for precision and bias will be made by collecting field replicates and matrix spike/matrix spike duplicate samples. The frequency of Quality Control (QC) samples is one for every ten field samples. The frequency for Quality Assurance (QA) samples is one for every twenty field samples. The total number of QC samples for this task order is seven and the total number of QA samples is four. One trip blank will accompany every cooler of samples sent to the laboratory for volatile organic analyses (VOA). It is anticipated

that there will be a maximum of four trip blanks. A temperature blank (a VOA sampling vial filled with water) shall be included in every cooler and used to

determine the internal temperature of the cooler upon receipt of the cooler at the laboratory. It is anticipated that there will be a maximum of four temperature blanks.

The trip blank consists of a VOA sample vial filled in the laboratory with ASTM Type II reagent grade water, transported to the sampling site, handled like an environmental sample and returned to the laboratory for analysis. Trip blanks are not opened in the field. Trip blanks are prepared only when VOA samples are to be submitted for analysis. Trip blanks are used to assess the potential introduction of contaminants from sample containers or during the transportation and storage procedures. One trip blank shall accompany each cooler of samples sent to the laboratory for analysis of volatiles.

A field replicate sample, also called a split, is a single sample divided into two equal parts for analysis. The sample containers are assigned an identification number in the field such that the laboratory personnel performing the analysis will not know that the sample is a replicate sample. Specific locations are designated for collection of field replicate samples prior to the beginning of sample collection in the field. Replicate sample results are used to assess precision.

A matrix spike/matrix spike duplicate pair (MS/MSD) is two aliquots of an environmental sample to which known concentrations of all analytes being determined by the method have been added. The
exception is with tests such as pH and flash point for which spikes have no meaning. In these instances no MS/MSD will be conducted. The MS/MSD pair is carried through the entire analytical procedure in order to measure the effect of the environmental matrix on the analysis.

4.5 FIELD SAMPLING

4.5.1 Sediment Sampling

Sediment samples will be obtained from 0 to 24 inches below the mud line using either a stainless steel core barrel or stainless steel hard core sediment sampler pending on canal water depth. Each sediment sample will be placed into appropriate containers supplied by the laboratory. To prevent cross-contamination, sampling team members will don a new pair of disposable gloves prior to collecting each sediment sample. We anticipate two sets of samples will be collected at each sampling location.

In water depths greater than three feet, a barge mounted drill rig will be used to advance a stainless steel core barrel. When water depths are less than three feet, the sediment samples will be collected using a stainless steel hard core sediment sampler with acetate liner tubes. The sampling equipment will be decontaminated using the procedures described in Section 4.6.4.

Collected sediment samples will be submitted to a Louisiana Certified off-site laboratory(ies) for BTEX, SVOCs, TPH, oil & grease, RCRA 8 metals, and polychlorinated biphenyls (PCBs).

Each shallow boring will be advanced to a maximum depth of 60 inches below the mud line. During sampling activities, the field engineer/geologist will record a soil description on the basis of visual observations in accordance with the Unified Soil Classification System. The nature and characteristics of any debris encountered will also be documented based on visual observations.

4.5.2 Soil Sampling

Soil samples will be obtained from 0 to 60 inches below ground surface using a stainless steel hand auger. Each soil sample will be placed into appropriate containers supplied by the laboratory. To prevent cross-contamination, sampling team members will don a new pair of disposable gloves prior to collecting each soil sample. We anticipate two sets of samples will be collected at each sampling location. The sampling equipment will be decontaminated using the procedures described in Section 4.6.4.

Collected samples will be submitted to a Louisiana Certified off-site laboratory(ies) for BTEX, SVOCs, TPH, oil & grease, RCRA 8 metals, and (PCBs). TCLP lead samples will also be submitted for analyses.

Each shallow boring will be advanced to a maximum depth of 60 inches below ground surface. During sampling activities, the field engineer/geologist will record a soil description on the basis of visual observations in accordance with the Unified Soil Classification System. The nature and characteristics of any debris encountered will also be documented based on visual observations.

4.6 FIELD PROCEDURES

A log of each sampling location will be prepared and recorded in the field logbook. The following information shall be recorded for each sampling location: sampling location, water depth, the depth and thickness of the sediment/soil sample (recovery); lithologic description of each sample; soil classification; and a description of any manmade materials or apparent environmental impact encountered. The field logbook shall be submitted to the USACE-NOD upon completion of field activities.

4.6.1 Field Measurement Procedures and Criteria

Screening data includes data produced by rapid field screening methods and are generally less precise than standard analytical methods. Screening level methods produce analyte or class of analyte identification at generally elevated detection levels. This type of data will be generated during screening of sample headspace with a photoionization detector (PID). Screening data will be used to make a preliminary assessment of the extent of impact on the soil and sediments along the east bank of the IHNC.

The collected samples will be divided into a field split and an archive split. The archive splits will be placed in laboratory-provided glass jars, uniquely identified, and immediately placed in a chilled cooler for storage. The field splits will be placed into re-sealable plastic bags, placed in warm location for a minimum of 15 minutes, and then the sample headspace screened for volatile organic compounds utilizing a (PID). The samples with the highest PID readings will be

submitted for laboratory analysis. If elevated PID readings are not detected in the samples, selection will be based on odors, discoloration or other visual indications of contamination. One replicate sample will also be submitted for laboratory analysis.

4.6.2 Sampling for Chemical Analysis

The following field devices shall be utilized during sediment/soil sampling and collection for chemical analysis:

Stainless Steel Hand Core Sediment Sampler
Stainless Steel Core Barrel Sampler
Stainless Steel Hand Auger
Acetate Liners
Stainless Steel Spoons and Bowls

4.6.3 Sample Containers and Preservation Techniques

Sample containers will be provided by the contracting laboratory. These containers will be either high density polyethylene or glass with Teflon-lined lids and will be pretreated with preservatives as applicable. Sample containers are purchased pre-cleaned and treated according to EPA specifications for the methods. Containers will be stored in clean areas to prevent exposure to fuels, solvents, and other contaminants.

The sample containers, after filled with samples collected with decontaminated sampling equipment, will be labeled appropriately and placed in a sample cooler containing ice or ice packs. Samples will be stored at approximately 4° C during storage and shipment to the laboratory. A temperature blank (a VOA sampling vial filled with water) shall be included in every cooler and used to determine the internal temperature of the cooler upon receipt at the laboratory. The samples will be delivered to the laboratory within 24 hours of sample collection.

4.6.4 Decontamination Procedures

Persons working on the site shall undergo decontamination before leaving the site. In most instances, removal of protective clothing will suffice for decontamination. Facilities for storage of reusable protective clothing and for the disposal of clothing contaminated beyond reuse will be constructed or placed on site. Also, facilities for decontaminating hands, boots, and gloves will be provided. These facilities will consist of detergent wash and rinse. Decontamination of personnel and miscellaneous small tools will be in accordance with the Site-Specific Safety and Health Plan.

Precautions will be taken to prevent the potential transfer of contamination from the sediment sampling location to another during field activities. Equipment used to collect the sediment samples will be decontaminated prior to use at each location. All equipment that may directly or indirectly contact samples shall be decontaminated in a designated decontamination area. Any equipment used to collect sediment samples (core samplers, core barrel samplers, bowls, etc.) will be decontaminated prior to each use according to the following procedure:

Wash with non-phosphate detergent (Alconox) and potable water;
Rinse with distilled water;
Rinse with hexane;
Triple rinse with distilled water;
Air dry; and
Wrap in aluminum foil until use.

Decontamination fluids will be contained and transferred to a holding tank pending analysis, treatment, and/or proper disposal.

5.0 SAMPLE CUSTODY

Samples collected and sent for analysis shall be recorded in a Chain-of-Custody form (Addendum B). This type of form will be supplied by the Contract Laboratory.

5.1 FIELD LOGBOOKS AND PHOTOGRAPHS

Field records sufficient to recreate all sampling and measurement activities will be maintained. The information shall be recorded with indelible ink in a permanently bound notebook with sequentially numbered pages. These records shall be archived in an easily accessible form and made available to the USACE upon request.

The on-site project engineer and/or the field engineer/geologist will maintain complete records of the soil sampling activities in a field logbook. The logbook will be bound, and all entries will be made in ink and signed by the sampler. At a minimum, the following information will be recorded in the field log book;

Date and time;
Weather conditions:
Personnel on site;
Date/time of sampling or other field activities;
Sample coding protocol;
Sample description/location;
Description of sampling methodology;
Sample device decontamination; and
General field observations.

Since site conditions may vary from one sampling location to another, the extent of information entered into the logbook may vary; however, sufficient information will be recorded to permit reconstruction of the sampling program.

Photographs of the sampling locations, unusual conditions as well as the site condition during field sampling shall be taken as part of the field documentation process.

5.2 SAMPLE NUMBERING SYSTEM

Samples should be numbered according to the following pattern:

Sample Location (AAaa) - depth of sample interval (bb-cc') - sample qualifier (dd) where:

AA is the site name
aa is the sample location number
bb is the beginning of the sample interval, if necessary
cc is the end of the sample interval, if necessary
dd is the sample identification qualifier

Sample qualifiers should be as listed to maintain the "double blind" standard of quality assurance.

01 - Field Sample
02 - Quality Assurance Sample
03 - Quality Control Sample
04 - Rinsate Blank
05 - Trip Blank

For example:

IEBS01-SS-00 indicates a shallow soil sample from location 1 of the Industrial East Bank Sample (IEBS), taken by a stainless steel hand auger sampler. The qualifiers SS (for shallow soil sample) and S (for a sediment sample) are added as pre-fix to the sample number to identify sampling matrix.

5.3 SAMPLE DOCUMENTATION

The following minimum information concerning the sample shall be required and consistent with the chain-of-custody form.

Unique sample identification
Date and time of sample collection
Source of sample (including name, location, and sample type)
Designation of matrix spike/matrix spike duplicate (MS/MSD)
Preservative used
Analyses required
Name of collector(s)
Pertinent field data (PID screening)
Serial numbers of custody seals and transportation cases (if used)
Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratory or laboratories
Bill of lading or transporter tracking number (if applicable)

5.3.1 Sample Labels or Tags

After sample collection in the field, the exterior of the sample containers will be decontaminated if gross contamination is present. The sample containers will be handled with gloves until decontaminated with a water rinse and wiped dry. Care will be taken to avoid damaging any temporary labeling during decontamination. After decontamination, permanent labels will be placed on clean sample container exteriors. All samples shall be uniquely identified, labeled, and documented in the field at the time of collection. Custody seals will be brought to the site for the shipping coolers. The sample labels and custody seals will be supplied by the specific laboratory tasked to complete each particular analysis.

5.3.2 Chain-of-Custody Records

A sample chain-of-custody form in Addendum B shall be completed with information pertinent to the samples collected at the time of sampling. This form will accompany the samples when submitted to the specific laboratory.

5.3.3 Receipt for Sample Forms

Upon receipt of the samples by the laboratory, the laboratory shall sign the chain-of-custody form indicating the time and date of receipt of the samples. The laboratory shall also record the condition of the cooler as well as the sample jars at the time of receipt. This record shall be supplied to USACE-NOD along with the analytical results in the final report for the site.

6.0 SAMPLE PACKAGING AND SHIPPING

The sample containers will be well cushioned with packing materials when they are placed in the insulated cooling chests for transportation to the laboratory. Care will be taken to seal bottle caps tightly and the sample jars will be placed in zip lock plastic bags. Samples should be maintained at 4 degrees C.

All sample containers shall be sealed in a manner that shall prevent or detect tampering if it occurs. In no case shall tape be used to seal sample containers. Samples shall be shipped along with the chain-of-custody, to the laboratory within 24 hours of sample collection.

7.0 INVESTIGATIVE-DERIVED WASTES

Waste may be classified as non-investigative waste or investigative derived waste. Non-investigative waste, such as litter and household garbage, shall be collected on an as-needed basis to maintain the site in a clean and orderly manner. This waste shall be containerized and transported to the designated sanitary landfill or collection bin. Acceptable containers shall be sealed boxes or plastic garbage bags.

Investigation derived waste shall be properly containerized and temporarily stored at each site prior to disposal. Depending on the constituents of concern, fencing or other special marking may be required. The number of containers shall be estimated on an as-needed basis. Acceptable containers shall be sealed U.S. Department of Transportation (DOT) -approved steel 55-gallon drums or small dumping bins with lids. The containers shall be transported in such a manner to prevent spillage or particulate loss to the atmosphere.

To facilitate handling, the containers shall be no more than half full when moved. The investigative derived waste shall be segregated at the site according to matrix (solid or liquid) and as to how it was derived (excavation, decontamination fluids, etc.). Each container shall be properly labeled with site identification, sampling point, depth, matrix, constituents of concern, and other pertinent information for handling.

Following the above guidelines, the waste materials generated during the sampling of the sediments along the IHNC will be managed to control potential releases of contaminated materials.

8.0 PROJECT SCHEDULE

The Contractor will provide a schedule of the various project task including preparation of plans, field sampling, laboratory analysis, preparation of the IHNC Data Gap Report as well as meetings with the USACE-NOD.

9.0 REFERENCES

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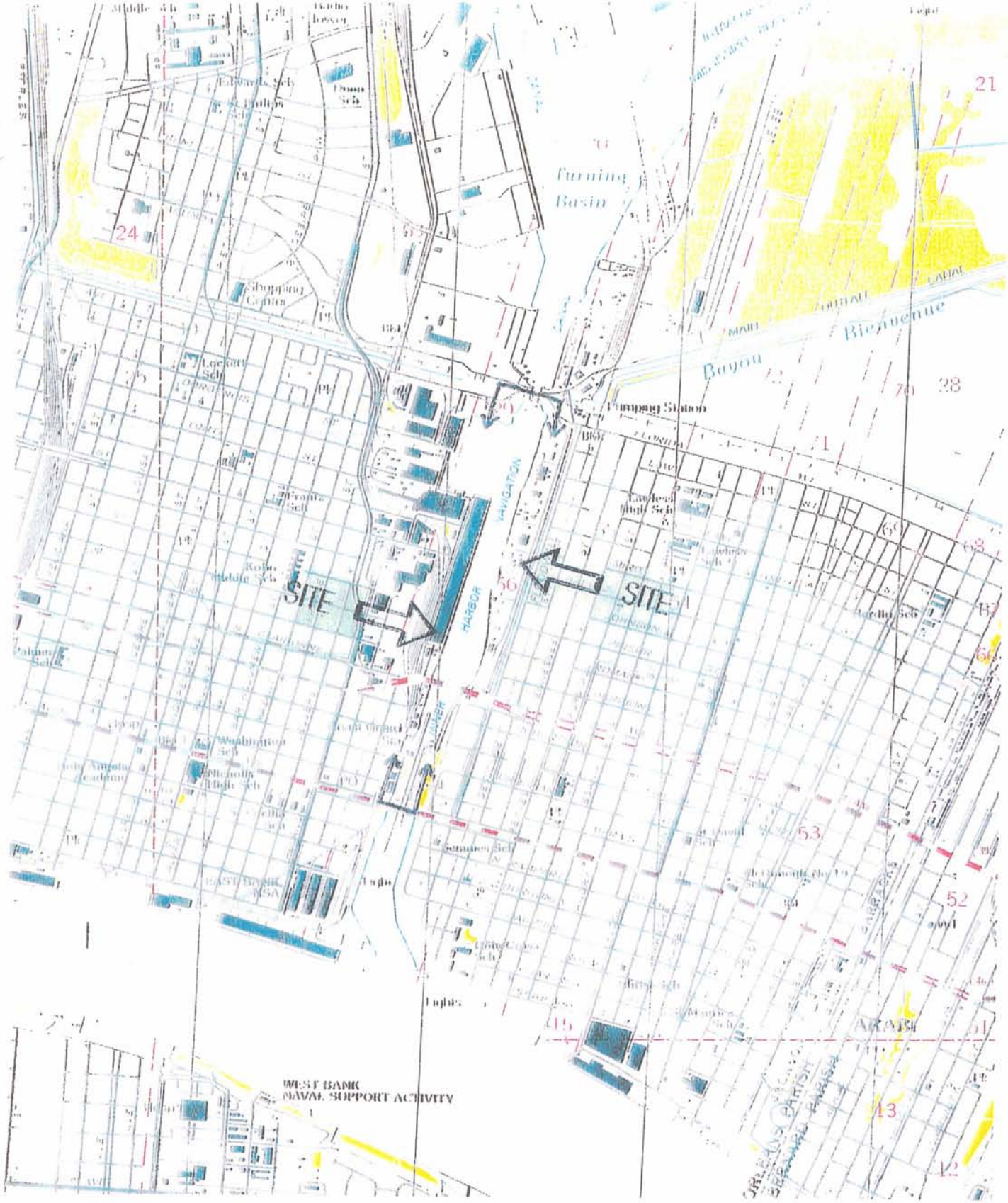


Adapted from U.S. Geological Survey
NEW ORLEANS EAST
QUADRANGLE
7.5 Minute Series (Topographic)
1992

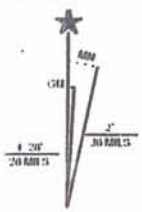
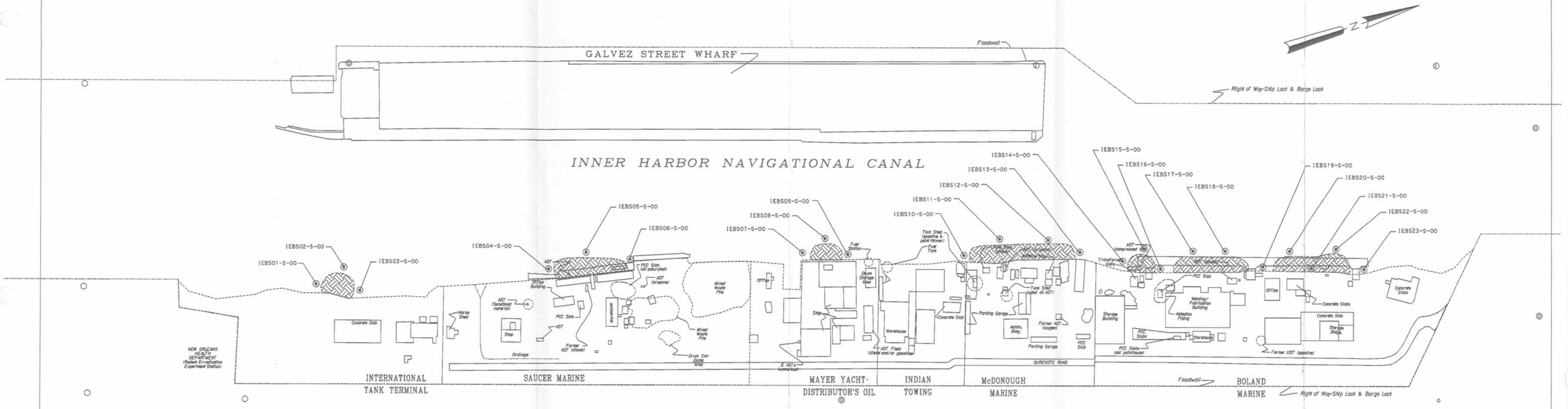


Figure 1
SITE LOCATION MAP

Inner Harbor Navigation Canal
New Orleans, Louisiana

Scale: 1:24 000
Contour Interval: 10'

DAMES & MOORE



LEGEND

PCC - Portland Cement Concrete

▨ - Potential area exceeding RECAPSMO-1 standards

IEBS01-S-00 -Plume Delineation Sampling Point

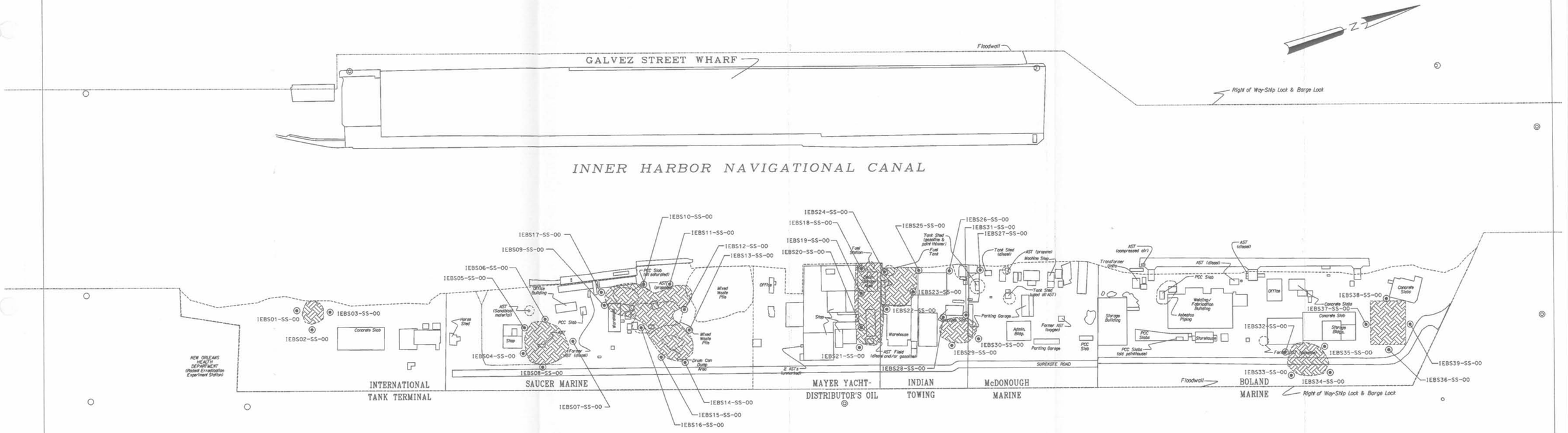
NOTE: Concentrations shown in milligrams/kilogram (mg/Kg)

100 50 0 100 200 300 400

Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 2
AREAS OF IMPACT-SEDIMENT
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA



LEGEND

PCC - Portland Cement Concrete

- Potential area exceeding RECAPSMO-1 standards

IEBS01-SS-00 - Plume Delineation Sampling Point

NOTE: Concentrations shown in milligrams/kilogram (mg/Kg)

100 50 0 100 200 300 400

Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 3
AREAS OF IMPACT-SOIL
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

APPENDIX C

TABLES

APPENDIX D

FIGURES